

ROOTS® RAM™ DPJ WHISPAIR™, frames 406DPJ

RAM™ DPJ WHISPAIR™ High-Pressure Blowers



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Design and Construction Features

- Single stage operation to 30 psig
- No valves, vanes or teflon rings to wear
- Alloy steel timing gears
- Cylindrical roller bearings
- Piston ring air seals
- Lip-type oil seals, optional mechanical seal
- Splash oil lubrication
- Horizontal & vertical configurations available

RAM™ stands for Reliability, Availability and Maintainability. Today, more than ever, ROOTS® is committed to supplying our customers with reliable products manufactured with state-of-the-art CNC machine tools. Production and inventory are being scheduled and controlled to ensure these units will be available when you need them. Design improvements such as repositionable rugged steel mounting feet and die-cast aluminum drive end covers and gear covers help to reduce installation costs and make normal maintenance easier.

Basic dry vacuum pump description

The ROOTS RAM DPJ WHISPAIR rotary blower has an exclusive discharge jet plenum design which allows cool, pressurized system air to flow into the cylinder. This unique design permits operation at high pressure levels with a single stage unit.

The RAM high pressure blower is designed for continuous operation at discharge pressures up to 30 psig. It has no valves, vanes or Teflon rings.

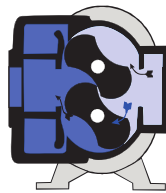
The basic model is designed using integral-shaft ductile iron impellers with an involute profile. The casing and headplates are grey iron, while the drive and cover and gear cover are die cast aluminum. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Cylindrical roller bearing are splash lubricated at both the gear end and drive end.

Piston rings reduce air leakage through the headplate bores and lip-type oil seals prevent lubricants from entering the air chamber. Mechanical seals are available upon request.

Warranty period

Twelve (12) months from date of original unit start-up or 18 months from date of original shipment, whichever occurs first.

Operating principle



Position 1

Incoming air is trapped between the impellers. Simultaneously, pressurized air is being discharged.



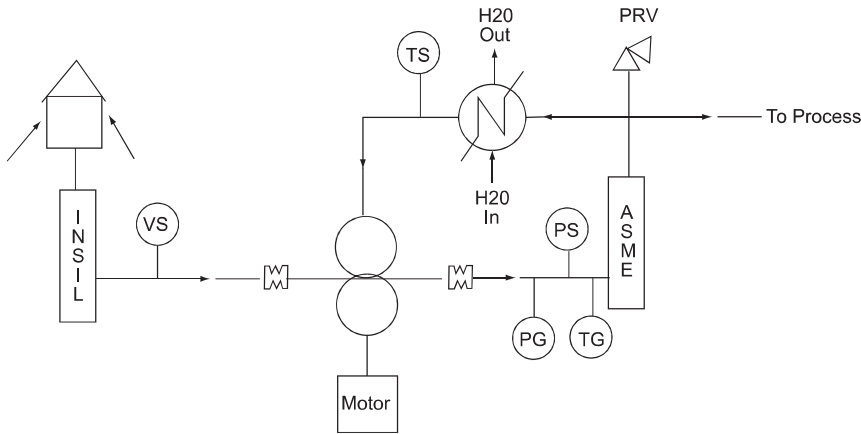
Position 2

As the upper impeller passes the jet plenum, cooled, pressurized air flows into the space between the impeller and cylinder. This cools the trapped air, helps control thermal growth and allows higher discharge pressures.



Position 3

The trapped air is then moved into the discharge flange (left). Backflow is reduced, resulting in lower operating noise level and reduced shock loading on the impellers.



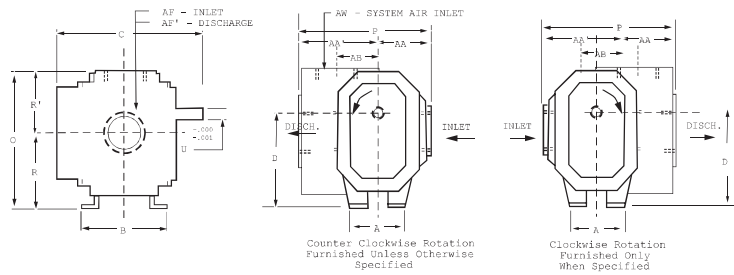
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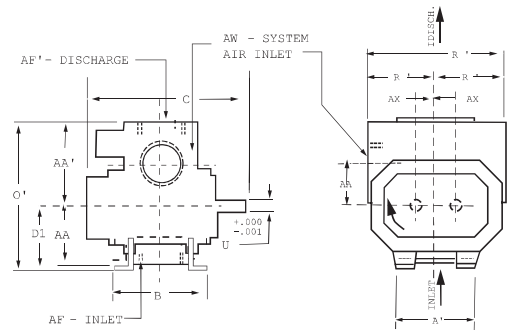
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Vertical configuration



Horizontal configuration



Dimensional table

| Frame Size | A | A1 | B | C | Drive Shaft Location | | O | O1 | P | P1 | R | U | Keyway | AA | AA1 | AB | AF | AF1 | AW | AX | WGT. |
|----------------|------|----|-------|------|----------------------|-----|-------|----|-------|-------|---|-----|-------------|------|-------|------|-------|-------|-------|------|------|
| | | | | | D | D1 | | | | | | | | | | | | | | | |
| 406 DPJ | 8.00 | 11 | 10.75 | 20.5 | 11.25 | 7.5 | 16.38 | 18 | 17.75 | 14.75 | 9 | 1.5 | .375 x .188 | 7.25 | 15.25 | 10.5 | 4 NPT | 5 NPT | 4 NPT | 2.25 | 365 |

Notes: 1. All dimensions are in inches. 2. Weights are in pounds, and are approximate.

Performance table

| Frame Size | Speed RPM | 15 PSI | | 20 PSI | | 25 PSI | | 30 PSI | |
|----------------|-----------|--------|-----|--------|-----|--------|-----|--------|-----|
| | | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP |
| 406 DPJ | 4000 | 518 | 47 | 494 | 62 | 474 | 76 | 455 | 91 |
| | 3070 | 362 | 35 | 339 | 46 | 319 | 57 | 300 | 69 |
| | 2320 | 237 | 26 | 214 | 35 | 193 | 43 | 175 | 51 |
| | 1750 | 142 | 19 | 119 | 26 | 98 | 32 | 80 | 39 |

Notes: Ratings based on inlet air at standard pressure of 14.7 psia, standard temperature of 68°F, and specific gravity of 1.0