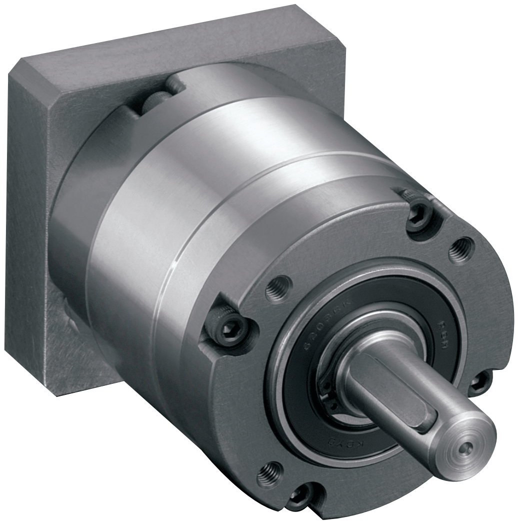
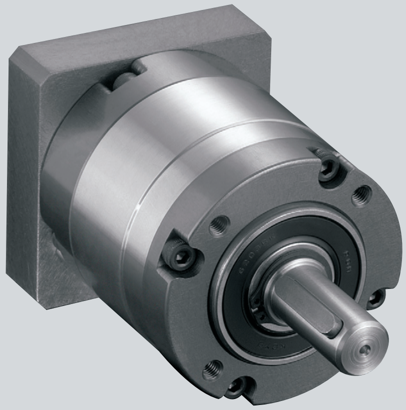


# PV Series Gearhead

Catalog USA

Parker

# High radial load, in a value alternative



The PV Series Planetary Gearhead combines Power and Versatility in an economical package. It comes in a wide range of options including dimensional output face crossovers to the Parker Bayside PX, Alpha LP, Neugart PLE, Stober PE and standard NEMA gearheads.

The PV series is available in metric or NEMA frame sizes ranging from 40mm, 60mm and 90mm. NEMA sizes are NEMA 17, NEMA 23 and NEMA 34. Ratios are available from 3:1 to 100:1. Whether you're an OEM or an end user searching for competitive alternatives the PV offers a superior solution. Manufactured in the USA, Parker Bayside's PV series gearhead is universally the only choice.

## Applications

- Industrial requirements, belt and pulley, conveyor, production machinery.
- Packaging, pharmaceutical, commercial, palletizing.
- Automotive, production, inspection equipment
- Medical, lab instrumentation, device manufacturing

## Features and Benefits

- Four Choices of Output Faces
- High Radial Load Capacity
- High Output Torque
- 3-Year Warranty
- Lubricated for Life
- Metric and NEMA Frame Sizes
- Easy to Customize
- Superior Performance
- High Input Speeds, 8000 Max. RPM
- High Efficiency 97%
- Easy Motor Mounting Design
- Large Offering of Ratios
- Direction of Rotation is Same as input
- Low Noise, <70db
- Any Mounting Position

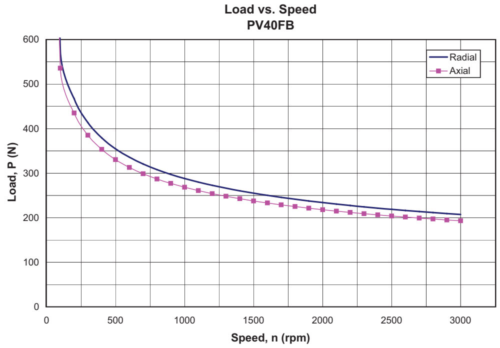
Pub.version 102505

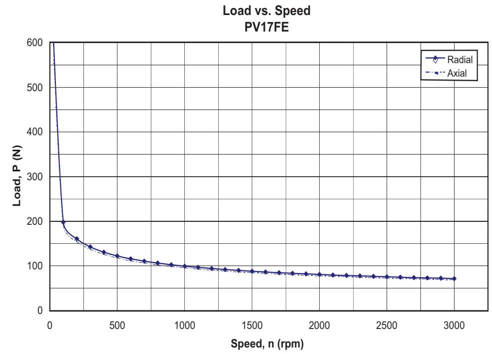
## PV Series, Specifications

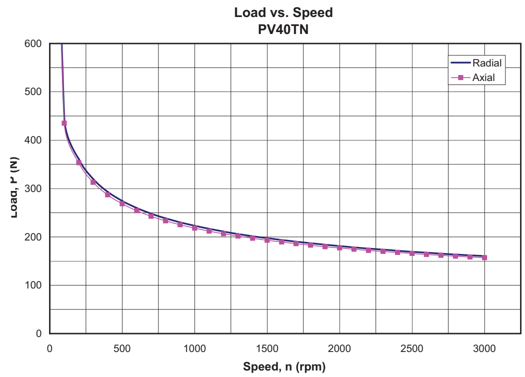
| Parameter | Units | Ratio | PV40/PV17 | PV60/PV23 | PV90/PV34 |
|---|---|---|---|---|---|
| Nominal Output Torque, Tnom r | Nm (in-lb) | 3 | | 12 (106.2) | 35 (309.75) |
| | | 4 | 5.9 (52.215) | 18.9 (167.265) | 56 (495.6) |
| | | 5 | 6.2 (54.87) | 19.6 (173.46) | 58 (513.3) |
| | | 7 | 5.5 (48.675) | 16.7 (147.795) | 52 (460.2) |
| | | 10 | 3.5 (30.975) | 10.6 (93.81) | 33 (292.05) |
| | | 12 | | 18.2 (161.07) | 54 (477.9) |
| | | 15 | | 19.4 (171.69) | 58 (513.3) |
| | | 16 | 6.5 (57.525) | | |
| | | 20 | 6.5 (57.525) | 21.5 (190.255) | 67 (592.95) |
| | | 25 | 6.7 (59.295) | 20.0 (177) | 63 (557.55) |
| | | 30 | | 22.5 (199.125) | 71 (628.35) |
| | | 35 | 6.7 (59.295) | | |
| | | 40 | 6.5 (57.525) | 21.5 (190.275) | 67 (592.95) |
| | | 50 | 6.7 (59.295) | 20 (177) | 63 (557.55) |
| | | 70 | 5.5 (48.675) | 16.7 (147.795) | 52 (460.2) |
| | | 100 | 3.5 (30.975) | 10.6 (93.81) | 33 (292.05) |
| Max. Acceleration Output Torque,Tacc r [1] | Nm (in-lb) | 3 | | 24 (212.4) | 70 (619.5) |
| | | 4,5,12,15 | 11.8 (104.43) | 36.4 (322.14) | 108 (955.8) |
| | | 7,70 | 11 (97.35) | 33.4 (295.59) | 104 (920.4) |
| | | 10,100 | 7 (61.95) | 21.2 (187.62) | 66 (584.1) |
| | | 16,20,25,28, 30,35,40,50 | 13 (115.05) | 40 (354) | 126 (1115.1) |
| Emergency Stop Output Torque,Tem r [2] | Nm (in-lb) | 3,4,5,12,15,16, 20,25,30,35,40, 50 | 16 (141.6) | 55 (486.75) | 170 (1504.5) |
| | | 7,70 | 13.7 (121.245) | 44 (389.4) | 137 (1212.45) |
| | | 10,100 | 9.2 (81.42) | 39 (345.15) | 122 (1079.7) |
| Nominal Input Speed, Nnom r | RPM | All Ratios | 4500 | 4000 | 3500 |
| Maximum Input Speed, Nmax r | RPM | All Ratios | 8000 | 6000 | 6000 |
| Lifetime | h | All Ratios | 20,000 | | |
| Standard Backlash[3] | arc-min | $\leq$ 10:1 | < 15 | < 12 | < 10 |
| | | > 10:1 | < 18 | < 16 | < 14 |
| Efficiency at Nominal Torque | % | $\leq$ 10:1 | 96 | 96 | 96 |
| | | > 10:1 | 94 | 94 | 94 |
| Noise Level at 3000 RPM[4] | dB(A) | All Ratios | 60 | 65 | 65 |
| Maximum Allowable Case Temperature | Degree C | All Ratios | -20 to 100 | | |
| Lubrication | | All Ratios | Lifetime lubrication | | |
| Mounting Position | | All Ratios | Any | | |
| Direction of Rotation | | All Ratios | Same as input | | |
| Degree of Protection | | All Ratios | IP 64 | | |

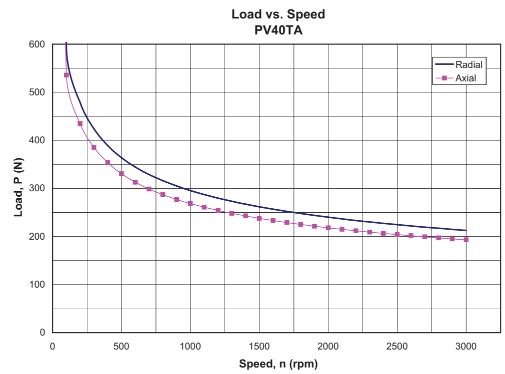
*1) tacc+tdec=.2(tacc+tcont+tdec)*
*Tcont=.25Tacc*
*2) Maximum of 1000 stops.*
*3) Measured at 2% of rated torque.*
*4) Measure at 1m.*
*r = rated values*

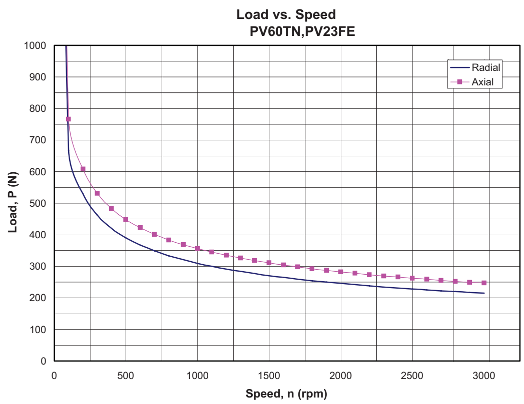
# PV Series, Output shaft load rating

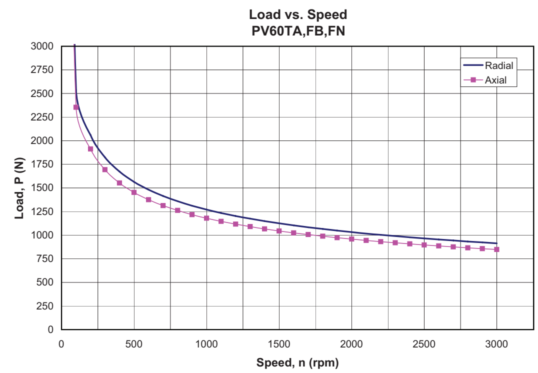


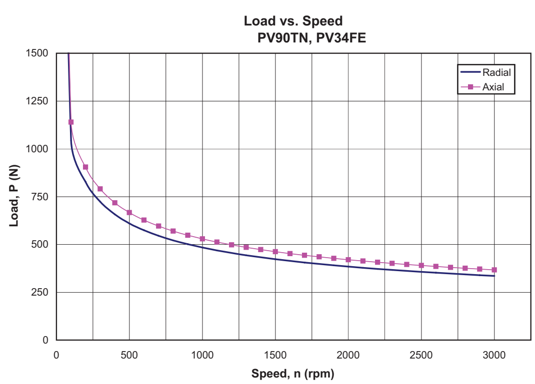



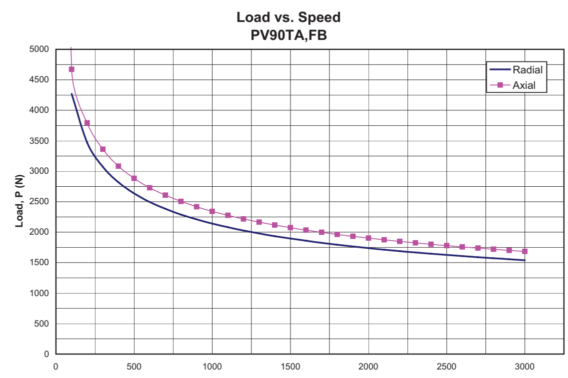



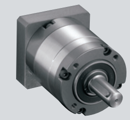



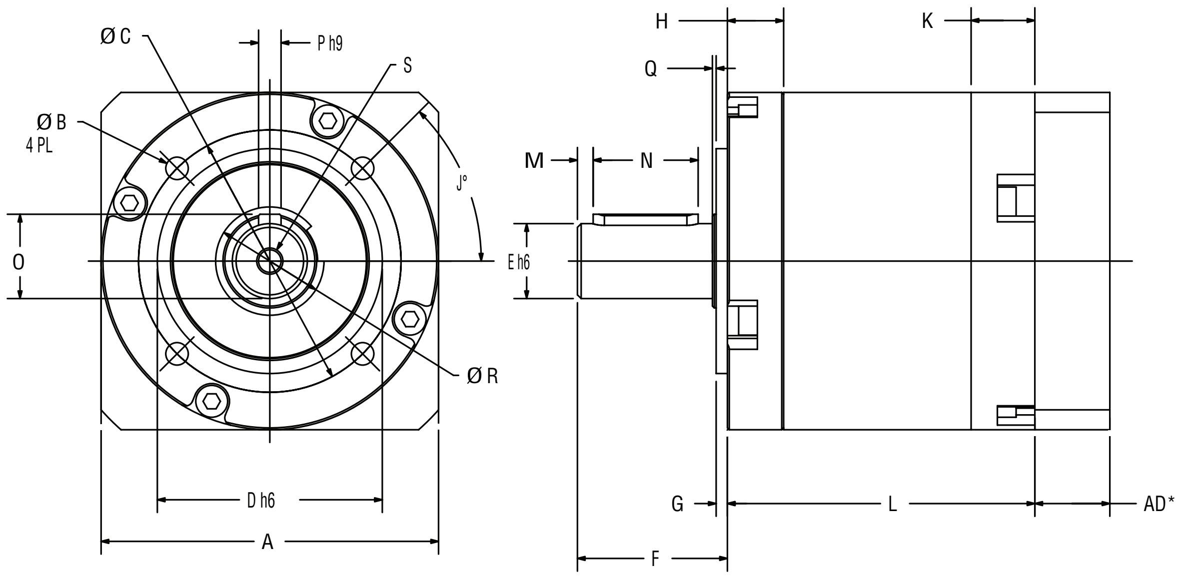

*1) Maximum axial load, Fa.*
*2) Maximum radial load applied to the center of the shaft, Fr.*
*3) Radial load curves can be used to combine (radial + axial) load if Fa/Fr < .22.*
*4) If Fa/Fr > .22 consult factory.*



## PV Series, Inertia Table[1]

| Units | Ratio | PV40/PV17 | PV60/PV23 | PV90/PV34 |
|---|---|---|---|---|
| kg $cm^2$ | 3 | ---- | 0.1400 | 0.7400 |
| in lb $sec^2$ | | ---- | 0.000124 | 0.00065 |
| kg $cm^2$ | 4 | 0.0200 | 0.1000 | 0.5000 |
| in lb $sec^2$ | | 0.000018 | 0.000089 | 0.000443 |
| kg $cm^2$ | 5 | 0.0180 | 0.0840 | 0.3900 |
| in lb $sec^2$ | | 0.000016 | 0.000074 | 0.000345 |
| kg $cm^2$ | 7 | 0.0160 | 0.0750 | 0.3400 |
| in lb $sec^2$ | | 0.000014 | 0.000066 | 0.000301 |
| kg $cm^2$ | 10 | 0.0160 | 0.0070 | 0.3000 |
| in lb $sec^2$ | | 0.000014 | 0.000006 | 0.000266 |
| kg $cm^2$ | 12 | ---- | 0.0970 | 0.4900 |
| in lb $sec^2$ | | ---- | 0.000086 | 0.000434 |
| kg $cm^2$ | 15 | ---- | 0.0830 | 0.3900 |
| in lb $sec^2$ | | ---- | 0.000073 | 0.000345 |
| kg $cm^2$ | 16 | 0.0190 | ---- | ---- |
| in lb $sec^2$ | | 0.000017 | ---- | ---- |
| kg $cm^2$ | 20 | 0.0170 | 0.0830 | 0.3900 |
| in lb $sec^2$ | | 0.000015 | 0.000073 | 0.000345 |
| kg $cm^2$ | 25 | 0.0170 | 0.0830 | 0.3900 |
| in lb $sec^2$ | | 0.000015 | 0.000073 | 0.000345 |
| kg $cm^2$ | 28 | 0.0160 | ---- | ---- |
| in lb $sec^2$ | | 0.000014 | ---- | ---- |
| kg $cm^2$ | 30 | ---- | 0.0700 | 0.3000 |
| in lb $sec^2$ | | ---- | 0.000062 | 0.000266 |
| kg $cm^2$ | 35 | 0.0160 | ---- | ---- |
| in lb $sec^2$ | | 0.000014 | ---- | ---- |
| kg $cm^2$ | 40 | 0.0160 | 0.0700 | 0.3000 |
| in lb $sec^2$ | | 0.000014 | 0.000062 | 0.000266 |
| kg $cm^2$ | 50 | 0.0160 | 0.0700 | 0.3000 |
| in lb $sec^2$ | | 0.000014 | 0.000062 | 0.000266 |
| kg $cm^2$ | 70 | 0.0160 | 0.0700 | 0.3000 |
| in lb $sec^2$ | | 0.000014 | 0.000062 | 0.000266 |
| kg $cm^2$ | 100 | 0.0160 | 0.0700 | 0.3000 |
| in lb $sec^2$ | | 0.000014 | 0.000062 | 0.000266 |

(1) Note: All moments of inerta values are as reflected at the input shaft of the gearhead.

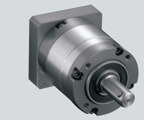


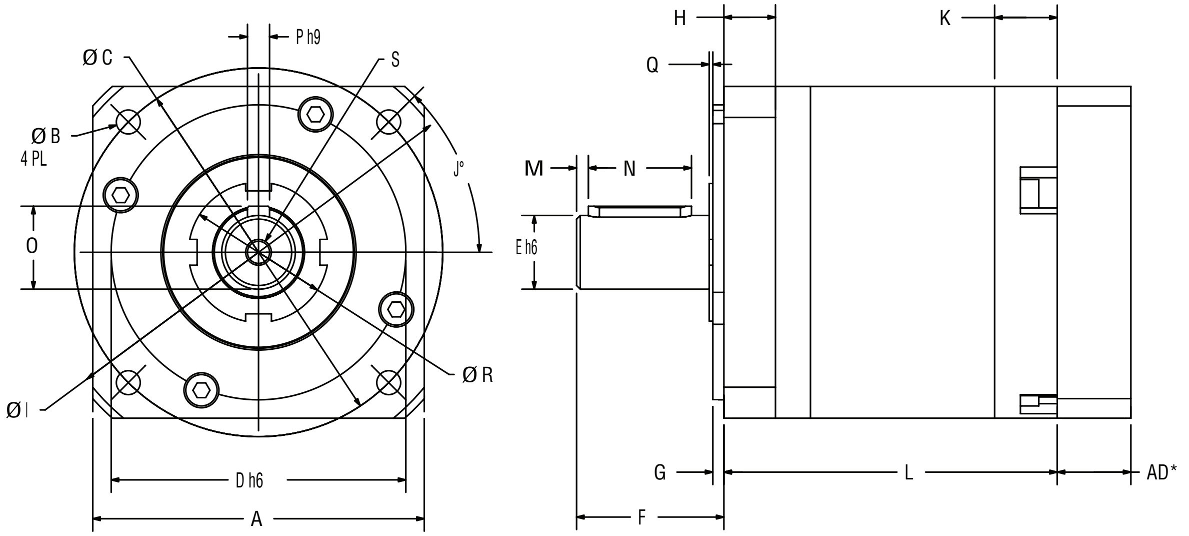

## PV Tapped Face Dimensions
**Units: mm (in)**

| | A Body Diameter | | B Tap x Depth | C Bolt Circle | | D Pilot Diameter | | E Output Shaft Diameter | | F Output Shaft Length | | G Pilot Thickness | | H Flange Thickness | | I Housing Diameter | | J Lead Angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (mm) | (in) | | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (deg) |
| PV40-TN | 43 | 1.693 | M4x7 | 34 | 1.339 | 26 | 1.024 | 10 | 0.394 | 26 | 1.024 | 1.5 | 0.059 | 10 | 0.394 | --- | | 45 |
| PV40-TA | 50 | 1.969 | M4X10 | 44 | 1.732 | 35 | 1.378 | 12 | 0.472 | 25 | 0.984 | 3 | 0.118 | 10 | 0.394 | --- | | 90 |
| PV60-TN | 62 | 2.441 | M5x10 | 52 | 2.047 | 40 | 1.575 | 14 | 0.551 | 35 | 1.378 | 2.5 | 0.098 | 12 | 0.472 | --- | | 45 |
| PV60-TA | 70 | 2.756 | M5x10 | 60 | 2.362 | 52 | 2.047 | 16 | 0.630 | 36 | 1.417 | 5 | 0.197 | 16 | 0.630 | --- | | 90 |
| PV90-TN | 90 | 3.543 | M6x11 | 70 | 2.756 | 60 | 2.362 | 20 | 0.787 | 40 | 1.575 | 3 | 0.118 | 15 | 0.591 | --- | | 45 |
| PV90-TA | 90 | 3.543 | M6x12 | 80 | 3.150 | 68 | 2.677 | 22 | 0.866 | 46 | 1.811 | 5 | 0.197 | 18.5 | 0.728 | --- | | 90 |

| | K Rear Thickness | | L1 Length (Ratio <10:1) | | L2 Length (Ratio >10:1) | | M Dist. From Shaft End | | N Keyway Length | | O Key Height | | P Keyway Width | | Q Shoulder Height | | R Shoulder Diameter | | S Tap x Depth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | |
| PV40-TN | 11 | 0.433 | 48.5 | 1.909 | 63 | 2.480 | 3.1 | 0.122 | 16 | 0.630 | 10.2 | 0.402 | 3 | 0.118 | 0.6 | 0.024 | 11.633 | 0.458 | M3X6 |
| PV40-TA | 11 | 0.433 | 48.5 | 1.909 | 63 | 2.480 | 1.3 | 0.051 | 16 | 0.630 | 13.5 | 0.531 | 4 | 0.157 | 3.5 | 0.138 | 17.831 | 0.702 | M4x8 |
| PV60-TN | 16 | 0.630 | 63 | 2.480 | 83 | 3.268 | 2.71 | 0.107 | 25 | 0.984 | 16 | 0.630 | 5 | 0.197 | 2.5 | 0.098 | 19.939 | 0.785 | M5x12 |
| PV60-TA | 16 | 0.630 | 67 | 2.638 | 87 | 3.425 | 2.21 | 0.087 | 25 | 0.984 | 18 | 0.709 | 5 | 0.197 | 3 | 0.118 | 28 | 1.102 | M5x12 |
| PV90-TN | 17 | .670 | 82 | 3.228 | 105.5 | 4.154 | 4.197 | 0.165 | 28 | 1.102 | 22.5 | 0.886 | 6 | 0.236 | 1 | 0.039 | 25 | 0.984 | M6x12 |
| PV90-TA | 17 | .670 | 85.5 | 3.366 | 109 | 4.291 | 3.197 | 0.126 | 28 | 1.102 | 24.5 | 0.965 | 6 | 0.236 | 5 | 0.197 | 38 | 1.496 | M8x13 |

AD= Adapter length. See how to order page for mounting kit adapter lengths






## PV Flange Face Dimensions
**Units: mm (in)**

| | A Square Flange | | B Bolt Hole | | C Bolt Circle | | D Pilot Diameter | | E Output Shaft Diameter | | F Output Shaft Length | | G Pilot Thickness | | H Flange Thickness | | I Housing Diameter | | J Lead Angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (deg) |
| PV40-FB | 43 | 1.693 | 3.4 | 0.134 | 50 | 1.969 | 35 | 1.378 | 13 | 0.512 | 26 | 1.024 | 3 | 0.118 | 10 | 0.394 | 56 | 2.205 | 45 |
| PV17-FE | 43 | 1.693 | 3.5 | 0.138 | 43.8 | 1.724 | 22 | 0.866 | 6.35 | 0.250 | 25 | 0.984 | 1.5 | 0.059 | 6 | 0.236 | 55 | 2.165 | 45 |
| PV60-FB | 62 | 2.441 | 5.5 | 0.217 | 70 | 2.756 | 50 | 1.969 | 16 | 0.630 | 25 | 0.984 | 2.5 | 0.098 | 10.3 | 0.406 | 80 | 3.150 | 45 |
| PV23-FE | 62 | 2.441 | 4.95 | 0.195 | 66.675 | 2.625 | 38.1 | 1.500 | 9.525 | 0.375 | 25.4 | 1.000 | 2.5 | 0.098 | 9.5 | 0.374 | 80 | 3.150 | 45 |
| PV60-FN | 62 | 2.441 | 5.5 | 0.217 | 70 | 2.756 | 50 | 1.969 | 14 | 0.551 | 25 | 0.984 | 2.5 | 0.098 | 10.3 | 0.406 | 80 | 3.150 | 45 |
| PV90-FB | 90 | 3.543 | 6.5 | 0.256 | 100 | 3.937 | 80 | 3.150 | 20 | 0.787 | 40 | 1.575 | 3 | 0.118 | 14 | 0.551 | 116 | 4.567 | 45 |
| PV34-FE | 90 | 3.543 | 5.52 | 0.217 | 98.43 | 3.875 | 73.025 | 2.875 | 12.7 | 0.500 | 31.75 | 1.250 | 3 | 0.118 | 15 | 0.591 | 116 | 4.567 | 45 |

| | K Rear Thickness | | L1 Length (Ratio < 10:1) | | L2 Length (Ratio >10:1) | | M Dist. From Shaft End | | N Keyway Length | | O Key Height | | P Keyway Width | | Q Shoulder Height | | R Shoulder Diameter | | S Tap x Depth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | (mm) | (in) | |
| PV40-FB | 11 | 0.433 | 48.5 | 1.909 | 63 | 2.480 | 2.1 | 0.083 | 16 | 0.630 | 15 | 0.591 | 5 | 0.197 | 2 | 0.079 | 17.831 | 0.702 | M4x8 |
| PV17-FE | 11 | 0.433 | 48.5 | 1.909 | 63 | 2.480 | --- | --- | --- | --- | --- | --- | --- | --- | 2.3 | 0.091 | 11.633 | 0.458 | --- |
| PV60-FB | 16 | 0.630 | 71.5 | 2.815 | 91.5 | 3.602 | 3.2 | 0.126 | 16 | 0.630 | 18 | 0.709 | 5 | 0.197 | 1 | 0.039 | 28 | 1.102 | M5x12 |
| PV23-FE | 16 | 0.630 | 60.5 | 2.382 | 80.5 | 3.169 | --- | --- | 19 | 0.748 | 9.444 | 0.372 | Flat | --- | 1 | 0.039 | 19.939 | 0.785 | M5x12 |
| PV60-FN | 16 | 0.630 | 71.5 | 2.815 | 91.5 | 3.602 | 3.2 | 0.126 | 16 | 0.630 | 16 | 0.630 | 5 | 0.197 | 1 | 0.039 | 28 | 1.102 | M5x12 |
| PV90-FB | 17 | .670 | 90.5 | 3.563 | 114 | 4.488 | 3.197 | 0.126 | 28 | 1.102 | 22.5 | 0.886 | 6 | 0.236 | 1 | 0.039 | 38 | 1.496 | M6x12 |
| PV34-FE | 17 | .670 | 82 | 3.228 | 105.5 | 4.154 | --- | --- | 27 | 1.063 | 14.247 | 0.561 | 3.175 | 0.125 | 1 | 0.039 | 25 | 0.984 | M6x12 |

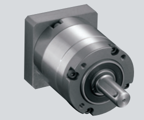
AD= Adapter length. See how to order page for mounting kit adapter lengths

# PV Completes The Parker Bayside Gear Family

The Parker Bayside gearhead family offers choices to customers in almost every possible feature/specification. The depth of the Parker Bayside gearhead family is unmatched with frame sizes from 40mm (1.57") up to 300mm (11.8"), ratio's from 3:1 to 100:1, environmental options, backlash availability from 3 arc minutes to 18 arc minutes and a multitude of output face and mounting options that can fit any application.

Helical planetary technology is superb for low backlash, high stiffness and high accuracy requirements making the Parker Bayside Stealth line of helical planetary gearheads ideal for these high and medium level performance applications. The introduction of the PV series gearhead completes the Parker Bayside gear family by offering a standard grade gearhead with the highest radial load capacity available today in a cost effective solution. Whether you need high, medium or standard grade performance, Parker Bayside can match the need.

All Parker Bayside gearheads are proudly manufactured in the USA in our state of the art facility which displays the best use of Lean manufacturing practices. For more information go to parkermotion.com or baysidemotion.com



## How to Order

**PV 60 F N - XXX - XXX**

**A B C D E F**

**A. PRODUCT:**

| | |
|---|---|
| PV | Power Versatility |

**B. FRAME SIZE:**[1]

| | |
|---|---|
| 40 | 40mm |
| 17 | NEMA 17 |
| 60 | 60mm |
| 23 | NEMA 23 |
| 90 | 90mm |
| 34 | NEMA 34 |

**C. FRONT FACE:**

| | |
|---|---|
| F | Flange (Square) Face |
| T | Round (Tapped) Face |

**D. OUTPUT FACE DIMENSIONS:**

| | |
|---|---|
| A | Alpha / Stober[2] |
| N | Neugart[3] |
| B | Parker Bayside (Same as PX)[2] |
| E | NEMA (English)[2,4] |

**E. RATIO:**

| | |
|---|---|
| XXX | 40/17 frame options = 004, 005, 007, 010, 016, 020, 035, 040, 050, 070, 100 |
| | 60/23 and 90/40 frame options = 003, 004, 005, 007, 009, 010, 012, 015, 016, 020, 025, 028, 030, 040, 050, 070, 100 |

**F. SPECIALS:**

| | |
|---|---|
| XXX | Factory Assigned |

## Mounting Kit

**MV 60 XXX**

**A B C**

**A. PRODUCT:**

| | |
|---|---|
| MV | PV mounting kit |

**B. FRAME SIZE:**

| | |
|---|---|
| 40 | 40mm / NEMA 17 |
| 60 | 60mm / NEMA 23 |
| 90 | 90mm / NEMA 34 |

**C. Factory assigned:**

| | |
|---|---|
| XXX | Consult factory for specials. |

| Frame Size | Motor Shaft Lengths mm (in) | Gearhead Adapter Lengths mm (in) |
|---|---|---|
| **PV40/PV17** | 12 thru 20 (0.472 thru 0.787)<br>20.1 thru 25.4 (0.791 thru 1.000) | 13.7(0.539)<br>19 (0.748) |
| **PV60/PV23** | 16 thru 25.4 (0.630 thru 1.000)<br>25.5 thru 31.8 (1.004 thru 1.252) | 16.5 (0.65)<br>22.5 (0.886) |
| **PV90/PV34** | 20 thru 31.8 (0.787 thru 1.252)<br>31.9 thru 40 (1.256 thru 7.575) | 20 (0.787)<br>28.5 (1.122) |

Notes:
(1) NEMA sizes only available with front face option 'F'
(2) Output face dimensions
Option 'A' only available with front face option 'T'
Option 'B' and 'E' only available with front face option 'F'
(3) For PV90FN use PV90FB
(4) Only availabe for NEMA 17,23 and 34

Parker Hannifin Corporation
Electromechanical Automation Division
parkermotion.com