

PV Series

- Single or double vane rotary actuator
- 8 model sizes
- Output torque @ 100 PSIG: 8 to 1800 lb-in
- Standard rotations:
 - Single vane units: $280^\circ \pm 1^\circ$
(except size 10 & 11: $275^\circ \pm 2.5^\circ$)
 - Double vane units: $100^\circ \pm 1^\circ$
(except size 10 & 11: $95^\circ \pm 2.5^\circ$)
- Available with stroke adjusters and internal stops to provide 90° and 180° rotation
- Stainless steel shaft
- Optional radial ball bushing shaft bearing



Operating information

| | |
|--------------------------|---|
| Operating pressure: | 150 PSIG (10.3 bar) |
| Temperature range: † | |
| Nitrile seals | 30°F to 180°F (-1°C to 82°C) |
| Fluorocarbon seals* | 30°F to 250°F (-1°C to 121°C) |
| | * See fluorocarbon seal option for high temperature applications. |
| | † Low temperature version, please consult factory. |
| Filtration requirements: | 40 micron, dry filtered air |

Ordering information

PV 22 D - 090BS - B B 2 V - B

| Model | | | |
|-------|----|----|----|
| 10 | 22 | 33 | 42 |
| 11 | | 36 | 44 |
| | | | 46 |

| Vanes / maximum rotation | |
|--------------------------|---|
| Omit | Single Vane, 280° Rotation (275° on PV10, PV11) |
| D | Double Vane, 100° Rotation (95° on PV10, PV11) |

| Rotation Options (may order more than one) | |
|---|---|
| Omit | Standard Units (no stroke adjusters, bumpers or switches) |
| 090A | Stroke Adjusters adjustable from 60° to maximum unit rotation (preadjusted to 90°) |
| 180A | Stroke Adjusters (single vane only) adjustable from 60° to 190° (preadjusted to 180°) |
| 090B | Internal bumpers, 90° rotation ⁴ |
| 180B | Internal bumpers, 180° rotation (single vane only) |
| 090S | Magnets ¹ added, 90° setting |
| 180S | Magnets ¹ added, 180° setting (single vane only) |

1. Switches can be used with stroke adjusters or bumpers (example: PV22D-090BS-BB2-B).
 2. Not available with switches or stroke adjusters.
 3. No tapped mounting holes in face opposite the flange.
 4. 90° bumpers (090B) not available on PV10/11 sizes.

Note:
 Order Hall effect sensors and reed switches separately from the Electronic Sensors section.

| Special options | |
|---|----------|
| Omit | Standard |
| Two digit code assigned by factory when any "X" appears in the model number or when special options or features are required. | |

| Design series | |
|---------------|-----------------------|
| B | Current design series |

| Options | |
|---------|----------------------|
| Omit | None |
| L | Radial ball bushings |
| V | Fluorocarbon seals |

| Ports | |
|-------|---|
| 2 | NPTF Top (Std) (10-32 on PV10 & PV11) |
| 7 | NPTF Rear ² (10-32 on PV10 & PV11) |

| Shaft | |
|-------|------------------------------------|
| B | Single male keyed (Std) |
| C | Double end male keyed ² |

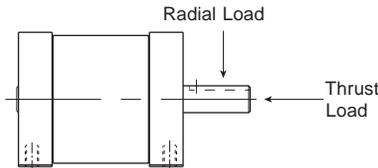
| Mounting | |
|----------|-------------------------------|
| B | Base / Front (Std) |
| R | Rear Flange ^{2, 3} |
| F | Front Flange |
| S | Base / Rear Face ² |

| Sensors | |
|----------------------------|--|
| For sensors see page B339. | |

B
 Rotary Actuators
 Actuator Products
 PV Series
 PRN(A) Series
 PTR Series
 HP Series
 P1V-S Series

Quick reference data

| Model number | Maximum rotation (Degrees) | Actual output torque (lb-in) at specified input pressure (PSI) | | | Displacement (in³) | Maximum breakaway pressure (PSI) | Maximum bypass leakage @100 psi (CFM) | Unit weight (lb) |
|--------------|----------------------------|--|------|------|--------------------|----------------------------------|---------------------------------------|------------------|
| | | 50 | 75 | 100 | | | | |
| 10 | 275° | 4 | 6 | 8 | 0.52 | 25 | 0.15 | 0.38 |
| 10D | 95° | 8 | 12 | 16 | 0.37 | 20 | 0.20 | 0.38 |
| 11 | 275° | 8 | 12 | 16 | 1.04 | 20 | 0.15 | 0.50 |
| 11D | 95° | 17 | 25 | 33 | 0.74 | 15 | 0.20 | 0.50 |
| 22 | 280° | 32 | 48 | 64 | 3.67 | 15 | 0.20 | 0.50 |
| 22D | 100° | 68 | 101 | 135 | 2.62 | 10 | 0.25 | 1.75 |
| 33 | 280° | 75 | 112 | 150 | 8.70 | 15 | 0.20 | 3.44 |
| 33D | 100° | 155 | 235 | 315 | 6.20 | 10 | 0.25 | 3.56 |
| 36 | 280° | 150 | 220 | 300 | 17.40 | 15 | 0.20 | 5.19 |
| 36D | 100° | 315 | 470 | 630 | 12.40 | 10 | 0.25 | 5.50 |
| 42 | 280° | 140 | 210 | 285 | 17.80 | 15 | 0.20 | 7.13 |
| 42D | 100° | 300 | 450 | 600 | 14.58 | 10 | 0.25 | 7.50 |
| 44 | 280° | 285 | 425 | 570 | 35.61 | 15 | 0.20 | 8.81 |
| 44D | 100° | 600 | 900 | 1200 | 29.17 | 10 | 0.25 | 9.38 |
| 46 | 280° | 425 | 640 | 850 | 53.41 | 15 | 0.20 | 10.50 |
| 46D | 100° | 900 | 1350 | 1800 | 43.75 | 10 | 0.25 | 10.75 |



Kinetic energy ratings and bearing load capacities

| Model number | Composite bushing load capacities (lb)* | | Radial ball bushing load capacities (lb)* | | Distance between centerline bearings | Maximum kinetic energy rating for models based on configuration (in-lb) | | |
|--------------|---|--------|---|--------|--------------------------------------|---|------------------|---------|
| | Radial | Thrust | Radial | Thrust | | Standard | Stroke adjusters | Bumpers |
| 10 | 15 | 7 | 50 | 15 | 0.88 | 0.03 | 0.12 | 0.05 |
| 11 | 15 | 7 | 50 | 15 | 1.50 | 0.06 | 0.12 | 0.09 |
| 22 | 50 | 25 | Consult factory | | 2.38 | 0.25 | 0.50 | 0.38 |
| 33 | 100 | 50 | Consult factory | | 3.50 | 0.75 | 1.50 | 1.13 |
| 36 | 100 | 50 | Consult factory | | 6.50 | 1.00 | 1.50 | 1.50 |
| 42 | 200 | 75 | Consult factory | | 2.75 | 2.00 | 4.00 | 3.00 |
| 44 | 200 | 75 | Consult factory | | 4.75 | 2.50 | 4.00 | 3.75 |
| 46 | 200 | 75 | Consult factory | | 6.75 | 3.00 | 4.00 | 4.75 |

* Bearing capacities only. Check Kinetic Energy ratings to determine if actuator will stop load.

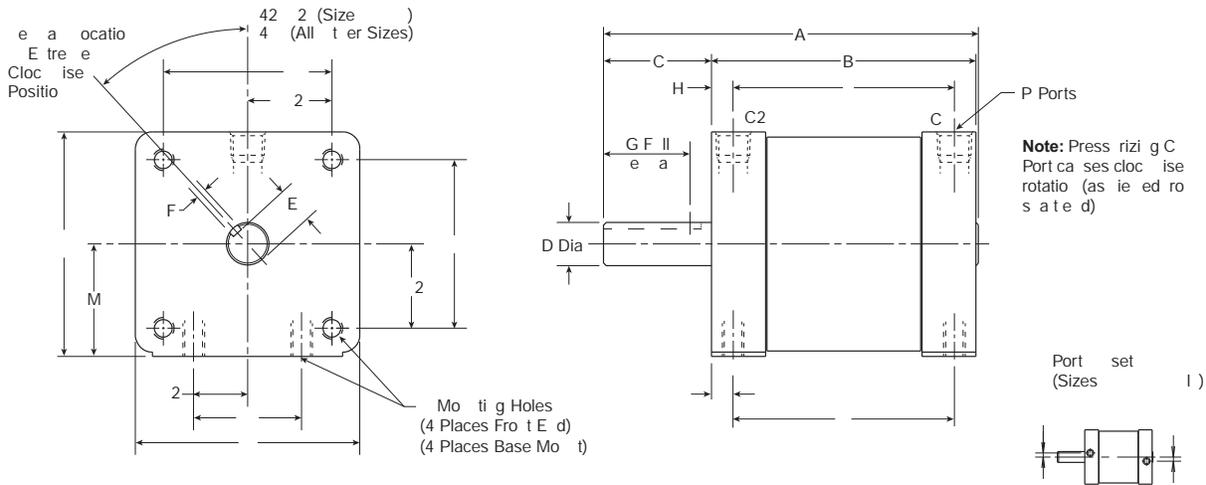
Seal kit ordering information

| | | |
|---------------------|--------------------|----------------|
| PSK | PV22D | V |
| Series | Model number | Material |
| PSK Parker seal kit | PV22D Model number | Omit Nitrile |
| | | V Fluorocarbon |

Seal kit installation tool

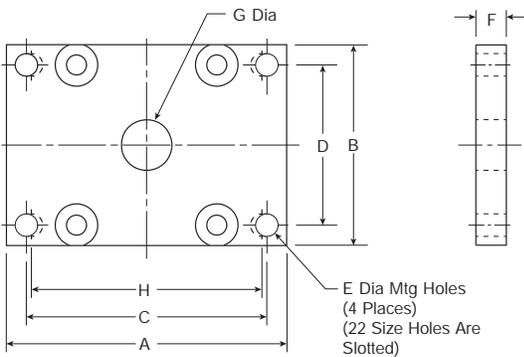
| Model (S) | Items | Seal guide kit number |
|---------------|--------|-----------------------|
| PV10 & 11 (D) | 21, 22 | ATS-PV1 |
| PV22 (D) | 21, 22 | ATS-PV2 |
| PV33 & 36 (D) | 21, 22 | ATS-PV3 |

Standard Face/Base Mount (B) and Male Keyed Shaft (B)



| Model number | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | R |
|--------------|--------|------|------|----------------|----------------|----------------|------|------|------|------|-------|------|-------|-------|-------|----------|------------------------|
| 10 | 2.280 | 1.38 | 0.88 | 0.312 0.311 | 0.258 0.253 | 0.094 0.095 | 0.63 | 0.19 | 1.00 | 0.19 | 1.000 | 1.62 | 0.810 | 1.220 | 0.750 | 10-32 | 8-32 x 0.25 DP |
| 11 | 2.905 | 2.00 | 0.88 | 0.312 0.311 | 0.258 0.253 | 0.094 0.095 | 0.63 | 0.19 | 1.63 | 0.19 | 1.625 | 1.62 | 0.810 | 1.220 | 0.750 | 10-32 | 8-32 x 0.25 DP |
| 22 | 4.340 | 3.06 | 1.25 | 0.500 0.499 | 0.423 0.418 | 0.125 0.126 | 0.94 | 0.25 | 2.56 | 0.25 | 2.560 | 2.50 | 1.250 | 2.000 | 1.250 | 1/8 NPTF | 1/4-20NC x 0.38 DP |
| 33 | 6.180 | 4.40 | 1.75 | 0.749 0.748 | 0.644 0.639 | 0.188 0.189 | 1.38 | 0.35 | 3.70 | 0.26 | 3.875 | 3.00 | 1.500 | 2.436 | 1.500 | 1/4 NPTF | 5/16-18NC x 0.47 DP |
| 36 | 9.180 | 7.40 | 1.75 | 0.749 0.748 | 0.644 0.639 | 0.188 0.189 | 1.38 | 0.35 | 6.70 | 0.26 | 6.875 | 3.00 | 1.500 | 2.436 | 1.500 | 1/4 NPTF | 5/16-18NC x 0.47 DP |
| 42 | 6.280 | 4.00 | 2.25 | 0.999 0.998 | 0.859 0.854 | 0.250 0.251 | 2.00 | 0.50 | 3.00 | 0.50 | 3.000 | 4.50 | 2.250 | 3.500 | 2.375 | 1/4 NPTF | 3/8-16NC x 0.75 DP |
| 44 | 8.280 | 6.00 | 2.25 | 0.999 0.998 | 0.859 0.854 | 0.250 0.251 | 2.00 | 0.50 | 5.00 | 0.50 | 5.000 | 4.50 | 2.250 | 3.500 | 2.375 | 1/4 NPTF | 3/8-16NC x 0.75 DP |
| 46 | 10.280 | 8.00 | 2.25 | 0.999 0.998 | 0.859 0.854 | 0.250 0.251 | 2.00 | 0.50 | 7.00 | 0.50 | 7.000 | 4.50 | 2.250 | 3.500 | 2.375 | 1/4 NPTF | 3/8-16NC x 0.75 DP |

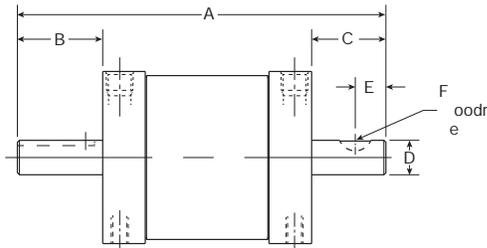
Flange Mount (F, R)*



| Model number | A | B | C | D | E | F | G | H |
|--------------|------|------|-------|-------|-------|------|------|-------|
| 10 | 2.50 | 1.62 | 2.000 | 1.250 | 0.203 | 0.19 | 0.41 | N/A |
| 11 | 2.50 | 1.62 | 2.000 | 1.250 | 0.203 | 0.19 | 0.41 | N/A |
| 22 | 3.50 | 2.50 | 3.000 | 2.000 | 0.281 | 0.25 | 0.66 | 2.875 |
| 33 | 4.50 | 3.00 | 3.750 | 2.000 | 0.344 | 0.38 | 0.84 | N/A |
| 36 | 4.50 | 3.00 | 3.750 | 2.000 | 0.344 | 0.38 | 0.84 | N/A |
| 42 | 7.32 | 4.51 | 5.905 | 2.953 | 0.551 | 0.63 | 1.61 | N/A |
| 44 | 7.32 | 4.51 | 5.905 | 2.953 | 0.551 | 0.63 | 1.61 | N/A |
| 46 | 7.32 | 4.51 | 5.905 | 2.953 | 0.551 | 0.63 | 1.61 | N/A |

Note: The face opposite the flange mount does not contain tapped mounting holes. Consult factory if needed.

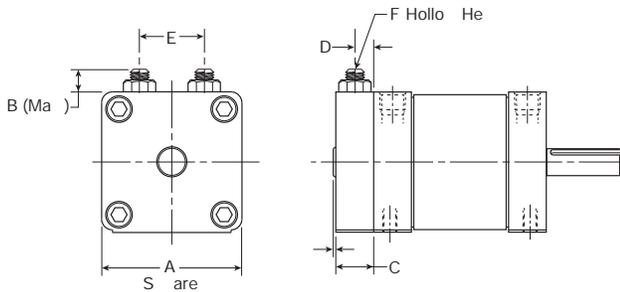
Double End Male Keyed Shaft (C)



| Model number | A | B | C | D | E | F |
|--------------|-------|------|------|----------------|------|--------|
| 10 | 2.75 | 0.88 | 0.50 | 0.312 0.311 | 0.28 | #302.5 |
| 11 | 3.38 | 0.88 | 0.50 | 0.312 0.311 | 0.28 | #302.5 |
| 22 | 5.06 | 1.25 | 0.75 | 0.500 0.499 | 0.44 | #404 |
| 33 | 7.15 | 1.75 | 1.00 | 0.749 0.748 | 0.56 | #606 |
| 36 | 10.15 | 1.75 | 1.00 | 0.749 0.748 | 0.56 | #606 |
| 42 | 7.53 | 2.25 | 1.28 | 0.999 0.998 | 0.72 | #808 |
| 44 | 9.53 | 2.25 | 1.28 | 0.999 0.998 | 0.72 | #808 |
| 46 | 11.53 | 2.25 | 1.28 | 0.999 0.998 | 0.72 | #808 |

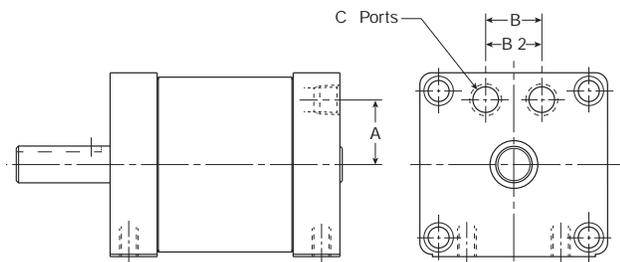
Note: Not available with switches or stroke adjustment. Consult factory for rear port option.

Adjustable Rotation Stop (090A, 180A)



| Model number | A | B | C | D | E | F |
|--------------|------|------|------|------|------|------|
| 10 | 1.62 | 0.63 | 0.47 | 0.24 | 0.75 | 3/32 |
| 11 | 1.62 | 0.63 | 0.47 | 0.24 | 0.75 | 3/32 |
| 22 | 2.50 | 1.00 | 0.72 | 0.36 | 1.25 | 5/32 |
| 33 | 3.00 | 1.16 | 0.97 | 0.48 | 1.56 | 3/16 |
| 36 | 3.00 | 1.16 | 0.97 | 0.48 | 1.56 | 3/16 |
| 42 | 4.50 | 1.38 | 1.25 | 0.56 | 2.25 | 7/32 |
| 44 | 4.50 | 1.38 | 1.25 | 0.56 | 2.25 | 7/32 |
| 46 | 4.50 | 1.38 | 1.25 | 0.56 | 2.25 | 7/32 |

Rear Port (7)



| Model number | A | B | C |
|--------------|------|------|----------|
| 10 | 0.54 | 0.50 | 10-32 |
| 11 | 0.54 | 0.50 | 10-32 |
| 22 | 0.88 | 0.75 | 1/8 NPTF |
| 33 | 1.09 | 0.90 | 1/8 NPTF |
| 36 | 1.09 | 0.90 | 1/8 NPTF |
| 42 | 1.68 | 1.00 | 1/4 NPTF |
| 44 | 1.68 | 1.00 | 1/4 NPTF |
| 46 | 1.68 | 1.00 | 1/4 NPTF |

B
 Rotary Actuators
 Actuator Products
 PV
 Series
 PRN(A)
 Series
 PTR
 Series
 HP
 Series
 P1V-S
 Series

PRN Series

- Single or double vane rotary actuator
- 3 standard rotations: 90°, 180°, or 270°
- Output torque @ 0.7 MPa:
 16 to 1120 N•cm (1.4 to 99 in-lb)
- Internal bumpers are standard
- Shock absorbers are available for high inertia loads



Operating information

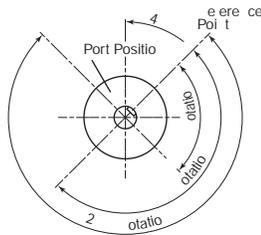
| | |
|--------------------------|-------------------------------|
| Operating pressure: | 100 PSIG (6.9 bar) |
| Temperature range: | -5°C to 80°C (-23°F to 176°F) |
| Filtration requirements: | 40 micron, dry filtered air |

Ordering information

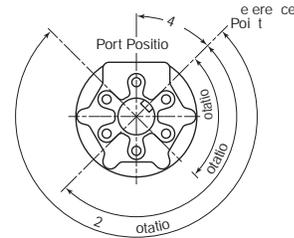
| PRNA | 20 | S - 90 - 90 S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|----------------------|------|------------|---|--------------|---|------|------------------------------------|-----|--|-----|---|---|--|------------------------------|--|----|-----|----|-----|-----|-----|-----|--|-----|--|--|------|--|---|-------------|---|-------------|--|---------|--|------|------------------|---|--------------------------------|
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Type</th></tr> <tr><td>PRNA</td><td>Sizes 1-20</td></tr> <tr><td>PRN</td><td>Sizes 30-800</td></tr> </table> | Type | | PRNA | Sizes 1-20 | PRN | Sizes 30-800 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Size</th></tr> <tr><td>1</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>10</td><td></td></tr> <tr><td>20</td><td></td></tr> <tr><td>30</td><td></td></tr> <tr><td>50</td><td></td></tr> <tr><td>150</td><td></td></tr> <tr><td>300</td><td></td></tr> <tr><td>800</td><td></td></tr> </table> | Size | | 1 | | 3 | | 10 | | 20 | | 30 | | 50 | | 150 | | 300 | | 800 | | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Type</th></tr> <tr><td>S</td><td>Single vane</td></tr> <tr><td>D</td><td>Double vane</td></tr> </table> | Type | | S | Single vane | D | Double vane | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Porting</th></tr> <tr><td>Omit</td><td>Standard porting</td></tr> <tr><td>S</td><td>Rear porting (sizes 3-20 only)</td></tr> </table> | Porting | | Omit | Standard porting | S | Rear porting (sizes 3-20 only) |
| Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRNA | Sizes 1-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRN | Sizes 30-800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | Single vane | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Double vane | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Porting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Omit | Standard porting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | Rear porting (sizes 3-20 only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Rotation angle</th></tr> <tr><td>90</td><td>90° (all sizes, single and double vane)</td></tr> <tr><td>100</td><td>100° (sizes 50 through 800, double vane only)</td></tr> <tr><td>180</td><td>180° (all sizes, single vane only)</td></tr> <tr><td>270</td><td>270° (single vane only, not available on size 1)</td></tr> <tr><td>280</td><td>280° (sizes 50 through 800, single vane only)</td></tr> </table> | | Rotation angle | | 90 | 90° (all sizes, single and double vane) | 100 | 100° (sizes 50 through 800, double vane only) | 180 | 180° (all sizes, single vane only) | 270 | 270° (single vane only, not available on size 1) | 280 | 280° (sizes 50 through 800, single vane only) | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Oscillating reference point*</th></tr> <tr><td>40</td><td>40°</td></tr> <tr><td>45</td><td>45°</td></tr> <tr><td>90</td><td>90°</td></tr> </table> <p>* See specification tables for availability of rotation angle/reference point combinations for the selected model.</p> | | Oscillating reference point* | | 40 | 40° | 45 | 45° | 90 | 90° | | | | | | | | | | | | | | | | | | |
| Rotation angle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 90° (all sizes, single and double vane) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 100° (sizes 50 through 800, double vane only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180 | 180° (all sizes, single vane only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270 | 270° (single vane only, not available on size 1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 280 | 280° (sizes 50 through 800, single vane only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oscillating reference point* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 40° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 45° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 90° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Sensors For sensors see page B339. </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Reference point and rotation orientations

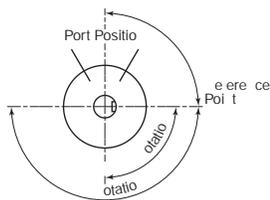
PRNA1S/D, PRNA3S/D, PRNA10S/D, PRNA20S/D, PRN30S/D
 Reference point at 45°



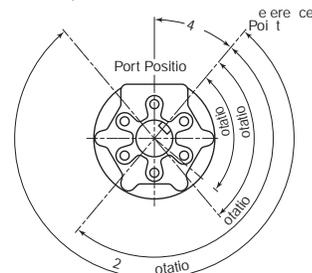
PRN50, 150, 300, 800
 Reference point at 45°



PRN1AS, PRNA3S, PRNA10S, PRNA20S
 Reference point at 90°



PRN50, 150, 300, 800
 Reference point at 40°



Quick reference data – PRNA miniature

| Type | Model number | Theoretical output torque | | | | | | | | Maximum breakaway pressure | | Unit weight | |
|-------------|--------------|---------------------------|---------|------------------|---------|-------------------|---------|-------------------|---------|----------------------------|------|-------------|--------|
| | | 0.3 MPa (45 PSI) | | 0.5 MPa (75 PSI) | | 0.7 MPa (100 PSI) | | 1.0 MPa (145 PSI) | | MPa | PSI | kg | lb |
| | | Ncm | (in-lb) | Ncm | (in-lb) | Ncm | (in-lb) | Ncm | (in-lb) | | | | |
| Single vane | PRNA1S | 8 | (0.7) | 13 | (1.2) | 19 | (1.6) | — | — | 0.08 | (12) | 0.04 | (0.08) |
| | PRNA3S | 17 | (1.5) | 31 | (3) | 45 | (4.0) | — | — | 0.10 | (15) | 0.07 | (0.15) |
| | PRNA10S | 46 | (4.1) | 86 | (7.6) | 127 | (11) | — | — | 0.10 | (15) | 0.14 | (0.31) |
| | PRNA20S | 80 | (7.1) | 159 | (14) | 240 | (21) | 350 | (31) | 0.10 | (15) | 0.25 | (0.55) |
| Double vane | PRNA1D | 17 | (1.5) | 28 | (2.5) | 41 | (3.6) | — | — | 0.10 | (15) | 0.04 | (0.09) |
| | PRNA3D | 32 | (2.9) | 54 | (4.8) | 76 | (6.7) | — | — | 0.07 | (10) | 0.07 | (0.16) |
| | PRNA10D | 101 | (8.9) | 168 | (15) | 235 | (21) | — | — | 0.07 | (10) | 0.15 | (0.33) |
| | PRNA20D | 165 | (15) | 330 | (29) | 530 | (47) | 800 | (71) | 0.06 | (9) | 0.26 | (0.57) |

Quick reference data – PRN

| Type | Model number | Theoretical output torque | | | | | | | | Maximum breakaway pressure | | Unit weight | |
|-------------|--------------|---------------------------|---------|------------------|---------|-------------------|---------|-------------------|---------|----------------------------|------|-------------|--------|
| | | 0.3 MPa (45 PSI) | | 0.5 MPa (75 PSI) | | 0.7 MPa (100 PSI) | | 1.0 MPa (145 PSI) | | MPa | PSI | kg | (lb) |
| | | Ncm | (in-lb) | Ncm | (in-lb) | Ncm | (in-lb) | Ncm | (in-lb) | | | | |
| Single vane | PRN30S | 180 | (16) | 319 | (28) | 480 | (42) | 720 | (64) | 0.10 | (15) | 0.47 | (1.04) |
| | PRN50S | 259 | (23) | 479 | (42) | 700 | (62.0) | 1060 | (94) | 0.10 | (15) | 0.8 | (1.8) |
| | PRN150S | 850 | (75) | 1500 | (133) | 2100 | (186) | 3050 | (270) | 0.08 | (12) | 2.0 | (4.4) |
| | PRN300S | 1650 | (146) | 2850 | (252) | 4050 | (358) | 5750 | (509) | 0.08 | (12) | 3.7 | (8.2) |
| | PRN800S | 5910 | (523) | 10200 | (903) | 14400 | (1274) | 20500 | (1814) | 0.05 | (7) | 13 | (28) |
| Double vane | PRN30D | 440 | (39) | 770 | (68) | 1120 | (99) | 1660 | (147) | 0.08 | (12) | 0.48 | (1.06) |
| | PRN50D | 579 | (51) | 1040 | (92.0) | 1510 | (134) | 2250 | (199) | 0.08 | (12) | 0.8 | (1.8) |
| | PRN150D | 1900 | (168) | 3500 | (310) | 4800 | (425) | 6900 | (611) | 0.06 | (9) | 2.0 | (4.4) |
| | PRN300D | 3900 | (345) | 6800 | (602) | 9700 | (858) | 1370 | (121) | 0.06 | (9) | 4.3 | (9.5) |
| | PRN800D | 12000 | (1062) | 20600 | (1823) | 28800 | (2549) | 41100 | (3637) | 0.05 | (7) | 13 | (28) |

Kinetic energy ratings and bearing load capacities – sizes 1 to 30

| Model number | Bearing load capacities | | | | Distance between centerline bearings | | Maximum kinetic energy rating | |
|--------------|-------------------------|-----|-------------|----|--------------------------------------|-----|-------------------------------|-------|
| | Thrust load | | Radial load | | mm | in | mJ | in-lb |
| | N | lb | N | lb | | | | |
| PRNA1S | 1 | 0.2 | 10 | 2 | 15 | 0.6 | 0.8 | 0.01 |
| PRNA3S | 4 | 0.9 | 40 | 9 | 20 | 0.8 | 4 | 0.03 |
| PRNA10S | 4 | 0.9 | 50 | 11 | 30 | 1.2 | 8 | 0.07 |
| PRNA20S | 25 | 5.6 | 300 | 67 | 42 | 1.7 | 40 | 0.35 |
| PRN30S | 30 | 6.7 | 400 | 90 | 48 | 1.9 | 67 | 0.60 |

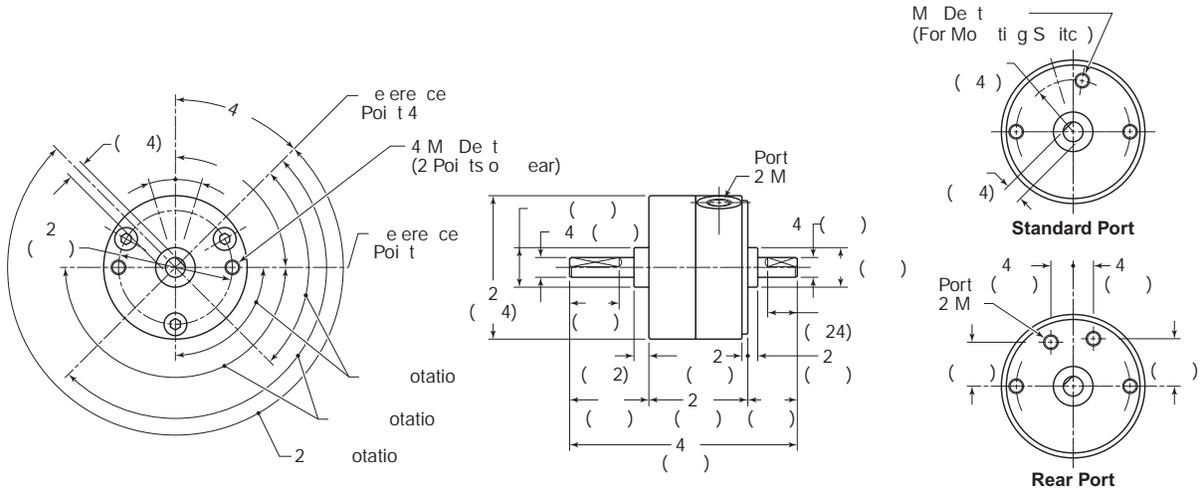
Kinetic energy ratings and bearing load capacities – sizes 50 to 800

| Model | Bearing load capacities | | | | | | Maximum kinetic energy rating | | | | | |
|-----------|-------------------------|-------|-------------|------|--------------------------------------|-----|-------------------------------|-------|----------------------------|-------|----------------------------|----------|
| | Thrust load | | Radial load | | Distance between centerline bearings | | Standard unit | | Shock absorber (per cycle) | | Shock absorber (per cycle) | |
| | N | lb | N | lb | mm | in | J | in-lb | J | in-lb | J/hr | in-lb/hr |
| PRN50S/D | 44.1 | 9.9 | 588 | 132 | 66 | 2.6 | 0.13 | 1.2 | 7.8 | 69 | 3100 | 27000 |
| PRN150S/D | 88.2 | 19.8 | 1176 | 264 | 79.5 | 3.1 | 0.6 | 5.3 | 10 | 231 | 11300 | 100000 |
| PRN300S/D | 147 | 33.0 | 1960 | 441 | 97.5 | 3.8 | 8.0 | 70 | 20 | 462 | 22000 | 194000 |
| PRN800S/D | 490 | 110.2 | 4900 | 1102 | 138.5 | 5.5 | 10.5 | 92 | 156 | 1387 | 56500 | 500000 |

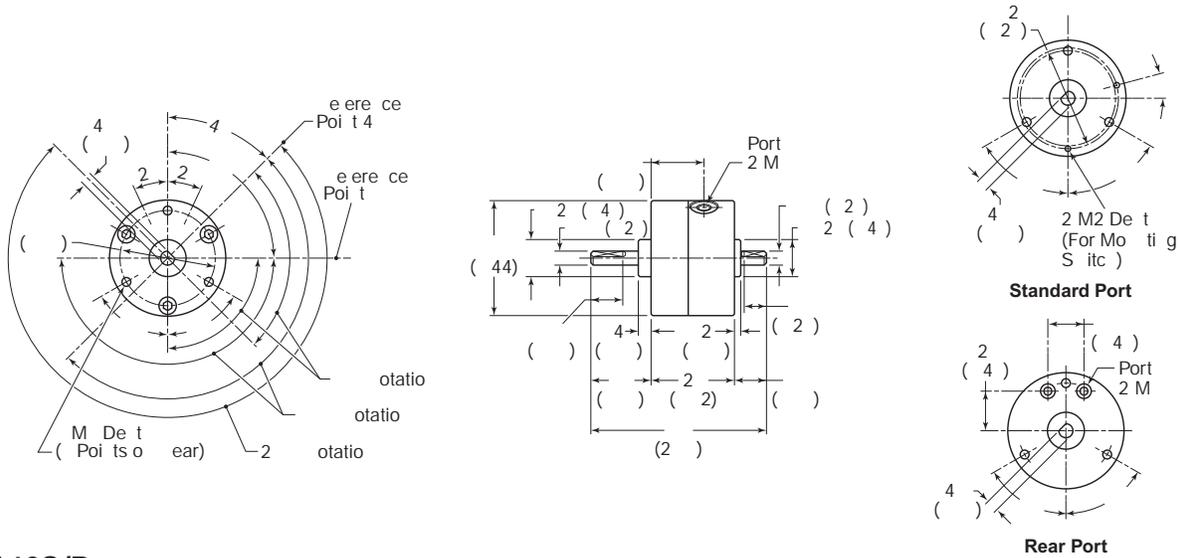


B
 Rotary Actuators
 Actuator Products
 Series
 PV
 Series
 PRN(A)
 Series
 PTR
 Series
 HP
 Series
 P1V-S
 Series

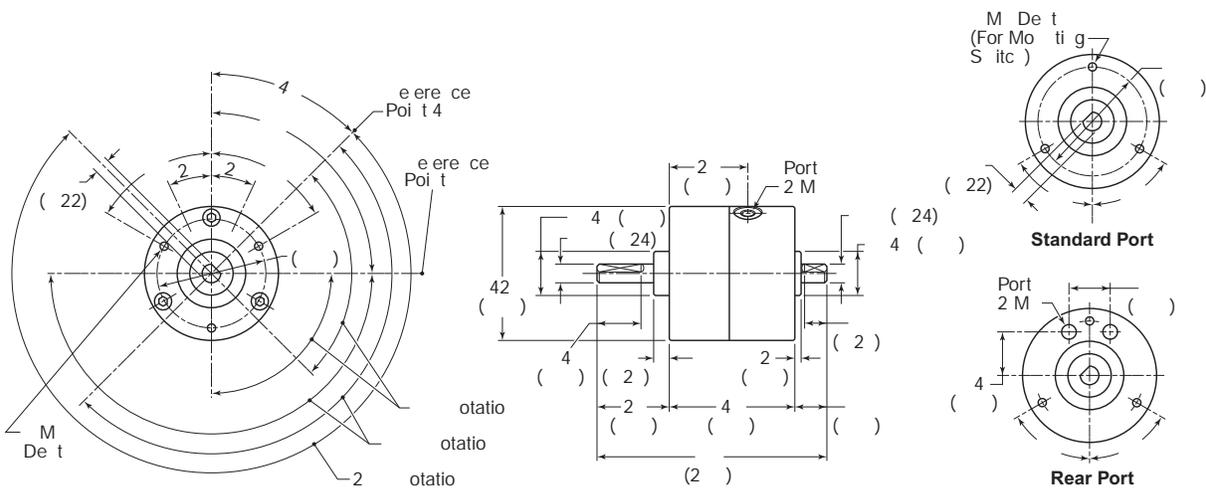
PRNA1S



PRNA3S/D



PRNA10S/D

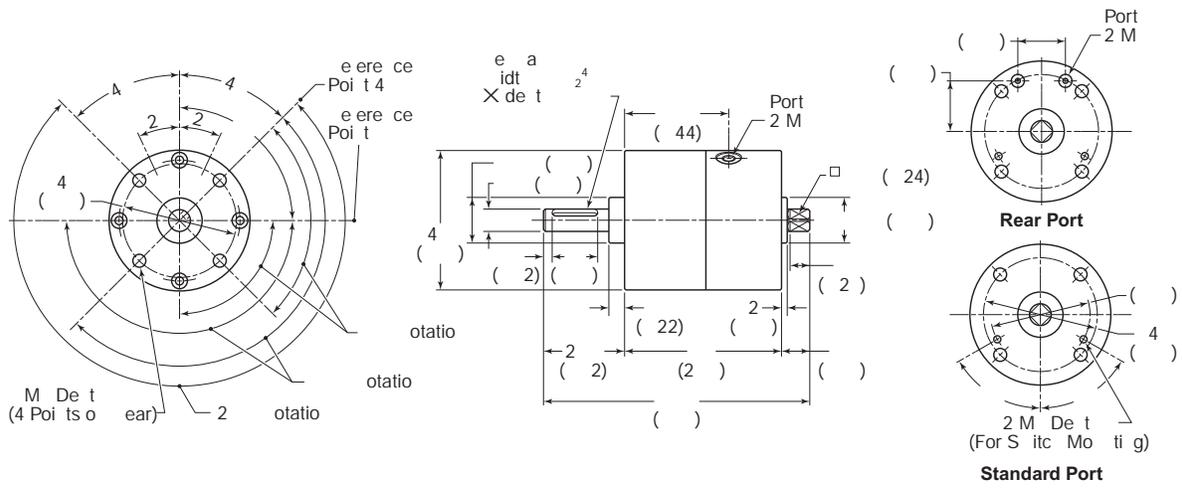


Dimensions in mm (inch)

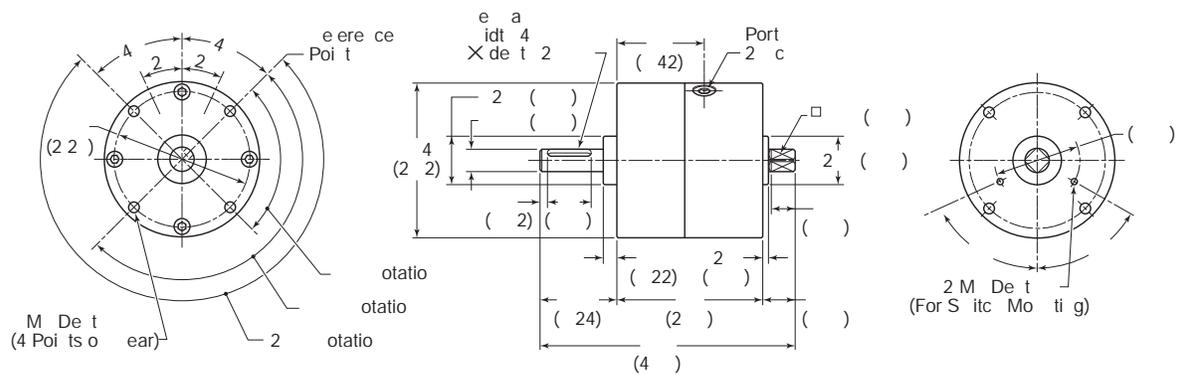
| | |
|---------------|-------------------|
| B | Rotary Actuators |
| | Actuator Products |
| PV Series | |
| PRN(A) Series | |
| PTR Series | |
| HP Series | |
| P1V-S Series | |



PRNA20S/D



PRN30S/D

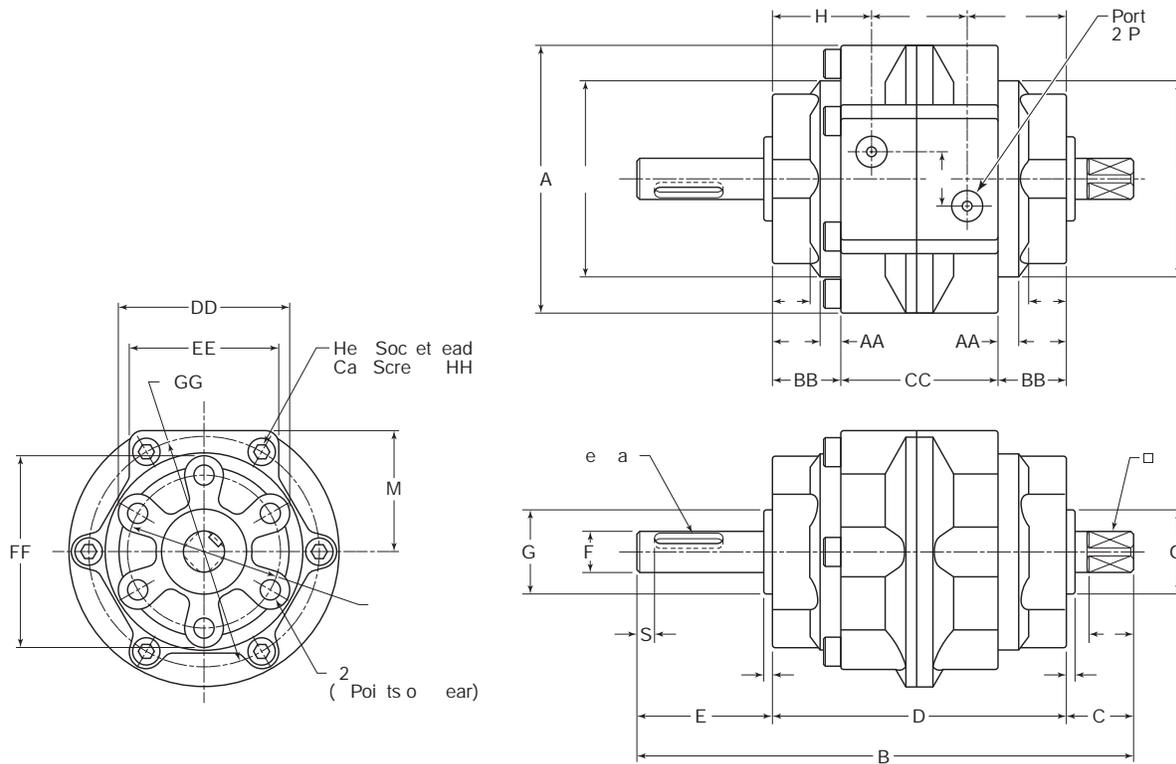


Dimensions in mm (inch)



| | |
|--------------|-------------------|
| B | Rotary Actuators |
| | Actuator Products |
| PV Series | PRN(A) Series |
| PTR Series | HP Series |
| P1V-S Series | |

PRN Sizes 50 to 800



Dimensions in mm (inch)

| Model number | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S |
|--------------|-----------------|----------------|----------------|---------------|----------------|--------------|--------------|----------------|---------------|--------------|--------------|--------------|--------------|-------|---------------|-------------------------|--------------|
| PRN50 | 79 (3.11) | 145 (5.71) | 19.5 (0.77) | 86 (3.39) | 39.5 (1.56) | 12 (0.47) | 25 (0.98) | 29 (1.14) | 2.5 (0.10) | 10 (0.39) | 13 (0.51) | 36 (1.42) | 16 (0.63) | Rc1/8 | 45 (1.77) | M6 x 1, Depth 9 | 5 (0.20) |
| PRN150 | 110 (4.33) | 180 (7.09) | 23.5 (0.93) | 103 (4.06) | 53.5 (2.11) | 17 (0.67) | 30 (1.18) | 34.5 (1.36) | 3 (0.12) | 13 (0.51) | 16 (0.63) | 51 (2.01) | 24 (0.94) | Rc1/4 | 70 (2.76) | M8 x 1.25, Depth 12 | 5 (0.20) |
| PRN300 | 141.5 (5.57) | 220 (8.66) | 30 (1.18) | 125 (4.92) | 65 (2.56) | 25 (0.98) | 45 (1.77) | 41.5 (1.63) | 3.5 (0.14) | 19 (0.75) | 22 (0.87) | 66 (2.60) | 32 (1.26) | Rc3/8 | 80 (3.15) | M10 x 1.5, Depth 15 | 5 (0.20) |
| PRN800 | 196 (7.72) | 285 (11.22) | 44.5 (1.75) | 171 (6.73) | 69.5 (2.74) | 40 (1.57) | 70 (2.76) | 53.5 (2.11) | 4.5 (0.18) | 32 (1.26) | 35 (1.38) | 90 (3.54) | 44 (1.73) | Rc1/2 | 120 (4.72) | M12 x 1.75, Depth 18 | 10 (0.39) |

| Model number | T | U | V | Y | Z | AA | BB | CC | DD | EE | FF | GG | HH | Keyway width x depth x length |
|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|----------------|---------------|----------|---|
| PRN50 | 28 (1.10) | 29 (1.14) | 58 (2.28) | 11 (0.43) | 14 (0.55) | 6 (0.24) | 20 (0.79) | 46 (1.81) | 51 (2.01) | 44 (1.73) | 57 (2.24) | 68 (2.68) | M5 x 30 | 4 ⁰ _{-0.03} x 2.5 ^{+0.1} ₀ x 20 |
| PRN150 | 34 (1.34) | 34.5 (1.36) | 85.2 (3.35) | 10.5 (0.41) | 15.5 (0.61) | 8 (0.31) | 23.5 (0.93) | 56 (2.20) | 75 (2.95) | 61 (2.40) | 85 (3.35) | 97 (3.82) | M6 x 35 | 5 ⁰ _{-0.03} x 3 ^{+0.1} ₀ x 36 |
| PRN300 | 42 (1.65) | 41.5 (1.63) | 110 (4.33) | 13 (0.51) | 17.5 (0.69) | 10 (0.39) | 27.5 (1.08) | 70 (2.76) | 88.5 (3.48) | 78 (3.07) | 98.5 (3.88) | 125 (4.92) | M8 x 45 | 7 ⁰ _{-0.03} x 4 ^{+0.1} ₀ x 40 |
| PRN800 | 64 (2.52) | 53.5 (2.11) | 152 (5.98) | 14.5 (0.57) | 21.1 (0.83) | 11.4 (0.45) | 32.5 (1.28) | 106 (4.17) | 130 (5.12) | 110 (4.33) | 145 (5.71) | 173 (6.81) | M12 x 70 | 12 ⁰ _{-0.043} x 5 ^{+0.2} ₀ x 40 |

B

Rotary Actuators
 Actuator Products

PV Series

PRN(A) Series

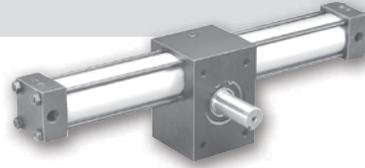
PTR Series

HP Series

P1V-S Series



PTR Series



- Rack and pinion rotary actuator
- 5 bore sizes from 1" to 3-1/4"
- Output torque @ 100 PSIG: 39 lb-in to 2281 lb-in
- Standard rotations: 90°, 180°, 270°, 360°
- Available as single or double rack, 3 position, air/oil, antitbacklash
- Optional bumpers, cushions, stroke adjusters, shock absorbers

Operating information

| | |
|--------------------------|------------------------------|
| Operating pressure: | 250 PSIG (17 bar) |
| Temperature range: | |
| Nitrile seals | 0°F to 180°F (-18° to 82°C) |
| Fluorocarbon seals | 0°F to 250°F (-18° to 121°C) |
| Filtration requirements: | 40 micron, dry filtered air |

Sensors

For sensors see page B339.



Ordering information

PTR 25 1 - 090 3 F P - A B 2 1 M V - C

| Model 1 | |
|---------|-------------|
| 10 | 1" Bore |
| 15 | 1-1/2" Bore |
| 20 | 2" Bore |
| 25 | 2-1/2" Bore |
| 32 | 3-1/4" Bore |

| Rotation 2 | |
|--------------------------------|------|
| 090 | 90° |
| 180 | 180° |
| 270 | 270° |
| 360 | 360° |
| Or specify any other rotation. | |

| Configuration | |
|---------------|-------------------------|
| 1 | Single Rack |
| 2 | Double Rack |
| 3 | Three Position Actuator |
| 6 | Air/Oil Operation |
| 7 | Antibacklash |

| Mounting | |
|----------|----------------------|
| A | Face/base (standard) |
| F | Front flange |
| G | Foot flange |
| P | Pilot ring |
| R | Rear flange |
| X | Special |

| Design Series | |
|---------------|---------|
| C | Current |

| Special Options | |
|--|----------|
| Omit | Standard |
| (Two-digit code assigned by factory and applies when any "X" or "9" appears in the model number or when special options or features are required.) | |

| Seals | |
|-------|--------------|
| Omit | Nitrile |
| V | Fluorocarbon |
| X | Special |

| Standard options | |
|------------------|---|
| Omit | None |
| M | Magnetic piston ring |
| S | Shaft seal cover |
| Q | Prepped for external air/oil tank |
| L | Air/oil cushion & flow control adj. at location 1 (opposite standard) |

| Port flow controls | |
|--------------------|-----------------------------|
| Omit | None |
| P | Flow control both rotations |
| R | Flow control CW rotation 3 |
| S | Flow control CCW rotation 3 |

| Shaft | |
|-------|------------------------------|
| A | Female keyed |
| B | Single male keyed (standard) |
| C | Double male keyed |
| R | Preload keyway |
| X | Special |

| Port location | |
|---------------|-----------------------|
| 1 | Position 1 (standard) |
| 2 | Position 2 |
| 3 | Position 3 |
| 4 | Position 4 8 |
| 5 | Position 5 6 |
| 9 | Special |

| Port type | |
|-----------|--|
| 1 | SAE straight thread |
| 2 | NPTF |
| 4 | BSPP (ISO 1179-1 with ISO 228-1 threads) |
| 9 | Special |

| Other options | |
|--------------------------|--|
| Detail in clear text: | |
| • Proximity Sensors | |
| • Feedback Potentiometer | |

| Cushion / Bumpers | |
|-------------------|--------------------------|
| Omit | None |
| 1 | Cushioned CW rotation 3 |
| 2 | Cushioned CCW rotation 3 |
| 3 | Cushioned both rotations |
| 4 | Four cushions 4 |
| 5 | Bumper CW rotation 3 |
| 6 | Bumper CCW rotation 3 |
| 7 | Bumper both rotations |
| 9 | Special |

| Stroke adjusters | |
|------------------|-------------------------------------|
| Omit | None |
| D | 0-30° CW rotation 3, 5 |
| E | 0-30° CCW rotation 3, 5 |
| F | 0-30° both rotations 5 |
| H | Shock/stroke adj. CW rotation 3, 7 |
| K | Shock/stroke adj. CCW rotation 3, 7 |
| L | Shock/stroke adj. both rotations 7 |
| X | Special |

Notes:

- 1 Cylinder bore size. See appropriate tables for torque output.
- 2 For 3-position units, specify middle and total rotation separated by a "/", ie 090/180. To obtain equal rotation both sides of midstroke (theoretical 12:00), order unit with 5° longer rotation than standard with stroke adjusters.
- 3 Viewed from shaft end.
- 4 Double rack models only.
- 5 Reduces to 10° with cushions.
- 6 Not available with cushions or stroke adjusters.
- 7 Refer to Catalog 0900-E page H45 for option configuration compatibility.
- 8 Not available on double rack models

B
 Rotary Actuators
 Actuator Products
 PV Series
 PRN(A) Series
 PTR Series
 HP Series
 P1V-S Series

Quick reference data

| Model | | Typ. actual output torque @ 100 PSI (lb-in) | Theoretical output torque* (lb-in) versus input pressure (PSI) | | | | Displacement per degree rotation (in ³ /°) | Maximum angular backlash (minutes) | Tolerance (degrees) |
|-------------|-------------|---|--|------|------|------|---|------------------------------------|---------------------|
| Single rack | Double rack | | 50 | 75 | 100 | 250 | | | |
| 101 | | 35 | 19 | 29 | 39 | 98 | 0.007 | 60 | -0, +5 |
| | 102 | 70 | 39 | 59 | 79 | 197 | 0.014 | 60 | -0, +5 |
| 151 | | 100 | 59 | 88 | 118 | 294 | 0.021 | 45 | -0, +4 |
| | 152 | 200 | 118 | 177 | 236 | 590 | 0.042 | 45 | -0, +4 |
| 201 | | 250 | 141 | 212 | 282 | 705 | 0.049 | 35 | -0, +3 |
| 251 | | 375 | 215 | 322 | 430 | 1074 | 0.075 | 35 | -0, +3 |
| | 202 | 500 | 282 | 423 | 565 | 1410 | 0.099 | 35 | -0, +3 |
| | 252 | 750 | 430 | 644 | 859 | 2148 | 0.150 | 35 | -0, +3 |
| 321 | | 1000 | 570 | 856 | 1141 | 2852 | 0.199 | 25 | -0, +2 |
| | 322 | 2000 | 1141 | 1711 | 2281 | 5703 | 0.398 | 25 | -0, +2 |

* Allow 10% for friction loss. Allow 20% on air/oil units. Use the single rack torque values for all air/oil, three position, and anti-backlash actuators.

Bearing load capacities and kinetic energy ratings

| Model | Bearing load capacities* (lb) | | Distance between bearings | Maximum kinetic energy absorption rating for models based on configuration (lb-in) | | | |
|-------|-------------------------------|--------|---------------------------|--|--------|-----------|--|
| | Radial | Thrust | | Standard or stroke adjusters | Bumper | Cushion** | Shock absorbers (per cycle / per hour) |
| 10 | 100 | 50 | 1.40 | 0.5 | 0.75 | 5.00 | 15/150,000 |
| 15 | 250 | 125 | 2.15 | 1.50 | 2.25 | 15.00 | 35/200,000 |
| 20 | 500 | 250 | 2.15 | 3.00 | 4.50 | 35.00 | 140/350,000 |
| 25 | 750 | 375 | 2.50 | 5.50 | 8.25 | 55.00 | 140/300,000 |
| 32 | 1000 | 500 | 3.75 | 12.00 | 18.00 | 155.00 | N/A |

* Bearing capacities only. Check Kinetic Energy ratings to determine if actuator will stop load.

** Assuming positive back pressure provided by meter-out flow control.

Seal kit ordering information

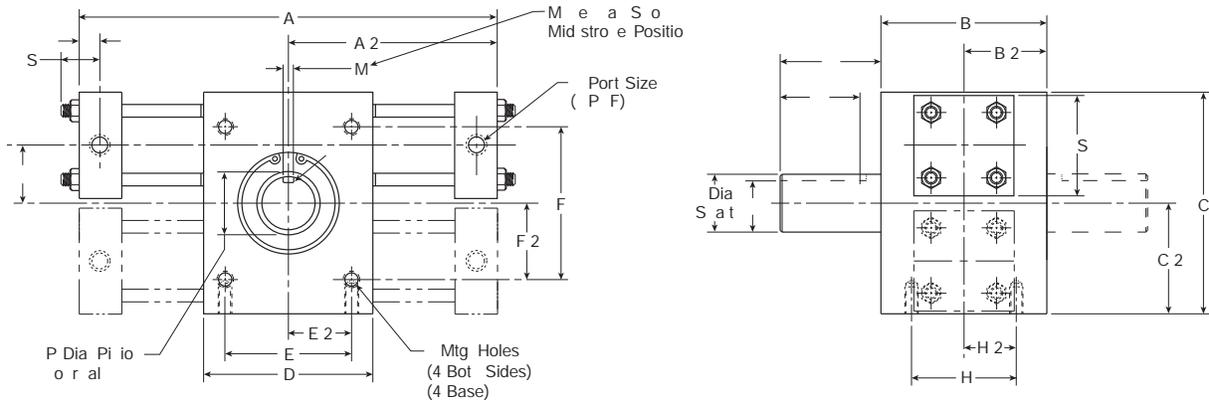
- Standard units are equipped with Nitrile seals.
- Optional seal compounds are available.
- Seal kit part numbers as shown:

| | | | | |
|-------------------------------|---|-----------------------------|-------------|-----------------------------------|
| PSK Parker seal kit | — | PTR322 Base model | V | |
| | | | Omit | Standard |
| | | | V | Fluorocarbon |
| | | | Q | Quad ring piston seals |
| | | | W | Corboxilated nitrile piston seals |

B
 Rotary Actuators
 Actuator Products
 PV Series
 PRN(A) Series
 PTR Series
 HP Series
 PIV-S Series

Standard Face Base Mount (A) and Male Keyed Shaft (B)

Double Male Keyed Shaft (C) shown in phantom



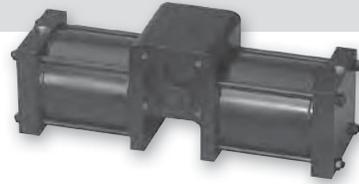
| Model number | Rotation (Degrees) | A | B | C | D | E | F | H | J | K | L | M | N |
|--------------|--------------------|----------|-------|-------|---|-------|-------|-------|------------------|----------------|-------|----------------|----------------|
| 10 | 90° | 6-11/16 | | | | | | | | | | | |
| | 180° | 8-1/4 | 2 | 3 | 2 | 1.500 | 2.000 | 1.500 | 1/4-20 x 3/8 DP | 0.500 0.499 | 7/8 | 0.125 0.127 | 0.430 0.425 |
| | 360° | 11-7/16 | | | | | | | | | | | |
| 15 | 90° | 9-1/8 | | | | | | | | | | | |
| | 180° | 11-3/16 | 3 | 4-1/4 | 3 | 2.000 | 3.000 | 2.000 | 5/16-18 x 1/2 DP | 0.875 0.874 | 1-7/8 | 0.188 0.190 | 0.771 0.761 |
| | 360° | 15-3/8 | | | | | | | | | | | |
| 20 | 90° | 11-3/16 | | | | | | | | | | | |
| | 180° | 14-1/16 | 3 | 5 | 4 | 2.500 | 3.500 | 2.000 | 3/8-16 x 1/2 DP | 1.125 1.124 | 1-7/8 | 0.250 0.252 | 0.986 |
| | 360° | 19-11/16 | | | | | | | | | | | |
| 25 | 90° | 12-9/16 | | | | | | | | | | | |
| | 180° | 15-1/2 | 3-1/2 | 6 | 4 | 2.500 | 4.500 | 2.000 | 1/2-13 x 3/4 DP | 1.375 1.374 | 2-1/4 | 0.313 0.315 | 1.201 1.191 |
| | 360° | 20-5/8 | | | | | | | | | | | |
| 32 | 90° | 16-5/8 | | | | | | | | | | | |
| | 180° | 21-1/8 | 5 | 8 | 5 | 3.000 | 5.000 | 2.500 | 3/4-10 x 1 DP | 1.750 1.749 | 3-1/2 | 0.375 0.377 | 1.542 1.532 |
| | 360° | 29-3/8 | | | | | | | | | | | |

| Model number | O | P | R | S | T | U | V |
|--------------|-------|------|-------|------|------|-----|---------|
| 10 | 5/8 | 0.59 | 1-1/2 | 1/4 | 0.31 | 1/8 | 3/4 |
| 15 | 1-1/2 | 0.98 | 2 | 5/16 | 0.41 | 1/4 | 1-1/16 |
| 20 | 1-1/2 | 1.18 | 2-1/2 | 3/8 | 0.41 | 1/4 | 1-1/4 |
| 25 | 1-3/4 | 1.38 | 3 | 3/8 | 0.41 | 1/4 | 1-1/2 |
| 32 | 3 | 1.77 | 3-3/4 | 7/16 | 0.56 | 3/8 | 1-15/16 |

* To obtain equal rotation both sides of midstroke (theoretical 12:00), order 5° longer rotation than standard with stroke adjusters.

HP Series

- Rack and pinion rotary actuator
- 2 large bore models
- 3 standard rotations: 90°, 180°, 360°
- Standard output torque at 100 PSIG: 4,500 and 10,000 lb-in
- Large female pinion
- Available with adjustable cushions and stroke adjusters



Operating information

| | |
|--------------------------|------------------------------|
| Operating pressure: | 100 PSIG (6.9 bar) |
| Temperature range: | |
| Nitrile seals | 0°F to 180°F (-18° to 82°C) |
| Fluorocarbon seals | 0°F to 250°F (-18° to 121°C) |
| Filtration requirements: | 40 micron, dry filtered air |

Ordering information

HP 10 - 090 3 C - A A 2 V -

| Model | |
|-------|----------------------------|
| 4.5 | 4,500 lb-in output torque |
| 10 | 10,000 lb-in output torque |

| Rotation 1 | |
|------------|------|
| 090 | 90° |
| 180 | 180° |
| 360 | 360° |

Specify other rotations.

| Cushions | |
|----------|---------------------------|
| Omit | None |
| 1 | CW rotation ² |
| 2 | CCW rotation ² |
| 3 | Both rotation |
| 9 | Special |

| Stroke adjusters | |
|------------------|-----------------------------------|
| Omit | None |
| A | 0-5° CW rotation ² |
| B | 0-5° CCW rotation ² |
| C | 0-5° both rotation |
| D | 0-30° CW rotation ^{2,3} |
| E | 0-30° CCW rotation ^{2,3} |
| F | 0-30° both rotation ³ |
| X | Special |

| Shaft configuration | |
|---------------------|-----------------------|
| A | Female keyed shaft |
| B | Male keyed shaft |
| D | Female SAE 10B spline |
| E | Male SAE 10B spline |
| X | Special |

| Mounting style | |
|----------------|-----------------|
| A | Face (standard) |
| X | Special |

| Special options | |
|--|----------|
| Omit | Standard |
| Two digit code assigned by factory when any "X" or "9" appears in the model number or when special options or features are required. | |

| Seals | |
|-------|--------------------|
| Omit | Nitrile (standard) |
| V | Fluorocarbon |
| X | Special |

| Port type | |
|-----------|-----------------|
| 2 | NPTF (standard) |
| 9 | Special |

Notes:

- ¹ To obtain equal rotation both sides of midstroke (theoretical 12:00), order 5° longer rotation than standard with stroke adjusters.
- ² Viewed from shaft end.
- ³ Cannot combine with cushions.

Sensors
 For sensors see page B339.

B

Rotary Actuators
 Actuator Products

PV
 Series

PRN(A)
 Series

PTR
 Series

HP
 Series

P1V-S
 Series

Quick reference data

| Model | Rotation* (Degrees) | Displacement (Cubic inches) | Weight (lb) | Bore size | Actual torque output at 100 psi (lb-in) | Maximum rotational tolerance (degrees) | Maximum angular backlash (minutes) |
|-------|---------------------|-----------------------------|-------------|-----------|---|--|------------------------------------|
| 4.5 | 90° | 79.93 | 63 | 6" | 4,500 | -0, +2 | 15 |
| | 180° | 159.86 | 75 | | | | |
| | 360° | 319.72 | 95 | | | | |
| 10 | 90° | 177.64 | 125 | 8" | 10,000 | -0, +2 | 15 |
| | 180° | 355.28 | 147 | | | | |
| | 360° | 710.56 | 190 | | | | |

* To obtain equal rotation both sides of midstroke (theoretical 12:00), order 5° longer rotation than standard with stroke adjusters.

Bearing load capacities and kinetic energy ratings

| Model | Radial load (lb) per bearing | | Thrust load (lb) | | Distance between bearings (in.) | Maximum kinetic energy rating for models based on configuration (in-lb) | | |
|-------|------------------------------|--------|------------------|--------|---------------------------------|---|------------------|---------|
| | Dynamic | Static | Dynamic | Static | | Standard | Stroke adjusters | Cushion |
| 4.5 | 2,000 | 3,000 | 300 | 450 | 2.77 | 45 | 45 | 650 |
| 10 | 2,000 | 3,000 | 500 | 750 | 3.63 | 100 | 100 | 1450 |

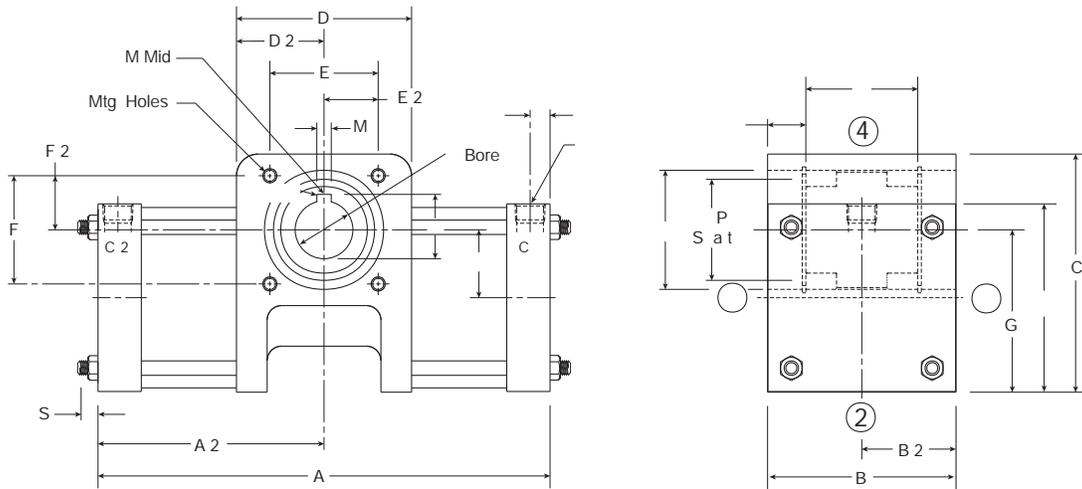
Seal kit ordering information

- Standard units are equipped with Nitrile seals.
- Optional seal compounds are available.
- Seal kit part numbers as shown:

| | | | | |
|-----------------|---|--------------|----------|--------------|
| PSK | — | HP4.5 | V | |
| Parker seal kit | | Base model | Omit | Standard |
| | | | V | Fluorocarbon |
| | | | N | Non-Lube |

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Standard face mount (A) and female keyed shaft (A) shown



Notes: Pressure on C-1 port gives clockwise rotation.
 Pressure on C-2 port gives counterclockwise rotation.

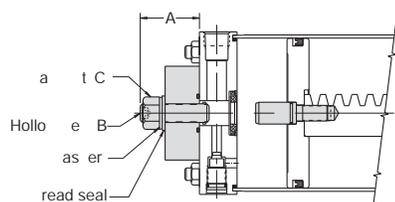
Numbers above represent possible mounting and port positions.

| Model number | Rotation (Degrees) | A | B | C | D | E | F | G | J | K |
|--------------|--------------------|--------|-------|--------|-------|-------|-------|-------|--------------------|-------|
| 4.5 | 90° | 15-5/8 | | | | | | | | 2.000 |
| | 180° | 22-1/4 | 6.525 | 8-1/4 | 6.063 | 3.750 | 3.750 | 5.615 | 7/16-14 x 21/32 DP | 2.003 |
| | 360° | 33 | | | | | | | | |
| 10 | 90° | 18 | | | | | | | | 2.250 |
| | 180° | 26-3/4 | 8.525 | 10-1/2 | 7.813 | 5.000 | 5.000 | 7.265 | 5/8-11 x 15/16 DP | 2.253 |
| | 360° | 39-5/8 | | | | | | | | |

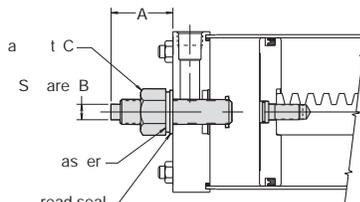
| Model number | L | M | N | O | P | Q | R | S | T | U | V |
|--------------|-------|-------|-------|--------|-------|-------|-------|-----|------|----------|------|
| 4.5 | 3-7/8 | 0.500 | 2.223 | 1-5/16 | 3-1/2 | 4-1/8 | 6-1/2 | 5/8 | 0.69 | 3/4 NPTF | 2.35 |
| | | 0.502 | 2.233 | | | | | | | | |
| 10 | 5 | 0.625 | 2.525 | 1-3/4 | 4-1/2 | 5-1/4 | 8-1/2 | 3/4 | 0.69 | 3/4 NPTF | 3.00 |
| | | 0.628 | 2.535 | | | | | | | | |

Stroke Adjusters (A - F)

5° stroke adjust option with cushion option

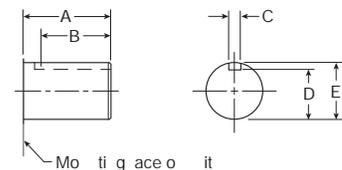


5° or 30° stroke adjust option without cushion option



| Model number | (1) Turn Adjust | Cushioned end cap | | | Non-cushioned end cap | | | | |
|--------------|-----------------|-------------------|-------|---------|-----------------------|------|------|-------|----------|
| | | A | B | C | (1) Turn Adjust | A | | B | C |
| 4.5 | 2.5° | 2.50 | 5/8 | 1.00-14 | 2.0° | 5° | 30° | 3/8 | 3/4-16 |
| | | | | | | 2.00 | 2.81 | | |
| 10 | 2.0° | 2.50 | 15/16 | 1.50-12 | 1.5° | 5° | 30° | 15/16 | 1-1/2-12 |
| | | | | | | 2.56 | 3.50 | | |

Male Shaft (B)



| Model number | A | B |
|--------------|------|------|
| 4.5 | 2.61 | 2.38 |
| 10 | 4.38 | 3.38 |

| Model number | C | D | E |
|--------------|-------|-------|-------|
| 4.5 | 0.561 | 1.928 | 2.249 |
| | 0.562 | 1.933 | 2.250 |
| 10 | 0.625 | 1.888 | 2.249 |
| | 0.627 | 1.893 | 2.250 |



P1V-S Series

- Stainless steel air motor
- Approved for use in food grade applications
- Seven different sizes
- Powers ranging from 20 to 1,200 watts
- Speeds from 5 to 24,000 rpm
- Fluor rubber seals



Operating information

| | |
|--------------------------|--|
| Operating pressure: | Max. 7 bar (Max. 6 bar in explosive atmospheres)  |
| Temperature range: | -30°C to 100°C (-22°F to 212°F) |
| Ambient temperature: | -20°C to 40°C (-4°F to 104°F) in explosive atmospheres  |
| Filtration requirements: | 40 µm filtered, oil mist or dry unlubricated compressed air |

Ordering Information

| | | | | |
|------------------------------|--|---|--|---|
| P 1 V - S | 0 2 0 | A | 0 | E 5 0 |
| Air Motor Range | Motor Size | Function | Optional Functions | Free Speed per min |
| P1V-S Stainless Vane Motor | 002 20 W 008 80 W 012 120 W 020 200 W 030 300 W 060 600 W 120 1200 W | A Keyed Shaft, Reversible D Threaded Shaft, Reversible | 0 Standard C* Continuous Lubrication - Free Operation Z* Spring Loaded Vanes M* Multi: Combination of C+Z D** Standard with Brake E** Option C with Brake F** Option Z with Brake G** Option M with Brake | 0005 5 001 10 999 9990 A00 10000 E00 14000 E50 14500 N00 22000 Q00 24000 |

* Not for P1V-S002 and P1V-S008
 ** Only for P1V-S020 and P1V-S030

B

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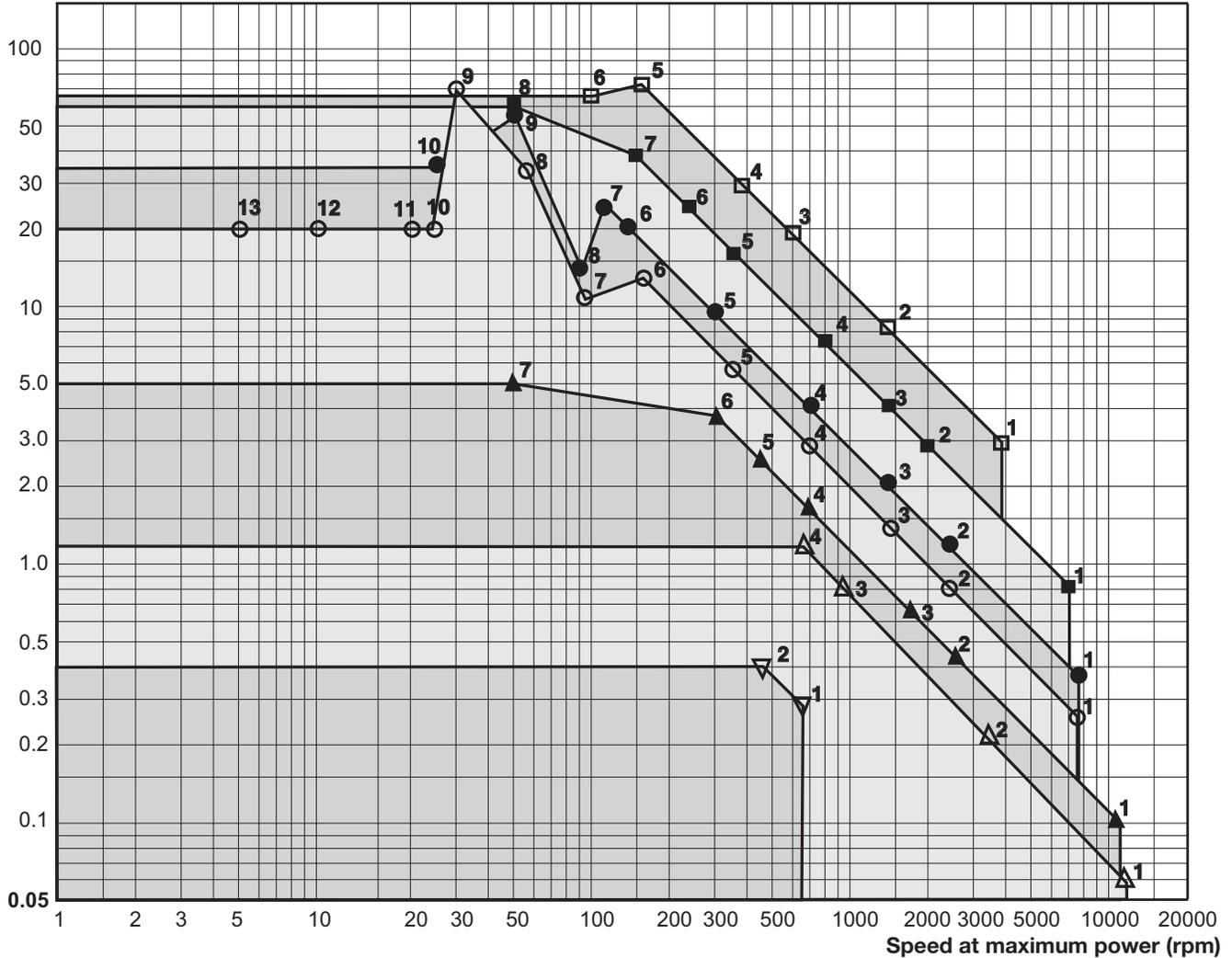
| Series | Watts | Air motors in diagram on previous page | |
|-----------|-------|--|------------------------------|
| P1V-S002A | 20 | ▽1 | P1V-S002A0130 |
| | | ▽2 | P1V-S002A0095 |
| P1V-S008A | 80 | △1 | P1V-S008A0Q00 |
| | | △2 | P1V-S008A0700 |
| | | △3 | P1V-S008A0190 |
| | | △4 | P1V-S008A0130 |
| P1V-S012A | 120 | ▲1 | P1V-S012A0N00, P1V-S012D0N00 |
| P1V-S012D | | ▲2 | P1V-S012A0550, P1V-S012D0550 |
| | | ▲3 | P1V-S012A0360, P1V-S012D0360 |
| | | ▲4 | P1V-S012A0140, P1V-S012D1400 |
| | | ▲5 | P1V-S012A0090, P1V-S012D0090 |
| | | ▲6 | P1V-S012A0060, P1V-S012D0060 |
| | | ▲7 | P1V-S012A0010, P1V-S012D0010 |
| P1V-S020A | 200 | ○1 | P1V-S020A0E50, P1V-S020D0E50 |
| P1V-S020D | | ○2 | P1V-S020A0460, P1V-S020D0460 |
| | | ○3 | P1V-S020A0240, P1V-S020D0240 |
| | | ○4 | P1V-S020A0140, P1V-S020D0140 |
| | | ○5 | P1V-S020A0070, P1V-S020D0070 |
| | | ○6 | P1V-S020A0035, P1V-S020D0035 |
| | | ○7 | P1V-S020A0018, P1V-S020D0018 |
| | | ○8 | P1V-S020A0011 |
| | | ○9 | P1V-S020A0006 |
| | | ○10 | P1V-S020A0005, P1V-S020D0005 |
| | | ○11 | P1V-S020A0002 |
| | | ○12 | P1V-S020A0001 |
| | | ○13 | P1V-S020A00005 |
| P1V-S030A | 300 | ●1 | P1V-S030A0E50, P1V-S030D0E50 |
| P1V-S030D | | ●2 | P1V-S030A0460, P1V-S030D0460 |
| | | ●3 | P1V-S030A0240, P1V-S030D0240 |
| | | ●4 | P1V-S030A0140, P1V-S030D0140 |
| | | ●5 | P1V-S030A0060, P1V-S030D0060 |
| | | ●6 | P1V-S030A0028, P1V-S030D0028 |
| | | ●7 | P1V-S030A0023 |
| | | ●8 | P1V-S030A0018, P1V-S030D0018 |
| | | ●9 | P1V-S030A0010 |
| | | ●10 | P1V-S030A0005, P1V-S030D0005 |
| P1V-S060A | 600 | ■1 | P1V-S060A0E00 |
| | | ■2 | P1V-S060A0400 |
| | | ■3 | P1V-S060A0270 |
| | | ■4 | P1V-S060A0170 |
| | | ■5 | P1V-S060A0072 |
| | | ■6 | P1V-S060A0048 |
| | | ■7 | P1V-S060A0030 |
| | | ■8 | P1V-S060A0010 |
| P1V-S120A | 1200 | □1 | P1V-S120A0800 |
| | | □2 | P1V-S120A0270 |
| | | □3 | P1V-S120A0110 |
| | | □4 | P1V-S120A0078 |
| | | □5 | P1V-S120A0032 |
| | | □6 | P1V-S120A0012 |

Most popular.

B
 Rotary Actuators
 Actuator Products
 PV Series
 PRN(A) Series
 PTR Series
 HP Series
 P1V-S Series

Choice of Air Motor

Torque at Maximum Power [Nm]



| | |
|--------|---------------------------------------|
| B | Rotary Actuators Actuator Products |
| PV | Series |
| PRN(A) | Series |
| PTR | Series |
| HP | Series |
| P1V-S | Series |

The motor to be used should be selected by starting with the torque needed at a specific shaft speed. Since maximum power is reached at half the motor's free speed, the motor should be chosen so that the operating point is as close as possible to the maximum power of the motor.

Use the above graph to choose the correct motor size. The graph contains the points for the maximum torque of each motor at maximum output. Add your operating point to the graph, then select a marked point above and to the right of your point.

Then use the correct working diagram of the chosen motor to get more detailed technical data. Always select a motor whose requisite technical data are in the shaded area. Also use the correction diagram to find out what operation with different supply pressures would mean for the motor.

Tip: Select a motor which is slightly too fast and powerful, then regulate its speed and torque with a pressure regulator and/or throttle to achieve the optimum working point.

Important!
 Before carrying out service activities, make sure the air motor is vented. Before disassembling the motor, disconnect the primary air hose to ensure that the air supply is interrupted.

NOTE!
 All technical data in the catalog are typical values. The air quality is a major factor in the service life of the motor, see ISO 8573-1.