

*planetroll*  
**planetdrive<sup>®</sup>**  
*Planetary Gearheads*



**DIEQUA**  
Corporation

*[www.diequa.com](http://www.diequa.com)*  
**630-980-1133**

## Planetary Servo Gearheads by Planetroll

### German Engineered - Economically Priced

The Planetdrive series of precision planetary servo gearheads provide an economical solution for motion control applications requiring high reliability and superior performance.

A wide variety of features, benefits, and special options are incorporated to maximize design versatility and satisfy the most demanding application requirements.



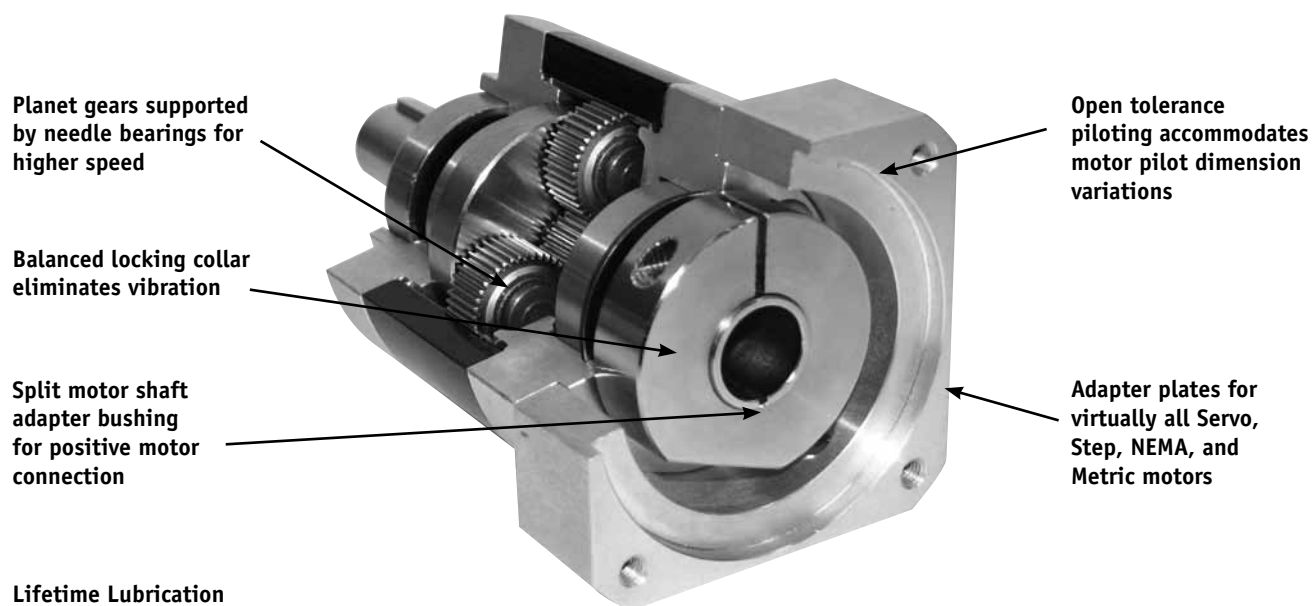
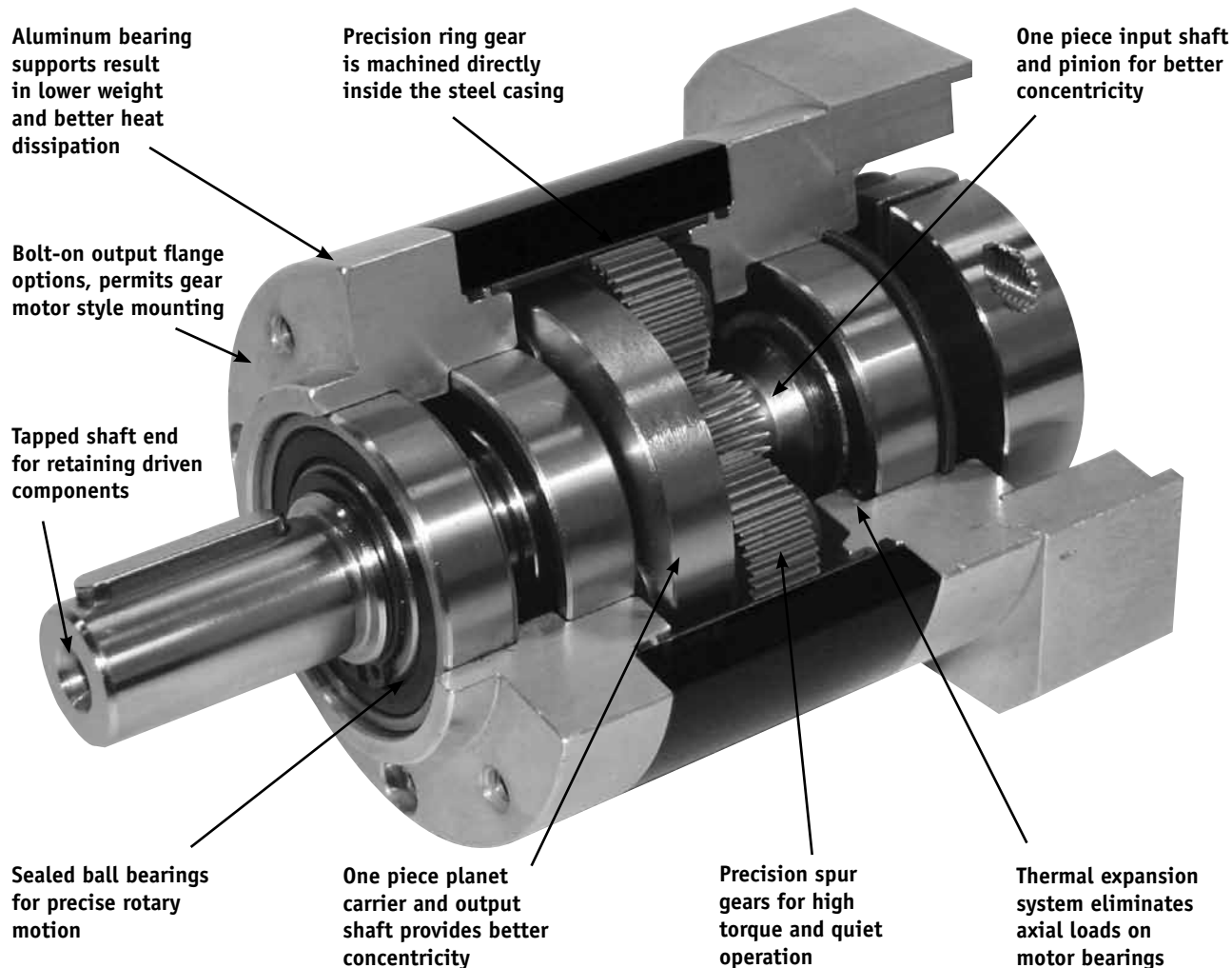
## Program Benefits

- Economical price for cost effective system integration.
- Self-centering design for easy servo or stepper motor mounting.
- Maintenance-free operation with lifetime grease lubrication.
- Mounting in any direction for design versatility
- High strength integral steel ring gear for maximum performance.
- Aluminum input and output flanges for low weight.
- Thermal expansion compensation system to accommodate temperature variations.
- Input adapter plates for mounting all Servo, Step, NEMA, and Metric motors.
- Explosion proof options with ATEX certification
- Optional output adapter flanges for alternate mounting dimensions.

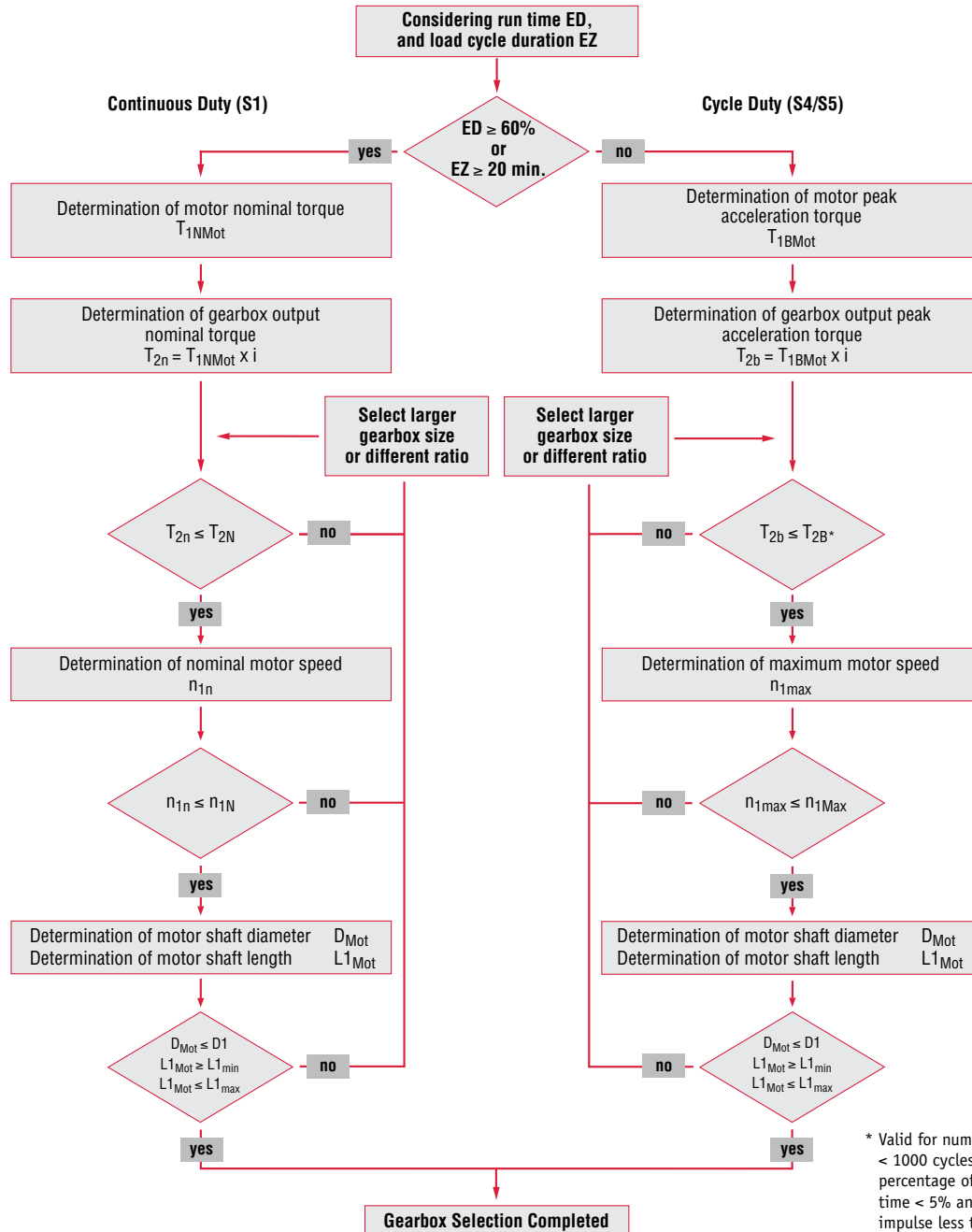
## Selection Guide Contents

|                            |       |                                 |           |
|----------------------------|-------|---------------------------------|-----------|
| Overview . . . . .         | pg. 2 | Dimensions . . . . .            | pg. 7     |
| Design Features . . . . .  | pg. 3 | Ordering Example . . . . .      | pg. 8     |
| Sizing Programs . . . . .  | pg. 4 | Flange Codes . . . . .          | pg. 8 - 9 |
| Selection Charts . . . . . | pg. 5 | Radial & Axial Load Ratings . . | pg. 10    |
| Technical Data . . . . .   | pg. 6 | Assembly Instructions . . . . . | pg. 11    |

***Planetdrive incorporates many of the advanced design features used in more expensive planetary gearheads.***



The quickest and most reliable method to determine the appropriate gearbox size for a specific application is a comparison of motor peak torque with gearbox data. In case the motor peak torque exceeds the permitted gearbox values, a calculation based on the actual application specific torque is required.



\* Valid for numbers of cycles  
< 1000 cycles per hour,  
percentage of total running  
time < 5% and duration of  
impulse less than 0.3 sec.

$T_{1NMot}$  nominal torque (from motor data)  
 $T_{1BMot}$  acceleration torque (from motor data)  
 $T_{2n}$  nominal torque on gearbox output side  
 $T_{2b}$  acceleration torque on gearbox output side  
 $T_{2N}$  nominal output torque (from catalog)  
 $T_{2B*}$  acceleration torque (from catalog)

$n_{1n}$  rated speed of motor (from motor data)  
 $n_{1N}$  rated input speed (from catalog)  
 $n_{1max}$  maximum motor speed (from motor data)  
 $n_{1Max}$  maximum perm. input speed (from catalog)  
 $i$  ratio

$D_{Mot}$  motor shaft diameter (from motor data)  
 $D_1$  motor shaft diameter (from catalog)  
 $L_{1Mot}$  motor shaft length (from catalog)  
 $L_{1min}$  minimum length of motor shaft (from catalog)  
 $L_{1max}$  maximum length of motor shaft (from catalog)

| Ratio | Stages | Size PD040      |                 |                 | Size PD065      |                 |                 | Size PD085      |                 |                 | Size PD120      |                 |                 | Size PD155      |                 |                 |
|-------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|       |        | T <sub>2N</sub> | T <sub>2B</sub> | T <sub>2E</sub> | T <sub>2N</sub> | T <sub>2B</sub> | T <sub>2E</sub> | T <sub>2N</sub> | T <sub>2B</sub> | T <sub>2E</sub> | T <sub>2N</sub> | T <sub>2B</sub> | T <sub>2E</sub> | T <sub>2N</sub> | T <sub>2B</sub> | T <sub>2E</sub> |
|       |        | Nm              |                 |                 | Nm              |                 |                 | Nm              |                 |                 | Nm              |                 |                 | Nm              |                 |                 |
| 3     | 1      | ---             | ---             | ---             | 13              | 25              | 39              | 35              | 70              | 105             | 85              | 160             | 255             | 160             | 290             | 480             |
| 4     | 1      | 4               | 8               | 12              | 14              | 28              | 42              | 45              | 88              | 135             | 90              | 180             | 270             | 250             | 375             | 750             |
| 5     | 1      | 4.5             | 8               | 13              | 16              | 32              | 48              | 45              | 90              | 135             | 110             | 210             | 330             | 270             | 405             | 810             |
| 7     | 1      | 4.5             | 8               | 13              | 15              | 28              | 45              | 43              | 86              | 129             | 90              | 160             | 270             | 270             | 405             | 810             |
| 9     | 1      | 4               | 7               | 12              | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             |
| 10    | 1      | ---             | ---             | ---             | 14              | 25              | 42              | 35              | 70              | 105             | 80              | 160             | 240             | 160             | 290             | 480             |
| 16    | 2      | 5               | 10              | 15              | 19              | 34              | 57              | 55              | 98              | 165             | 100             | 180             | 300             | 270             | 405             | 810             |
| 20    | 2      | 5               | 10              | 15              | 19              | 34              | 57              | 55              | 98              | 165             | 100             | 180             | 300             | 270             | 405             | 810             |
| 25    | 2      | 5               | 10              | 15              | 21              | 40              | 63              | 58              | 105             | 174             | 100             | 210             | 330             | 290             | 435             | 870             |
| 28    | 2      | 5               | 10              | 15              | 21              | 40              | 63              | 55              | 98              | 165             | 100             | 180             | 300             | 270             | 405             | 810             |
| 35    | 2      | 5               | 10              | 15              | 21              | 40              | 63              | 58              | 105             | 174             | 110             | 210             | 330             | 290             | 435             | 870             |
| 40    | 2      | ---             | ---             | ---             | 21              | 40              | 63              | 55              | 98              | 165             | 100             | 180             | 300             | 270             | 405             | 810             |
| 49    | 2      | 5               | 10              | 15              | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             | ---             |
| 50    | 2      | ---             | ---             | ---             | 21              | 40              | 63              | 58              | 105             | 174             | 110             | 210             | 330             | 290             | 435             | 870             |
| 70    | 2      | ---             | ---             | ---             | 17              | 32              | 51              | 50              | 90              | 150             | 95              | 175             | 285             | 290             | 435             | 870             |
| 100   | 2      | ---             | ---             | ---             | 16              | 29              | 48              | 35              | 70              | 105             | 85              | 160             | 255             | 170             | 310             | 510             |

## Torque Ratings

T<sub>2N</sub> = Nominal Torque  
(continuous operation)

T<sub>2B</sub> = Acceleration Torque  
(1000 cycles per hour,  
duty < 5% of run time)

T<sub>2E</sub> = E-Stop Torque  
(1000 times per lifetime)

## Inertia Conversions

1 kgcm<sup>2</sup> = 0.0001 kgm<sup>2</sup>

1 kgcm<sup>2</sup> = 0.0009 lbinsec<sup>2</sup>

1 kgm<sup>2</sup> = 10000 kgcm<sup>2</sup>

1 kgm<sup>2</sup> = 8.85 lbinsec<sup>2</sup>

1 lbinsec<sup>2</sup> = 1130 kgcm<sup>2</sup>

1 lbinsec<sup>2</sup> = 0.113 kgm<sup>2</sup>

| Moment of Inertia kgcm <sup>2</sup> |        |       |       |       |       |       |
|-------------------------------------|--------|-------|-------|-------|-------|-------|
| Ratio                               | Stages | PD040 | PD065 | PD085 | PD120 | PD155 |
| 3                                   | 1      | ---   | 0.367 | 1.62  | 3.66  | 10.6  |
| 4                                   | 1      | 0.060 | 0.324 | 1.44  | 2.97  | 7.8   |
| 5                                   | 1      | 0.058 | 0.314 | 1.36  | 2.68  | 6.8   |
| 7                                   | 1      | 0.057 | 0.304 | 1.30  | 2.48  | 6.1   |
| 9                                   | 1      | 0.056 | ---   | ---   | ---   | ---   |
| 10                                  | 1      | ---   | 0.299 | 1.27  | 2.39  | 5.8   |
| 16                                  | 2      | 0.060 | 0.321 | 1.42  | 2.96  | 7.0   |
| 20                                  | 2      | 0.058 | 0.312 | 1.35  | 2.68  | 6.4   |
| 25                                  | 2      | 0.058 | 0.311 | 1.35  | 2.67  | 6.3   |
| 28                                  | 2      | 0.058 | 0.303 | 1.29  | 2.48  | 6.1   |
| 35                                  | 2      | 0.057 | 0.303 | 1.29  | 2.47  | 6.0   |
| 40                                  | 2      | 0.057 | 0.299 | 1.26  | 2.40  | 5.8   |
| 49                                  | 2      | ---   | ---   | ---   | ---   | ---   |
| 50                                  | 2      | ---   | 0.299 | 1.26  | 2.39  | 5.8   |
| 70                                  | 2      | ---   | 0.298 | 1.26  | 2.39  | 5.8   |
| 100                                 | 2      | ---   | 0.298 | 1.20  | 2.39  | 5.8   |

| Maximum Backlash in Arc Minutes |        |    |
|---------------------------------|--------|----|
| Size                            | Stages |    |
|                                 | 1      | 2  |
| PD040                           | 15     | 25 |
| PD065                           | 12     | 15 |
| PD085                           | 10     | 15 |
| PD120                           | 10     | 12 |
| PD155                           | 8      | 10 |

| Efficiency % - Full Load |        |    |
|--------------------------|--------|----|
| Size                     | Stages |    |
|                          | 1      | 2  |
| PD040                    | 96     | 94 |
| PD065                    | 97     | 94 |
| PD085                    | 96     | 94 |
| PD120                    | 96     | 94 |
| PD155                    | 96     | 94 |

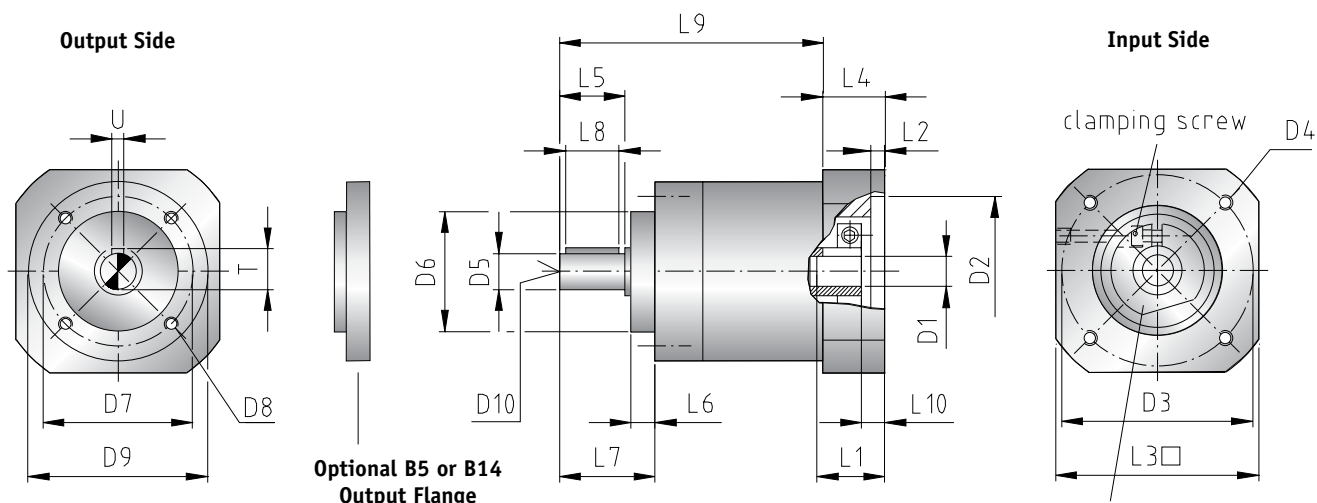
| Rated Input Speed in RPM |            |              |
|--------------------------|------------|--------------|
| Size                     | Continuous | Intermittent |
| PD040                    | 3000       | 6000         |
| PD065                    | 3000       | 6000         |
| PD085                    | 3000       | 5000         |
| PD120                    | 3000       | 5000         |
| PD155                    | 2600       | 3600         |

| Other Data            |                 |
|-----------------------|-----------------|
| Lubrication           | Lifetime Grease |
| Operating Temperature | -25C to +90C    |
| Mounting Position     | Any             |
| Protection            | IP64            |
| Running Noise         | 70 dB(A)        |
| Life Rating           | 20,000 hours    |

| Torsional Rigidity Nm/arc min |        |     |
|-------------------------------|--------|-----|
| Size                          | Stages |     |
|                               | 1      | 2   |
| PD040                         | 0.4    | 0.5 |
| PD065                         | 1.6    | 2   |
| PD085                         | 4.8    | 6   |
| PD120                         | 10     | 13  |
| PD155                         | 34     | 37  |

| Approximate Weight in kg |        |     |
|--------------------------|--------|-----|
| Size                     | Stages |     |
|                          | 1      | 2   |
| PD040                    | 0.3    | 0.4 |
| PD065                    | 1.3    | 1.7 |
| PD085                    | 2.6    | 3.5 |
| PD120                    | 6      | 8.6 |
| PD155                    | 12.6   | 17  |

--- For axial and radial load capacities, please see page 10 ---



| Dimension | Description               | PD040    | PD065                  | PD085      | PD120      | PD155      |
|-----------|---------------------------|----------|------------------------|------------|------------|------------|
| D1        | Max. Motor Shaft Diameter | 11       | 14                     | 19         | 24         | 32         |
| D2        | Motor Pilot*              | 22 - 60  | 22 - 80                | 50 - 110   | 50 - 180   | 70 - 230   |
| D3        | Bolt Circle*              | 32 - 75  | 40 - 100               | 60 - 130   | 65 - 215   | 85 - 265   |
| D4        | Bore/Thread*              | M3 - M5  | M3 - M6                | M4 - M8    | M4 - M10   | M5 - M12   |
| D5        | Output Shaft              | 10 k6    | 14 k6                  | 20 k6      | 25 k6      | 40 k6      |
| D6        | Output Pilot              | 25 h7    | 40 h7                  | 55 h7      | 80 h7      | 110 h7     |
| D7        | Output Bolt Circle        | 33       | 52                     | 70         | 100        | 130        |
| D8        | Bore/Thread               | M4 x 8   | M5 x 10                | M6 x 12    | M8 x 16    | M10 x 20   |
| D9        | Housing                   | 40       | 65                     | 85         | 120        | 155        |
| D10       | Shaft End Thread          | M4 x 10  | M5 x 12.5              | M6 x 16    | M10 x 22   | M16 x 36   |
| L1        | Input Shaft Length*       | 14 - 30  | 19 - 40                | 24 - 45    | 27 - 69    | 30 - 79    |
| L2        | Pilot Depth*              | 3 - 5    | 3.5 - 7                | 3.5 - 7    | 4 - 7      | 4 - 10     |
| L3        | Flange Diameter*          | 40 - 85  | 65 - 100               | 85 - 120   | 120 - 180  | 155 - 220  |
| L4        | Flange Width*             | 22 - 31  | 20 - 35                | 26 - 40    | 31 - 50    | 37 - 54    |
| L5        | Output Shaft Length       | 23       | 30                     | 40         | 50         | 80         |
| L6        | Pilot Depth               | 5        | 8                      | 8          | 10         | 14         |
| L7        | Install. Dimension        | 29       | 39                     | 49         | 61         | 95         |
| L8        | Key Length                | 18       | 25                     | 32         | 40         | 70         |
| L9        | Length - 1 Stage          | 68       | 105                    | 133        | 165        | 223        |
| L9        | Length - 2 Stage          | 84       | 129                    | 164        | 201        | 267        |
| U         | Key Width                 | 3        | 5                      | 6          | 8          | 12         |
| T         | Height Over Key           | 11.2     | 16                     | 22.5       | 28         | 43         |
|           | B5 Output Flange**        | Ø 80, 90 | Ø 90, 105,<br>120, 160 | Ø 120, 160 | Ø 200      | Ø 250      |
|           | B14 Output Flange**       |          |                        |            | Ø 160, 200 | Ø 200, 250 |

All dimensions are in mm

\* Actual dimensions depend on motor selected. See pages 8-9 for details.

\*\* Contact factory for ordering instructions.

|   |   |   |   |   |   |   |   |   |   |    |    |   |    |    |    |    |
|---|---|---|---|---|---|---|---|---|---|----|----|---|----|----|----|----|
| P | D | 1 | 2 | 0 | - | C | A | B | 0 | 2  | 8  | - | 1  | A  | A  | 1  |
| 1 | 2 | 3 | 4 | 5 |   | 6 | 7 | 8 | 9 | 10 | 11 |   | 12 | 13 | 14 | 15 |

| Box     | Description           | Code  |
|---------|-----------------------|-------|
| 1 - 5   | Planetary Gear Size   | PD120 |
| 6       | Motor Shaft           | C     |
| 7 - 8   | Flange Code           | AB    |
| 9 - 11  | Ratio                 | 028   |
| 12      | Keyed Output Shaft    | 1     |
| 13 - 14 | Standard Output Shaft | AA    |
| 15      | Black Finish          | 1     |

**Note:**

Boxes 12-15 represent standard design. Special design codes are available upon request.

## Box 1-5, Gearhead Size Codes

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| PD040 | PD065 | PD085 | PD120 | PD155 |
|-------|-------|-------|-------|-------|

## Box 6, Motor Shaft Code

| Size PD040       |         |
|------------------|---------|
| Motor Shaft Code | D1 (mm) |
| A                | 3       |
| B                | 4       |
| C                | 5       |
| D                | 6       |
| E                | 7       |
| F                | 8       |
| G                | 9       |
| H                | 10      |
| I                | 11      |
| J*               | 6.35    |
| K*               | 9.53    |

| Size PD065       |         |
|------------------|---------|
| Motor Shaft Code | D1 (mm) |
| A                | 6       |
| B                | 7       |
| C                | 8       |
| D                | 9       |
| E                | 10      |
| F                | 11      |
| G                | 12      |
| H                | 14      |
| I*               | 6.35    |
| J*               | 9.53    |
| K*               | 12.71   |

| Size PD085       |         |
|------------------|---------|
| Motor Shaft Code | D1 (mm) |
| A                | 9       |
| B                | 10      |
| C                | 11      |
| D                | 12      |
| E                | 14      |
| F                | 15      |
| G                | 16      |
| H                | 19      |
| J*               | 9.53    |
| K*               | 12.71   |
| L*               | 15.89   |

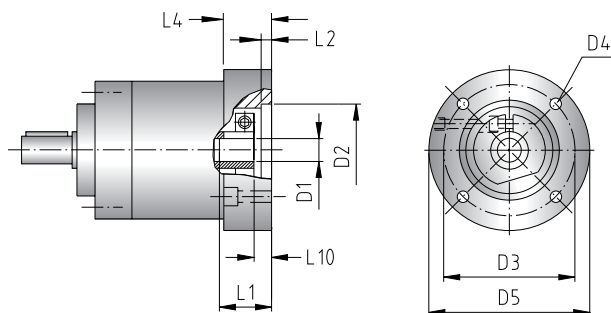
| Size PD120       |         |
|------------------|---------|
| Motor Shaft Code | D1 (mm) |
| A                | 14      |
| B                | 15      |
| C                | 16      |
| D                | 19      |
| E                | 22      |
| F                | 24      |
| G                | 11      |
| H                | 12      |
| L*               | 12.71   |
| M*               | 15.89   |
| N*               | 19.07   |

| Size PD155       |         |
|------------------|---------|
| Motor Shaft Code | D1 (mm) |
| A                | 19      |
| B                | 22      |
| C                | 24      |
| D                | 28      |
| E                | 32      |
| F                | 14      |
| G                | 15      |
| H                | 16      |
| K*               | 12.71   |
| L*               | 15.89   |
| M*               | 19.07   |

\* NEMA Dimensions

## Box 7-8, Motor Adapter Flange Codes

Additional flange codes available upon request.



Input Side

| Size PD040  |         |         |         |              |              |         |         |          |
|-------------|---------|---------|---------|--------------|--------------|---------|---------|----------|
| Flange Code | D2 (mm) | D3 (mm) | D4 (mm) | L1 min. (mm) | L1 max. (mm) | L2 (mm) | L4 (mm) | L10 (mm) |
| AA          | 25      | 32      | M3      | 15           | 27           | 3       | 28      | 4.5      |
| AB          | 25      | 63      | M5      | 14           | 26           | 3       | 27      | 3.5      |
| AC          | 30      | 46      | M4      | 14           | 26           | 3       | 27      | 3.5      |
| AD          | 35      | 65.5    | M5      | 14           | 26           | 3       | 27      | 3.5      |
| AE          | 30      | 46      | M5      | 14           | 26           | 3       | 27      | 3.5      |
| AH          | 30      | 45      | M3      | 15           | 27           | 3.5     | 28      | 4.5      |
| AI          | 50      | 70      | M4      | 18           | 30           | 3.5     | 31      | 7.5      |
| AJ          | 22      | 43.8    | 3.5     | 14           | 26           | 2.5     | 27      | 3.5      |
| AK          | 22      | 48      | M3      | 14           | 26           | 3       | 27      | 3.5      |
| AQ*         | 38.3    | 66.7    | M4      | 14           | 26           | 3       | 27      | 3.5      |

\* NEMA Dimensions

## Box 7-8, Motor Adapter Flange Codes, cont'd

| Size PD065  |         |         |         |              |              |         |         |          |
|-------------|---------|---------|---------|--------------|--------------|---------|---------|----------|
| Flange Code | D2 (mm) | D3 (mm) | D4 (mm) | L1 min. (mm) | L1 max. (mm) | L2 (mm) | L4 (mm) | L10 (mm) |
| AA          | 30      | 45      | M3      | 19           | 30.5         | 4       | 23      | 5        |
| AC          | 36      | 70.7    | M4      | 19           | 30.5         | 4       | 23      | 5        |
| AD          | 40      | 63      | M4      | 19           | 30.5         | 4       | 23      | 5        |
| AE          | 40      | 63      | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AF          | 40      | 70      | M4      | 19           | 30.5         | 4       | 23      | 5        |
| AG          | 50      | 60      | M4      | 19           | 30.5         | 4       | 23      | 5        |
| AH          | 50      | 65      | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AI          | 50      | 70      | M4      | 19           | 30.5         | 4       | 23      | 5        |
| AJ          | 50      | 70      | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AK          | 50      | 80      | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AL          | 50      | 95      | M6      | 19           | 30.5         | 4       | 23      | 5        |
| AM          | 50      | 100     | M6      | 19           | 30.5         | 4       | 23      | 5        |
| AN          | 60      | 75      | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AO          | 60      | 90      | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AP          | 70      | 90      | M5      | 21           | 32.5         | 4       | 25      | 7        |
| AQ          | 70      | 90      | M5      | 23           | 34.5         | 5.5     | 27      | 9        |
| AR          | 70      | 90      | M6      | 19           | 30.5         | 4       | 23      | 5        |
| AS*         | 73.1    | 98.5    | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AT          | 80      | 100     | M6      | 19           | 30.5         | 4       | 23      | 5        |
| AU          | 22      | 48      | M3      | 19           | 30.5         | 4       | 23      | 5        |
| AV          | 45      | 65.5    | M5      | 19           | 30.5         | 4       | 23      | 5        |
| AW          | 73.1    | 99      | M6      | 22           | 33.5         | 4       | 26      | 8        |
| AX          | 80      | 100     | M6      | 29           | 40.5         | 7       | 23      | 15       |
| BA*         | 38.3    | 66.6    | M4      | 19           | 30.5         | 3.5     | 23      | 5        |
| BI*         | 73      | 98.5    | M5      | 27           | 38.5         | 4       | 31      | 13       |

| Size PD085  |         |         |         |              |              |         |         |          |
|-------------|---------|---------|---------|--------------|--------------|---------|---------|----------|
| Flange Code | D2 (mm) | D3 (mm) | D4 (mm) | L1 min. (mm) | L1 max. (mm) | L2 (mm) | L4 (mm) | L10 (mm) |
| AA          | 50      | 60      | M4      | 24           | 41           | 4.5     | 28      | 5.5      |
| AB          | 50      | 65      | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AC          | 50      | 70      | M4      | 24           | 41           | 4.5     | 28      | 5.5      |
| AD          | 50      | 70      | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AE          | 50      | 80      | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AF          | 50      | 95      | M6      | 24           | 41           | 4.5     | 28      | 5.5      |
| AG          | 50      | 100     | M6      | 24           | 41           | 4.5     | 28      | 5.5      |
| AH          | 60      | 75      | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AI          | 60      | 90      | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AJ          | 70      | 90      | M5      | 26           | 43           | 5.5     | 30      | 7.5      |
| AK          | 70      | 90      | M5      | 28           | 45           | 5.5     | 32      | 9.5      |
| AM*         | 73.1    | 98.5    | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AO          | 50      | 95      | M6      | 25           | 42           | 5.5     | 29      | 6.5      |
| AP          | 50      | 100     | M6      | 25           | 42           | 5.5     | 29      | 6.5      |
| AR          | 60      | 99      | M6      | 24           | 41           | 4.5     | 28      | 5.5      |
| AS          | 70      | 90      | M5      | 24           | 41           | 4.5     | 28      | 5.5      |
| AT          | 70      | 90      | M6      | 24           | 41           | 4.5     | 28      | 5.5      |
| AU          | 80      | 100     | M6      | 24           | 41           | 4.5     | 28      | 5.5      |
| AV          | 95      | 115     | M8      | 24           | 41           | 4.5     | 28      | 5.5      |

| Size PD120  |         |         |         |              |              |         |         |          |
|-------------|---------|---------|---------|--------------|--------------|---------|---------|----------|
| Flange Code | D2 (mm) | D3 (mm) | D4 (mm) | L1 min. (mm) | L1 max. (mm) | L2 (mm) | L4 (mm) | L10 (mm) |
| AA          | 50      | 95      | M6      | 28           | 52           | 6.5     | 32      | 7.5      |
| AB          | 50      | 100     | M6      | 28           | 52           | 6.5     | 32      | 7.5      |
| AC          | 60      | 75      | M5      | 27           | 51           | 5.5     | 31      | 6.5      |
| AD          | 60      | 99      | M6      | 27           | 51           | 5.5     | 31      | 6.5      |
| AE          | 70      | 90      | M5      | 27           | 51           | 5.5     | 31      | 6.5      |
| AF          | 70      | 90      | M6      | 27           | 51           | 5.5     | 31      | 6.5      |
| AG          | 80      | 100     | M6      | 27           | 51           | 5.5     | 31      | 6.5      |
| AH          | 95      | 115     | M8      | 27           | 51           | 5.5     | 31      | 6.5      |
| AI          | 95      | 130     | M8      | 27           | 51           | 5.5     | 31      | 6.5      |
| AJ          | 110     | 130     | M8      | 27           | 51           | 5.5     | 31      | 6.5      |
| AK          | 110     | 130     | M8      | 38           | 62           | 7       | 42      | 17.5     |
| AL          | 110     | 145     | M8      | 45           | 69           | 7       | 49      | 24.5     |
| AM          | 110     | 165     | M10     | 38           | 62           | 7       | 42      | 17.5     |
| AN          | 80      | 100     | M6      | 45           | 69           | 7       | 49      | 24.5     |
| AO          | 95      | 115     | M8      | 45           | 69           | 7       | 49      | 24.5     |
| AP          | 95      | 115     | M8      | 31           | 55           | 7       | 35      | 10.5     |
| AQ          | 95      | 115     | M6      | 27           | 51           | 5.5     | 31      | 6.5      |
| AR          | 50      | 70      | M4      | 27           | 51           | 5.5     | 32      | 6.5      |

| Size PD155  |         |         |         |              |              |         |         |          |
|-------------|---------|---------|---------|--------------|--------------|---------|---------|----------|
| Flange Code | D2 (mm) | D3 (mm) | D4 (mm) | L1 min. (mm) | L1 max. (mm) | L2 (mm) | L4 (mm) | L10 (mm) |
| AA          | 95      | 115     | M8      | 30           | 64           | 6.5     | 39      | 8.5      |
| AB          | 95      | 130     | M8      | 30           | 64           | 6.5     | 39      | 8.5      |
| AC          | 110     | 130     | M8      | 30           | 64           | 6.5     | 39      | 8.5      |
| AD          | 110     | 145     | M8      | 30           | 64           | 6.5     | 39      | 8.5      |
| AE          | 110     | 145     | M8      | 40           | 74           | 10      | 49      | 18.5     |
| AF          | 110     | 145     | M8      | 45           | 79           | 10      | 54      | 23.5     |
| AG          | 110     | 165     | M10     | 30           | 64           | 6.5     | 39      | 8.5      |
| AH          | 130     | 165     | M10     | 40           | 74           | 10      | 49      | 18.5     |
| AI          | 80      | 100     | M6      | 30           | 64           | 6.5     | 39      | 8.5      |
| AJ          | 130     | 215     | M12     | 30           | 64           | 6.5     | 39      | 8.5      |
| AK          | 70      | 90      | M5      | 30           | 64           | 6.5     | 39      | 8.5      |

## Box 9-11, Ratio Codes

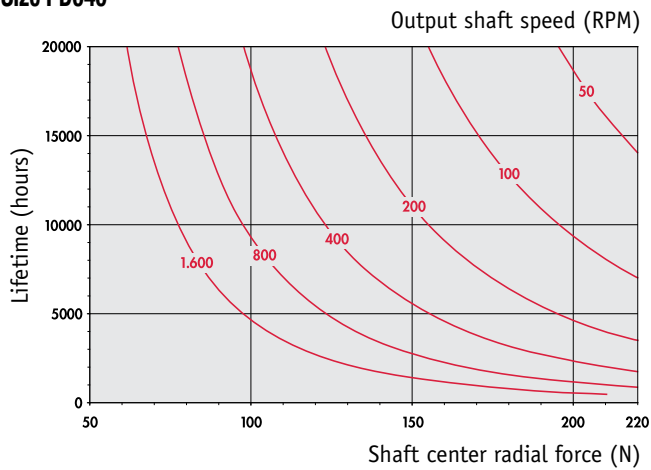
| 1 Stage |       | 2 Stages |       |      |       |
|---------|-------|----------|-------|------|-------|
| Code    | Ratio | Code     | Ratio | Code | Ratio |
| 003     | 3     | 016      | 16    | 040  | 40    |
| 004     | 4     | 020      | 20    | 049  | 49    |
| 005     | 5     | 025      | 25    | 050  | 50    |
| 007     | 7     | 028      | 28    | 070  | 70    |
| 009     | 9     | 035      | 35    | 100  | 100   |
| 010     | 10    |          |       |      |       |

\* NEMA Dimensions

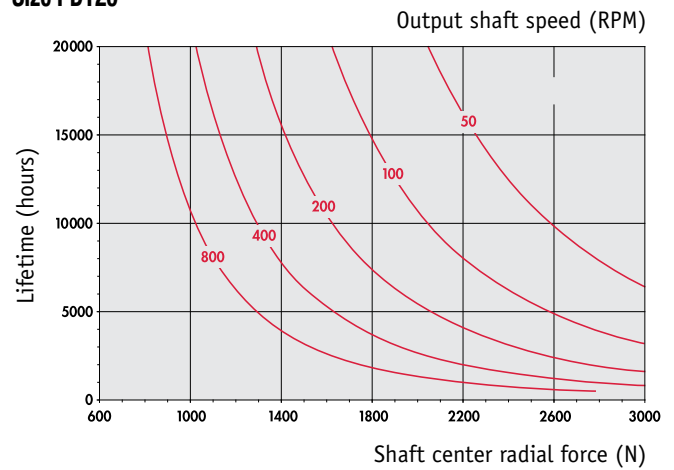
## Radial Load Ratings

The radial load ratings are a function of speed and required life.

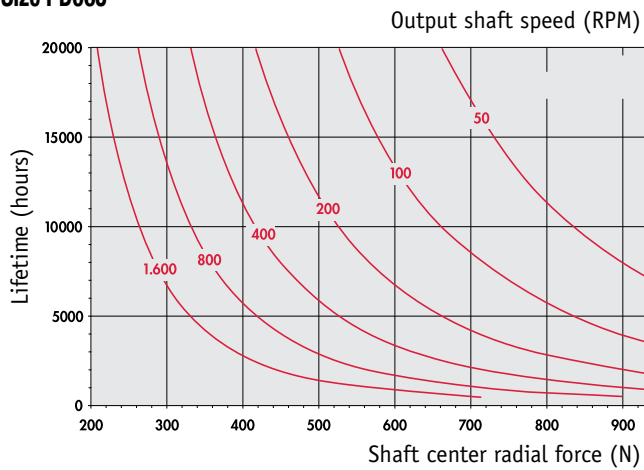
Size PD040



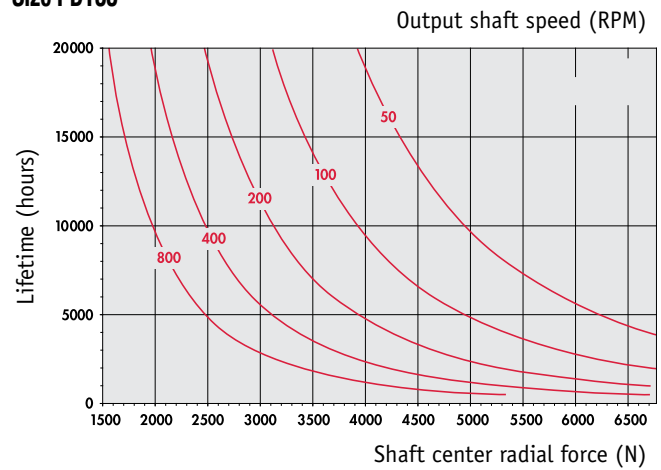
Size PD120



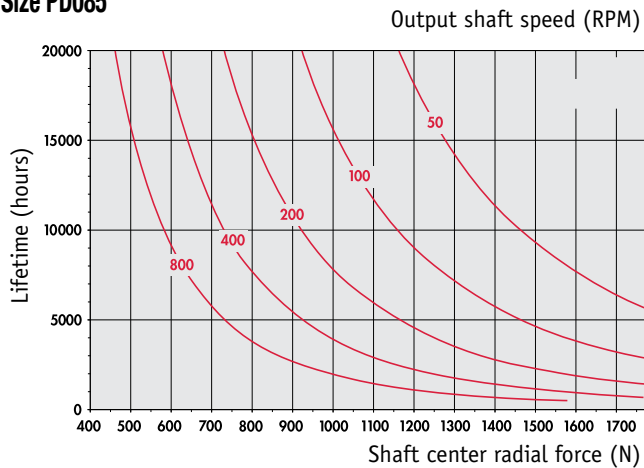
Size PD065



Size PD155



Size PD085



## Axial Load Ratings

| Size  | Rating |
|-------|--------|
| PD040 | 330 N  |
| PD065 | 1080 N |
| PD085 | 2180 N |
| PD120 | 3730 N |
| PD155 | 7730 N |

1 Newton (N) = 0.22 Pounds

1 Pound = 4.54 Newtons (N)

## General Instructions

Mounting of the Planetdrive servo gearhead to the servo motor is easy and trouble free when following these simple instructions. The motor is connected to the gear drive via a rigid hollow pinion. Reduction bushings may be used to accommodate various shaft sizes. It is important to use motors with shafts that are concentric and perpendicular to the flange centering ring and mounting surface.

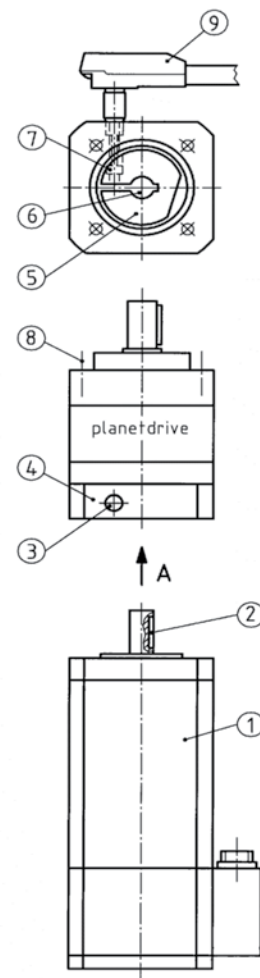
To avoid motor misalignments the motor adapter centering ring has been manufactured with an open tolerance. This reduces problems with motors that have shaft to pilot concentricity inaccuracies. It is therefore important to note that the gear drive and motor should be assembled in a vertical orientation and the connection clamp should be tightened prior to tightening the flange bolts. More detailed instructions follow.

The Planetdrive planetary gears are provided with lifetime lubrication and are maintenance free.

## Motor Mounting Instructions

1. If a key (2) exists in the motor shaft, it should be removed. With motor speeds over 3000 rpm there may be a possibility of motor shaft imbalance. The motor key seat should then be filled with a modified key which must not extend beyond the key way surface.
2. Remove the shaft clamp access hole plug (3) located in the motor adapter plate.
3. Turn the clamping element (5) until the head of the clamping screw (7) is visible through the access hole.
4. Examine the adapter flange (4), hollow bore(6), motor flange, and motor shaft for any scoring, nicks, or burrs. Clean all surfaces.
5. With some flange sizes, the adapter flange may have to be mounted on the motor first before attaching the gearbox.
6. Place the motor (1) in a vertical position with the shaft up. If the motor has a key way, it should be aligned opposite the split in the clamping element.
7. If a bore reduction bushing is used, the bushing split and clamping element split should be aligned.
8. Slide the gear drive carefully and evenly onto the motor shaft. Do not press or strike to aid assembly. If the gear drive is too heavy use a lifting device. The motor adapter face should seat completely on to the motor flange surface.
9. Tighten the clamping element screw (7) first to guaranty proper alignment. Use a torque wrench to assure the proper tightening torque.
10. Insert and tighten the (4) flange bolts.
11. Replace the shaft clamp access hole plug (3).

| Tightening Torque of the Clamping Screw |    |        |
|-----------------------------------------|----|--------|
| PD040                                   | M4 | 4.2 Nm |
| PD065                                   | M5 | 8.3 Nm |
| PD085                                   | M8 | 43 Nm  |
| PD120                                   | M8 | 43 Nm  |
| PD155                                   | M8 | 43 Nm  |



### Note:

Inappropriate assembly can lead to damage and invalidate the warranty.

# Other Servo Gearhead Products

## ServoFoxy



Precision Planetary  
& Bevel Gearheads

## Varvel



Economy Right Angle  
Worm Gearheads

## Dynabox



Right Angle  
Precision Gearheads

## WATT Drive



Helical Gearing  
Servo Gearheads

## The DieQua Advantage

DieQua Corporation has been a manufacturer and supplier of precision motion control components for over 30 years. We offer the widest range of servo gearhead and speed reducing solutions available from a single source. Featuring right angle and inline designs with multiple backlash precision levels, the largest number of ratios, and several mounting and output options, we have the drive that meets your needs.

### Engineering Support

DieQua Corporation has several decades of combined experience specifying power transmission and motion control components. This assures the proper selection of components and systems for your unique requirements.



### Assembly

DieQua Corporation has a team of factory trained technicians that assemble the majority of the drives we provide. This allows prompt delivery of your production requirements or service repairs.



### Warehousing

DieQua Corporation maintains an extensive inventory of common speed reducer and motor components for quick delivery of small orders, prototypes and spare parts.



### Manufacturing

DieQua Corporation's manufacturing capabilities allow production of many of the components used in the drives we provide. Mounting components and design modifications are also available from our full service machine shop.



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