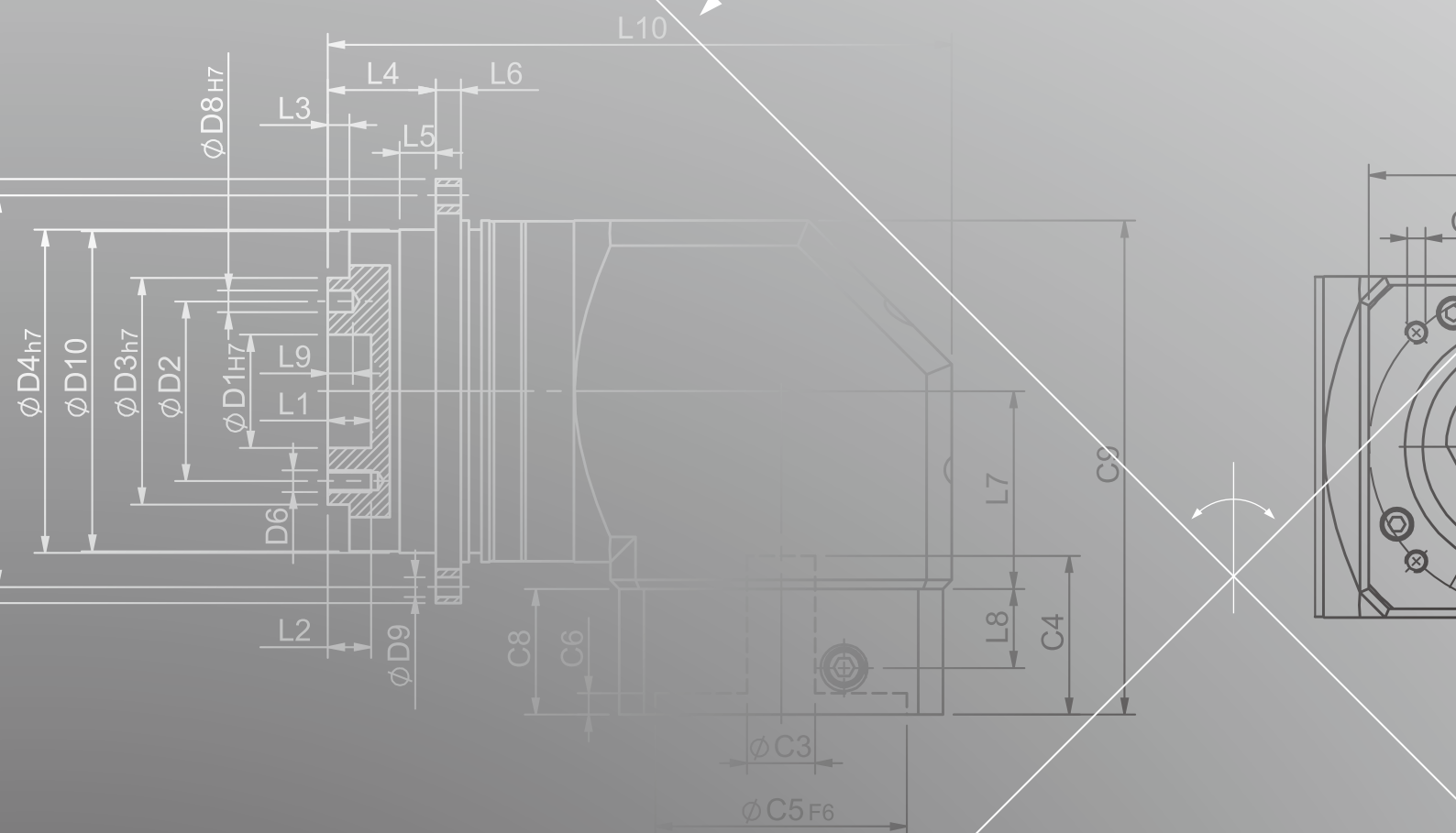
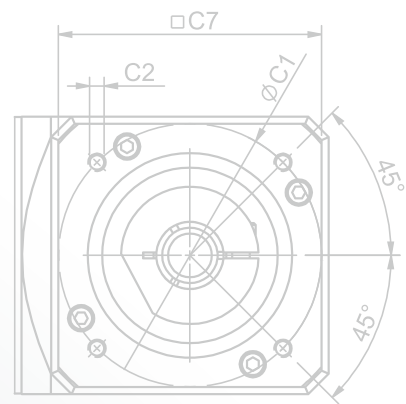
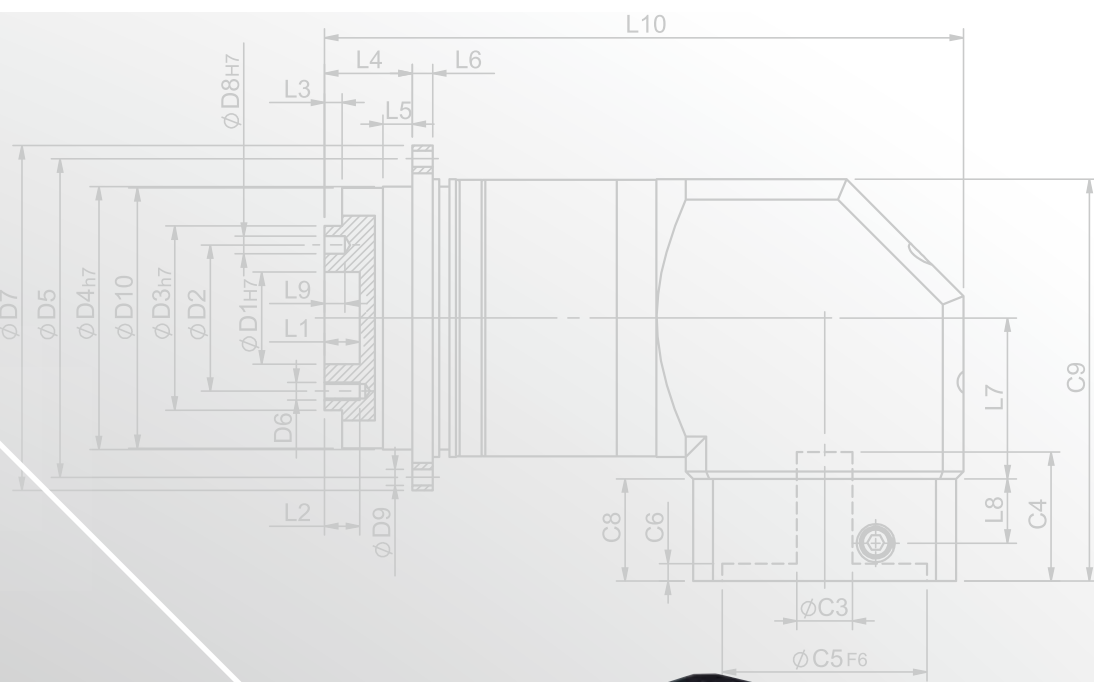
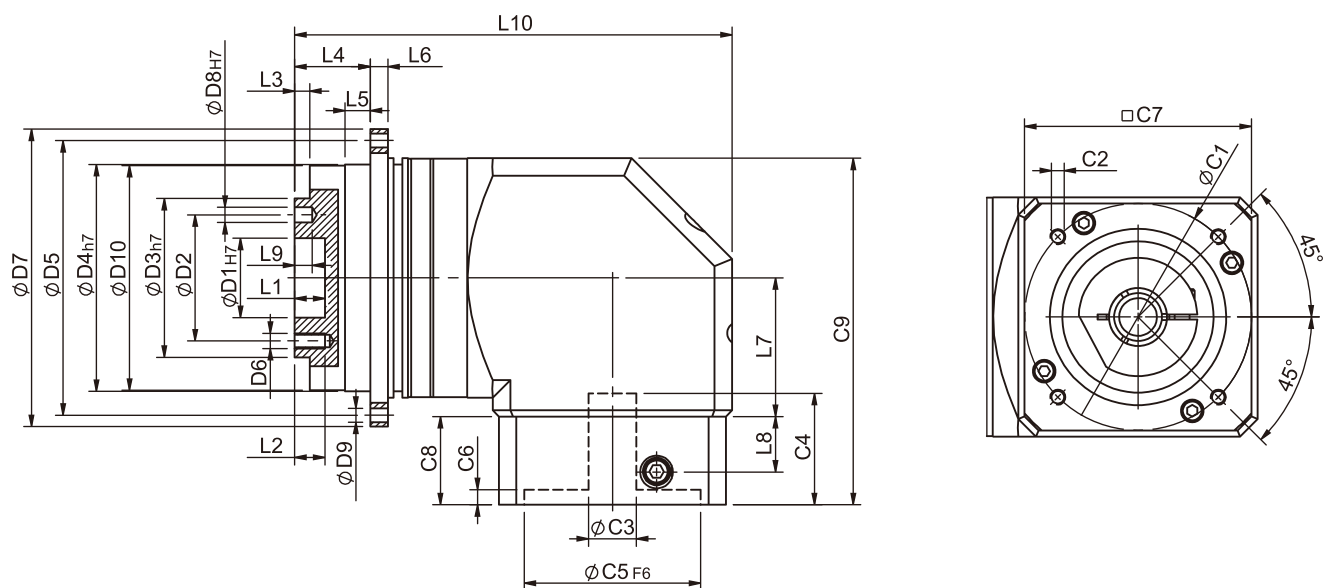


# ***PHFR SERIES***





## PHFR Single Stage Dimensions



## Specifications

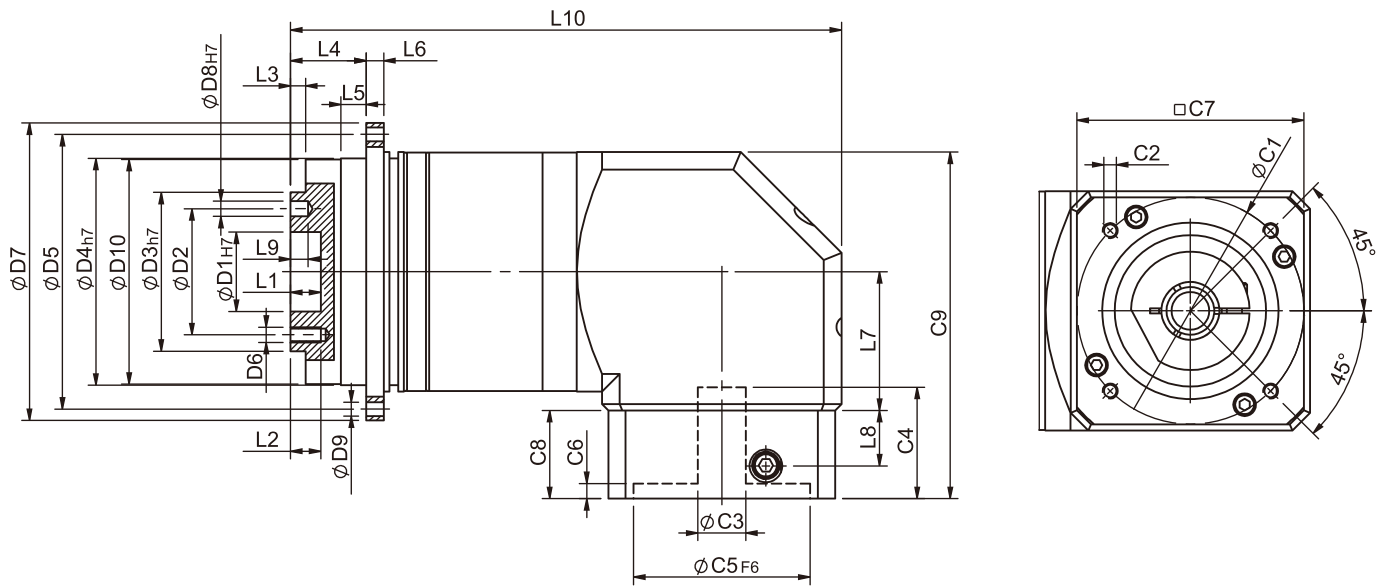
Unit:mm

| Dimensions                    | PHFR42  | PHFR60  | PHFR90  | PHFR115 | PHFR142  | PHFR200   | PHFR255   |
|-------------------------------|---------|---------|---------|---------|----------|-----------|-----------|
| D1 <sub>H7</sub>              | 12      | 20      | 31.5    | 40      | 50       | 80        | 100       |
| D2                            | 20      | 31.5    | 50      | 63      | 80       | 125       | 140       |
| D3 <sub>H7</sub>              | 28      | 40      | 63      | 80      | 100      | 160       | 180       |
| D4 <sub>H7</sub>              | 47      | 64      | 90      | 110     | 140      | 200       | 255       |
| D5                            | 67      | 79      | 109     | 135     | 168      | 233       | 280       |
| D6                            | M3x0.5P | M5x0.8P | M6x1.0P | M6x1.0P | M8x1.25P | M10x1.5P  | M16x2.0P  |
| D7                            | 72      | 86      | 118     | 145     | 179      | 247       | 300       |
| D8 <sub>H7</sub>              | 3       | 5       | 6       | 6       | 8        | 10        | 12        |
| D9                            | 3.4     | 4.5     | 5.5     | 5.5     | 6.6      | 9         | 13.5      |
| D10                           | 46.2    | 63.2    | 89.2    | 109.2   | 139.2    | 199.2     | 254.2     |
| L1                            | 4       | 8       | 12      | 12      | 12       | 16        | 20        |
| L2                            | 6       | 7.2     | 12      | 13.5    | 16       | 22.5      | 30.5      |
| L3                            | 3       | 3       | 6       | 6       | 6        | 8         | 12        |
| L4                            | 19.5    | 19.5    | 30      | 29      | 38       | 50        | 66        |
| L5                            | 7       | 7       | 10      | 10      | 14.6     | 15        | 20        |
| L6                            | 4       | 4       | 7       | 8       | 10       | 12        | 18        |
| L7                            | 32.2    | 44.8    | 55      | 69      | 71       | 92.5      | 92.5      |
| L8                            | 13.5    | 21.5    | 22      | 32      | 44.7     | 44        | 60        |
| L9                            | 4       | 6       | 7       | 7       | 7        | 10        | 10        |
| L10                           | 92.2    | 128.3   | 173.6   | 204.2   | 250.7    | 330.7     | 392.2     |
| C1 <sup>2</sup>               | 46      | 70      | 90      | 90      | 145      | 200       | 215       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P | M6x1.0P | M8x1.25P | M12x1.75P | M12x1.75P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24 | ≤24/≤32 | ≤35      | ≤50       | ≤55       |
| C4 <sup>2</sup>               | 29      | 34      | 44      | 53.5    | 76.8     | 78.8      | 98.7      |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70      | 70      | 110      | 114.3     | 180       |
| C6 <sup>2</sup>               | 6       | 5       | 5       | 5.5     | 9        | 6         | 6         |
| C7 <sup>2</sup>               | 42.6    | 60      | 90      | 115     | 140      | 180       | 220       |
| C8 <sup>2</sup>               | 25      | 33      | 35      | 48      | 65       | 65        | 85        |
| C9 <sup>2</sup>               | 78.5    | 112.8   | 137.5   | 176.5   | 225.5    | 246.5     | 266.5     |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PHFR Double Stage Dimensions-1



## Specifications

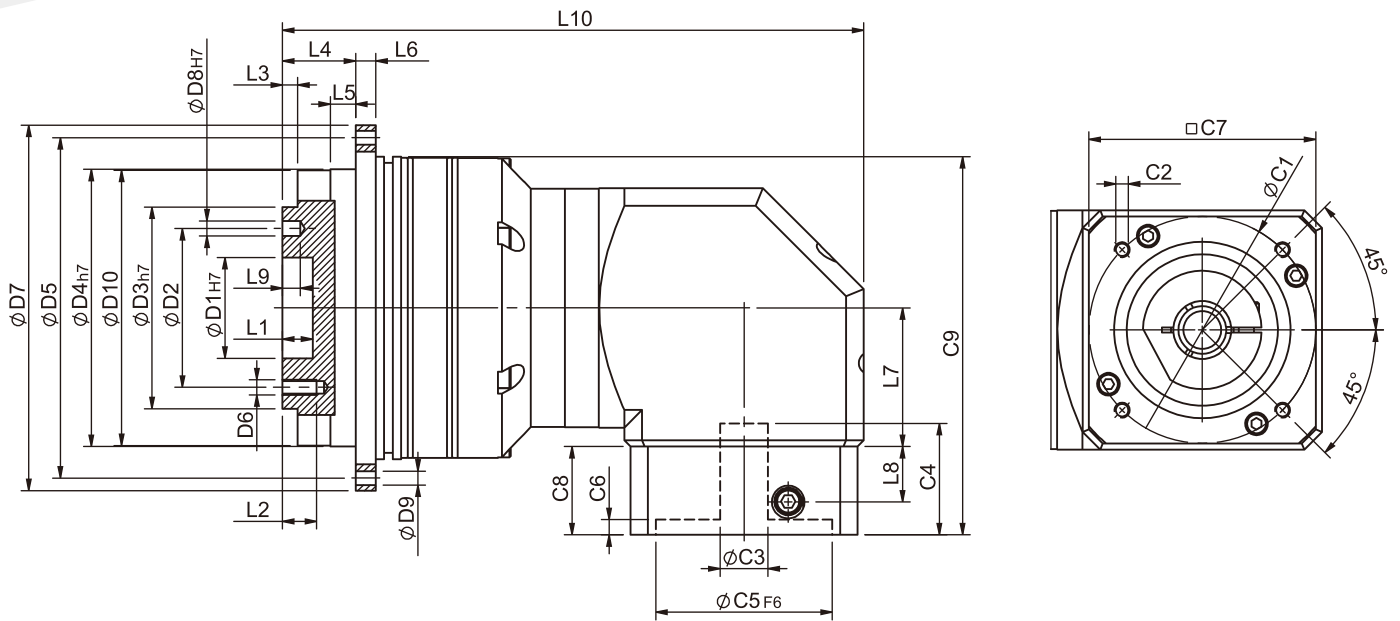
Unit:mm

| Dimensions         | PHFR42  | PHFR60  | PHFR90  |
|--------------------|---------|---------|---------|
| D1 H7              | 12      | 20      | 31.5    |
| D2                 | 20      | 31.5    | 50      |
| D3 h7              | 28      | 40      | 63      |
| D4 h7              | 47      | 64      | 90      |
| D5                 | 67      | 79      | 109     |
| D6                 | M3x0.5P | M5x0.8P | M6x1.0P |
| D7                 | 72      | 86      | 118     |
| D8 H7              | 3       | 5       | 6       |
| D9                 | 3.4     | 4.5     | 5.5     |
| D10                | 46.2    | 63.2    | 89.2    |
| L1                 | 4       | 8       | 12      |
| L2                 | 6       | 7.2     | 12      |
| L3                 | 3       | 3       | 6       |
| L4                 | 19.5    | 19.5    | 30      |
| L5                 | 7       | 7       | 10      |
| L6                 | 4       | 4       | 7       |
| L7                 | 32.2    | 44.8    | 55      |
| L8                 | 13.5    | 21.5    | 22      |
| L9                 | 4       | 6       | 7       |
| L10                | 119.9   | 163.3   | 218.6   |
| C1 <sup>2</sup>    | 46      | 70      | 90      |
| C2 <sup>2</sup>    | M4x0.7P | M5x0.8P | M6x1.0P |
| C3 <sup>2</sup>    | ≤8      | ≤14     | ≤19/≤24 |
| C4 <sup>2</sup>    | 29      | 34      | 44      |
| C5 <sup>2</sup> F6 | 30      | 50      | 70      |
| C6 <sup>2</sup>    | 6       | 5       | 5       |
| C7 <sup>2</sup>    | 42.6    | 60      | 90      |
| C8 <sup>2</sup>    | 25      | 33      | 35      |
| C9 <sup>2</sup>    | 78.5    | 112.8   | 137.5   |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PHFR Double Stage Dimensions-2



## Specifications

Unit:mm

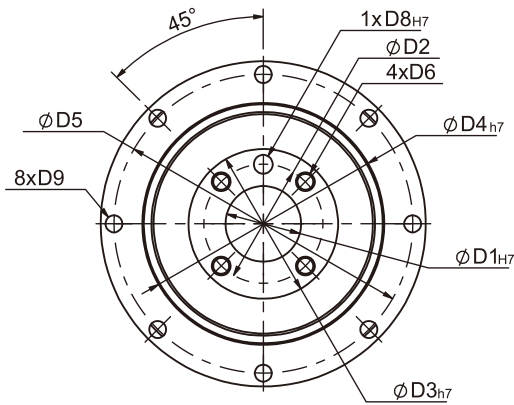
| Dimensions                    | PHFR60T | PHFR90T | PHFR115T | PHFR142T | PHFR200T | PHFR255T  |
|-------------------------------|---------|---------|----------|----------|----------|-----------|
| D1 <sub>H7</sub>              | 20      | 31.5    | 40       | 50       | 80       | 100       |
| D2                            | 31.5    | 50      | 63       | 80       | 125      | 140       |
| D3 <sub>h7</sub>              | 40      | 63      | 80       | 100      | 160      | 180       |
| D4 <sub>h7</sub>              | 64      | 90      | 110      | 140      | 200      | 255       |
| D5                            | 79      | 109     | 135      | 168      | 233      | 280       |
| D6                            | M5x0.8P | M6x1.0P | M6x1.0P  | M8x1.25P | M10x1.5P | M16x2.0P  |
| D7                            | 86      | 118     | 145      | 179      | 247      | 300       |
| D8 <sub>H7</sub>              | 5       | 6       | 6        | 8        | 10       | 12        |
| D9                            | 4.5     | 5.5     | 5.5      | 6.6      | 9        | 13.5      |
| D10                           | 63.2    | 89.2    | 109.2    | 139.2    | 199.2    | 254.2     |
| L1                            | 8       | 12      | 12       | 12       | 16       | 20        |
| L2                            | 7.2     | 12      | 13.5     | 16       | 22.5     | 30.5      |
| L3                            | 3       | 6       | 6        | 6        | 8        | 12        |
| L4                            | 19.5    | 30      | 29       | 38       | 50       | 66        |
| L5                            | 7       | 10      | 10       | 14.6     | 15       | 20        |
| L6                            | 4       | 7       | 8        | 10       | 12       | 18        |
| L7                            | 32.2    | 44.8    | 55       | 69       | 71       | 92.5      |
| L8                            | 13.5    | 21.5    | 22       | 32       | 44.7     | 44        |
| L9                            | 6       | 7       | 7        | 7        | 10       | 10        |
| L10                           | 130.6   | 173.8   | 230.6    | 270.7    | 361.4    | 439.2     |
| C1 <sup>2</sup>               | 46      | 70      | 90       | 90       | 145      | 200       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  | M6x1.0P  | M8x1.25P | M12x1.75P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  | ≤24/≤32  | ≤35      | ≤50       |
| C4 <sup>2</sup>               | 29      | 34      | 44       | 53.5     | 76.8     | 78.8      |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       | 70       | 110      | 114.3     |
| C6 <sup>2</sup>               | 6       | 5       | 5        | 5.5      | 9        | 6         |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       | 115      | 140      | 92.5      |
| C8 <sup>2</sup>               | 25      | 33      | 35       | 48       | 65       | 65        |
| C9 <sup>2</sup>               | 84.4    | 125.3   | 150      | 176.5    | 259.5    | 284       |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

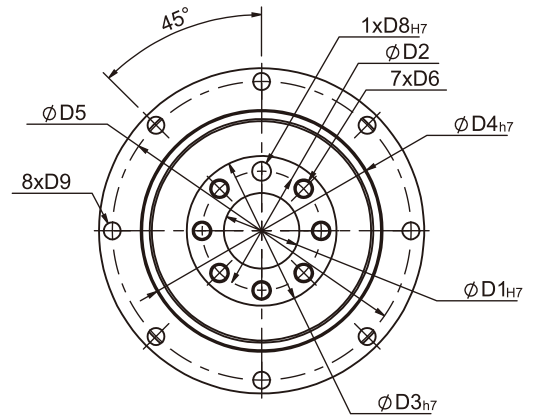
★ Specification subject to change without notice.

## PHFR Flange Dimensions

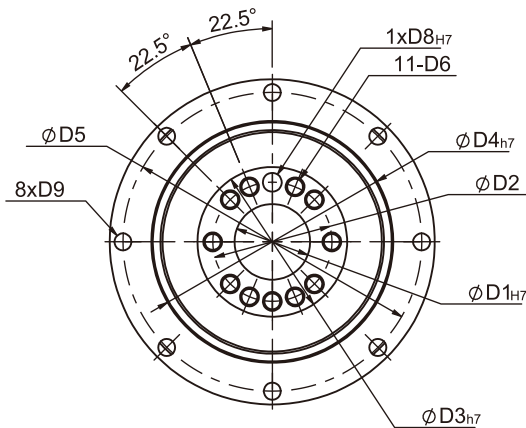
PHFR42



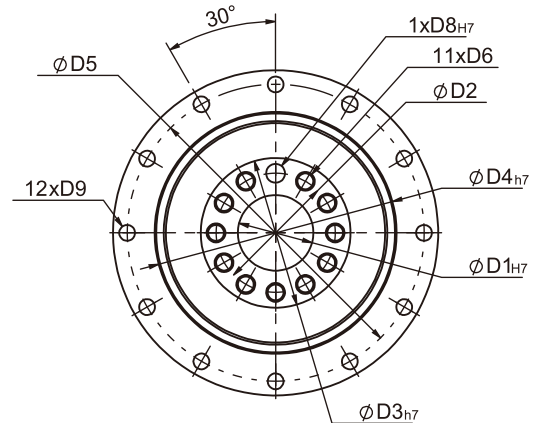
PHFR60  
PHFR90



PHFR115



PHFR142  
PHFR200



## Specifications

Unit:mm

| Dimensions       | PHFR42  | PHFR60  | PHFR90  | PHFR115 | PHFR142  | PHFR200  |
|------------------|---------|---------|---------|---------|----------|----------|
| D1 <sub>H7</sub> | 12      | 20      | 31.5    | 40      | 50       | 80       |
| D2               | 20      | 31.5    | 50      | 63      | 80       | 125      |
| D3 <sub>h7</sub> | 28      | 40      | 63      | 80      | 100      | 160      |
| D4 <sub>h7</sub> | 47      | 64      | 90      | 110     | 140      | 200      |
| D5               | 67      | 79      | 109     | 135     | 168      | 233      |
| D6               | M3x0.5P | M5x0.8P | M6x1.0P | M6x1.0P | M8x1.25P | M10x1.5P |
| D8 <sub>H7</sub> | 3       | 5       | 6       | 6       | 8        | 10       |
| D9               | 3.4     | 4.5     | 5.5     | 5.5     | 6.6      | 9        |

★ Specification subject to change without notice.

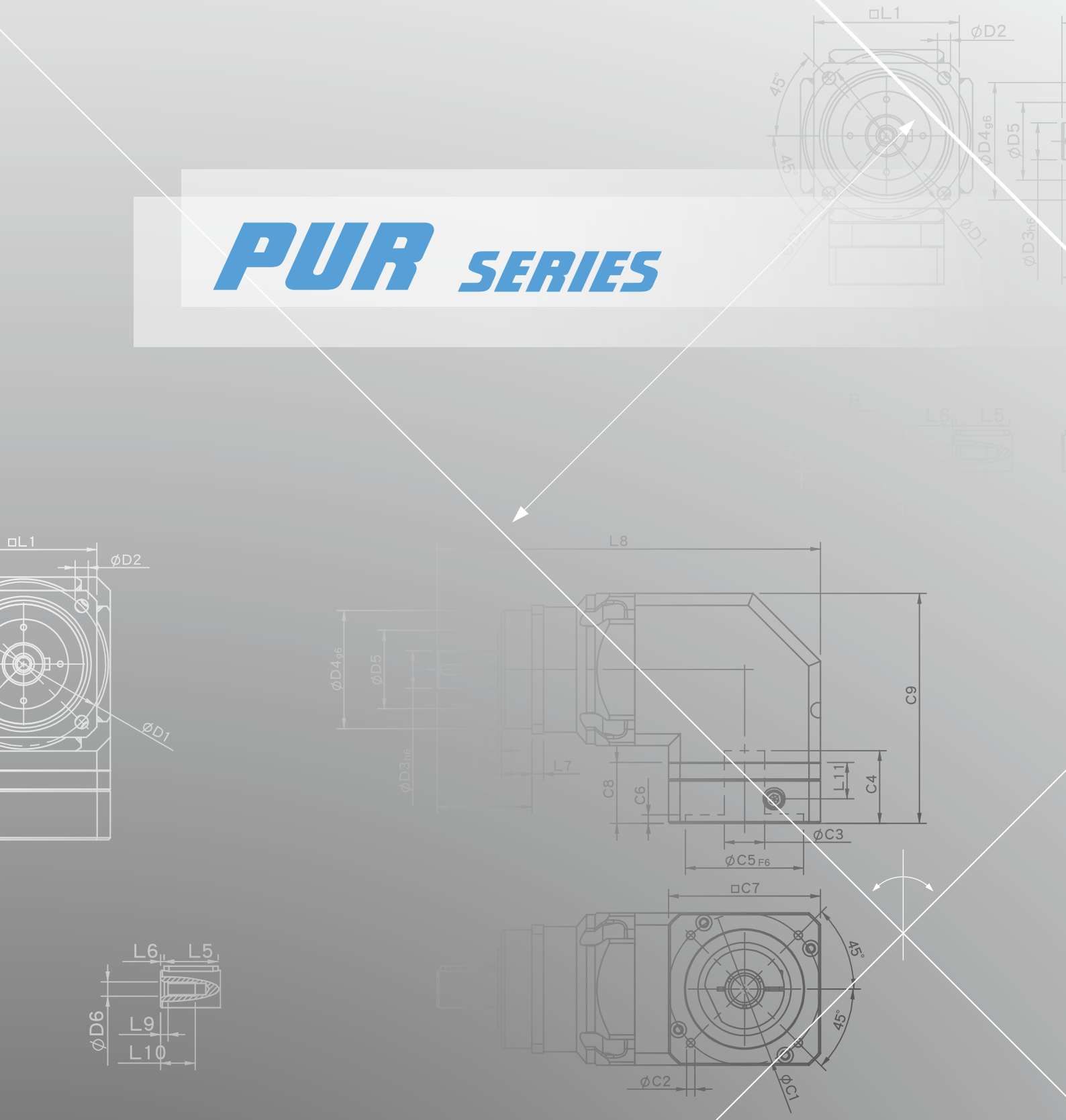
## PHFR Specifications Table

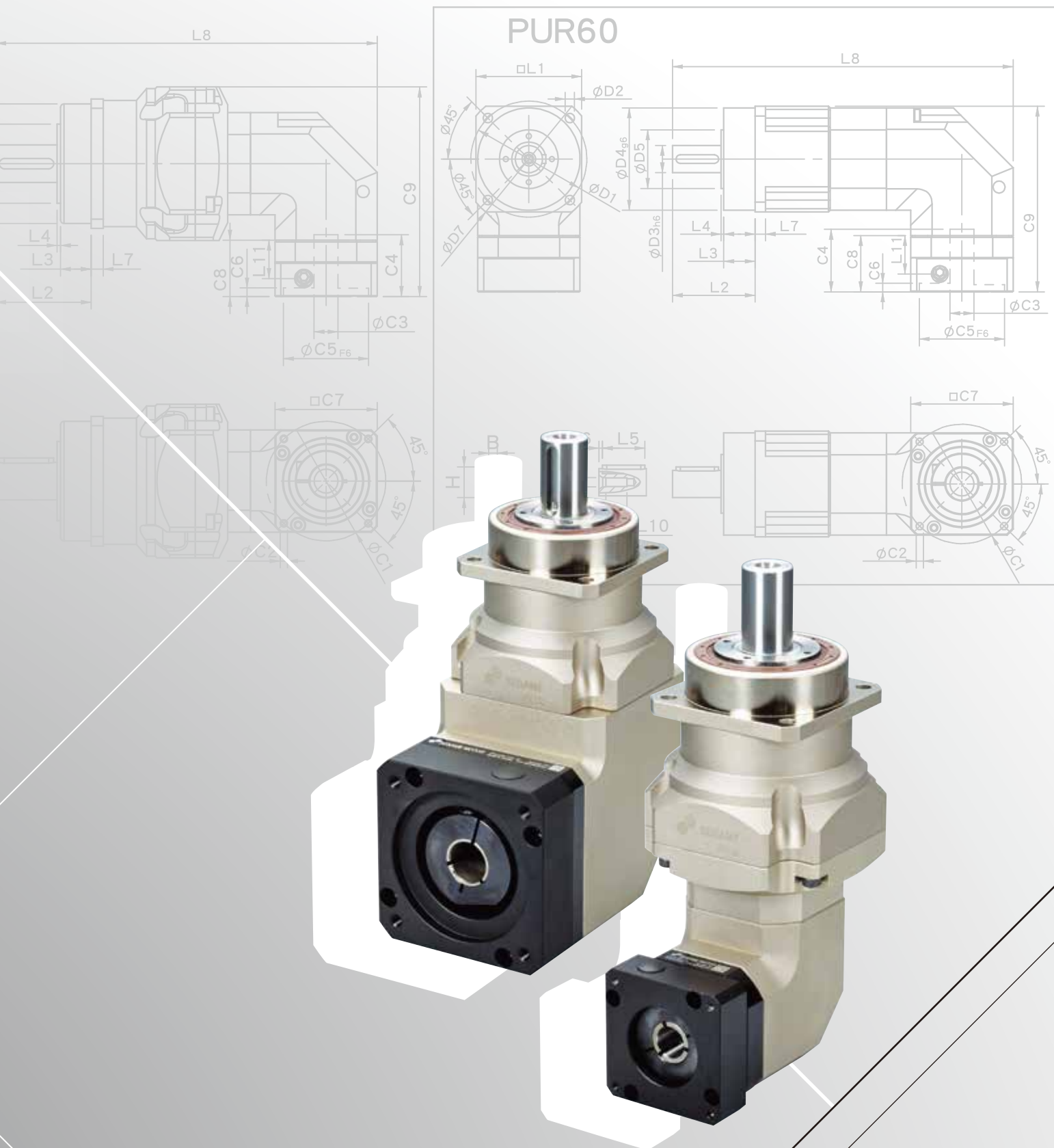
| Specifications                                                                                                                                                                                                                    |                     | Stage                | Ratio                                                                                                  | PHFR-42                              | PHFR-60              | PHFR-90              | PHFR-115             | PHFR-142             | PHFR-200             | PHFR-255             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Nominal Output Torque $T_{2N}$                                                                                                                                                                                                    | $N \cdot m$         | 1                    | 3                                                                                                      | -                                    | 40                   | 105                  | 180                  | 340                  | 580                  | 950                  |
|                                                                                                                                                                                                                                   |                     |                      | 4                                                                                                      | 16                                   | 43                   | 110                  | 240                  | 500                  | 1100                 | 1500                 |
|                                                                                                                                                                                                                                   |                     |                      | 5                                                                                                      | 17                                   | 50                   | 130                  | 290                  | 600                  | 1200                 | 1800                 |
|                                                                                                                                                                                                                                   |                     |                      | 7                                                                                                      | 14                                   | 44                   | 125                  | 270                  | 530                  | 1100                 | 1750                 |
|                                                                                                                                                                                                                                   |                     |                      | 10                                                                                                     | 17                                   | 50                   | 130                  | 260                  | 540                  | 900                  | 1500                 |
|                                                                                                                                                                                                                                   |                     |                      | 14                                                                                                     | 14                                   | 44                   | 125                  | 270                  | 530                  | 1100                 | 1750                 |
|                                                                                                                                                                                                                                   |                     | 20                   | 11                                                                                                     | 37                                   | 95                   | 220                  | 430                  | 900                  | 1450                 |                      |
|                                                                                                                                                                                                                                   |                     | Stage                | Ratio                                                                                                  | PHFR-42                              | PHFR-60 (T)          | PHFR-90(T)           | PHFR-115T            | PHFR-142T            | PHFR-200T            | PHFR-255T            |
|                                                                                                                                                                                                                                   |                     | 2                    | 15                                                                                                     | -                                    | 40                   | 105                  | 180                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 20                                                                                                     | 16                                   | 43                   | 110                  | 240                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 25                                                                                                     | 17                                   | 50                   | 130                  | 290                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 30                                                                                                     | 17                                   | 40                   | 105                  | 180                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 35                                                                                                     | 17                                   | 50                   | 130                  | 290                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 40                                                                                                     | 16                                   | 43                   | 110                  | 240                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 50                                                                                                     | 17                                   | 50                   | 130                  | 290                  | 600                  | 1200                 | 2000                 |
|                                                                                                                                                                                                                                   |                     |                      | 70                                                                                                     | 14                                   | 44                   | 125                  | 270                  | 530                  | 1100                 | 1750                 |
|                                                                                                                                                                                                                                   |                     |                      | 100                                                                                                    | 11                                   | 37                   | 95                   | 220                  | 430                  | 900                  | 1450                 |
|                                                                                                                                                                                                                                   |                     |                      | 140                                                                                                    | 14                                   | 44                   | 125                  | 270                  | 530                  | 1100                 | 1750                 |
|                                                                                                                                                                                                                                   |                     | 200                  | 11                                                                                                     | 37                                   | 95                   | 220                  | 430                  | 900                  | 1450                 |                      |
| Emergency Stop Torque $T_{2NOT}$                                                                                                                                                                                                  | $N \cdot m$         |                      | ( 3.0 times of Nominal Output Torque)<br>(*Max. Output Torque $T_{2B}$ = 60% of Emergency Stop Torque) |                                      |                      |                      |                      |                      |                      |                      |
| Nominal Input Speed $n_{1N}$                                                                                                                                                                                                      | rpm                 | 1,2                  | 3-200                                                                                                  | 5000                                 | 5000                 | 4000                 | 4000                 | 3000                 | 3000                 | 2000                 |
| Max. Input Speed $n_{1max}$                                                                                                                                                                                                       | rpm                 | 1,2                  | 3-200                                                                                                  | 10000                                | 10000                | 8000                 | 8000                 | 6000                 | 6000                 | 4000                 |
| Micro Backlash P0                                                                                                                                                                                                                 | arcmin              | 1<br>2               | 3-20<br>15-200                                                                                         | -<br>-                               | -<br>-               | $\leq 3$<br>$\leq 5$ | $\leq 2$<br>$\leq 4$ | $\leq 2$<br>$\leq 4$ | $\leq 2$<br>$\leq 4$ | $\leq 2$<br>$\leq 4$ |
| Precision Backlash P1                                                                                                                                                                                                             | arcmin              | 1<br>2               | 3-20<br>15-200                                                                                         | $\leq 5$<br>$\leq 7$                 | $\leq 5$<br>$\leq 7$ | $\leq 5$<br>$\leq 7$ | $\leq 4$<br>$\leq 7$ | $\leq 4$<br>$\leq 7$ | $\leq 4$<br>$\leq 7$ | $\leq 4$<br>$\leq 7$ |
| Standard Backlash P2                                                                                                                                                                                                              | arcmin              | 1<br>2               | 3-20<br>15-200                                                                                         | $\leq 7$<br>$\leq 9$                 | $\leq 7$<br>$\leq 9$ | $\leq 7$<br>$\leq 9$ | $\leq 6$<br>$\leq 9$ | $\leq 6$<br>$\leq 9$ | $\leq 6$<br>$\leq 9$ | $\leq 6$<br>$\leq 9$ |
| Torsional Rigidity                                                                                                                                                                                                                | $N \cdot m$ /arcmin | 1,2                  | 3-200                                                                                                  | 6                                    | 12                   | 30                   | 80                   | 150                  | 450                  | 1000                 |
| Max. Bending Moment $M_{2kB}^1$                                                                                                                                                                                                   | $N \cdot m$         | 1,2                  | 3-200                                                                                                  | 43                                   | 125                  | 288                  | 503                  | 1470                 | 2950                 | 6500                 |
| Max. Axial Load $F_{2aB}^1$                                                                                                                                                                                                       | N                   | 1,2                  | 3-200                                                                                                  | 1015                                 | 1340                 | 2868                 | 3890                 | 9850                 | 12560                | 21850                |
| Operating Temp.                                                                                                                                                                                                                   | °C                  |                      | 3-200                                                                                                  | -10 °C ~ +90 °C                      |                      |                      |                      |                      |                      |                      |
| Service Life                                                                                                                                                                                                                      | hr                  |                      | 3-200                                                                                                  | 20,000 (10,000 Continuous operation) |                      |                      |                      |                      |                      |                      |
| Efficiency                                                                                                                                                                                                                        | %                   | 1<br>2               | 3-20<br>15-200                                                                                         | $\geq 95\%$<br>$\geq 92\%$           |                      |                      |                      |                      |                      |                      |
| Weight                                                                                                                                                                                                                            | kg                  | 1<br>2               | 3-20<br>15-200                                                                                         | 1.1<br>1.6                           | 2.3<br>3.2/2.2       | 6.6<br>8.6/5.3       | 13.5<br>14.8         | 25.1<br>26.7         | 50<br>55             | 85<br>88             |
| Mounting Position                                                                                                                                                                                                                 | -                   | 1,2                  | 3-200                                                                                                  | Any direction                        |                      |                      |                      |                      |                      |                      |
| Noise Level <sup>2</sup>                                                                                                                                                                                                          | dBA/1m              | 1,2                  | 3-200                                                                                                  | 62                                   | 64                   | 66                   | 68                   | 70                   | 72                   | 74                   |
| Protection Class                                                                                                                                                                                                                  | -                   | 1,2                  | 3-200                                                                                                  | IP65                                 |                      |                      |                      |                      |                      |                      |
| Lubrication                                                                                                                                                                                                                       | -                   | 1,2                  | 3-200                                                                                                  | Synthetic Lubricant                  |                      |                      |                      |                      |                      |                      |
| Inertia (J1)                                                                                                                                                                                                                      |                     |                      |                                                                                                        |                                      |                      |                      |                      |                      |                      |                      |
| Stage                                                                                                                                                                                                                             | Ratio               | unit                 |                                                                                                        | PHFR-42                              | PHFR-60              | PHFR-90              | PHFR-115             | PHFR-142             | PHFR-200             | PHFR-255             |
| 1                                                                                                                                                                                                                                 | 3/4/5/7/9           | Kg • cm <sup>2</sup> |                                                                                                        | 0.06                                 | 0.40                 | 2.28                 | 6.87                 | 24.2                 | 69.8                 | 138.2                |
|                                                                                                                                                                                                                                   | 10/14/20            |                      |                                                                                                        | 0.05                                 | 0.30                 | 1.45                 | 4.76                 | 14.5                 | 50.3                 | 103.6                |
| Stage                                                                                                                                                                                                                             | Ratio               |                      |                                                                                                        | PHFR-42                              | PHFR-60(T)           | PHFR-90(T)           | PHFR-115T            | PHFR-142T            | PHFR-200T            | PHFR-255T            |
| 2                                                                                                                                                                                                                                 | 15/20/25/35         |                      |                                                                                                        | 0.06                                 | 0.40(0.08)           | 2.28(0.72)           | 3.02                 | 7.83                 | 27.7                 | 80.3                 |
|                                                                                                                                                                                                                                   | others              |                      |                                                                                                        | 0.05                                 | 0.30(0.06)           | 1.45(0.38)           | 1.64                 | 5.00                 | 15.9                 | 55.3                 |
| * 1. Applied to the output shaft center at 100 rpm.                                                                                                                                                                               |                     |                      |                                                                                                        |                                      |                      |                      |                      |                      |                      |                      |
| * 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. |                     |                      |                                                                                                        |                                      |                      |                      |                      |                      |                      |                      |
| ※ The above figures/specifications are subject to change without prior notice.                                                                                                                                                    |                     |                      |                                                                                                        |                                      |                      |                      |                      |                      |                      |                      |

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

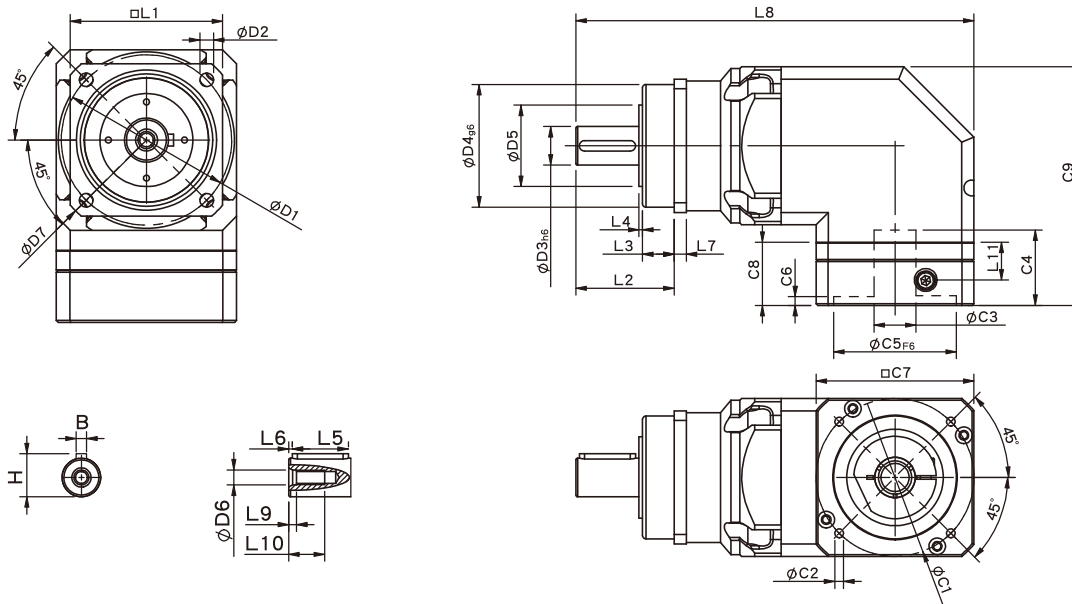


# ***PUR SERIES***





## PUR Single Stage Dimensions



## Specifications

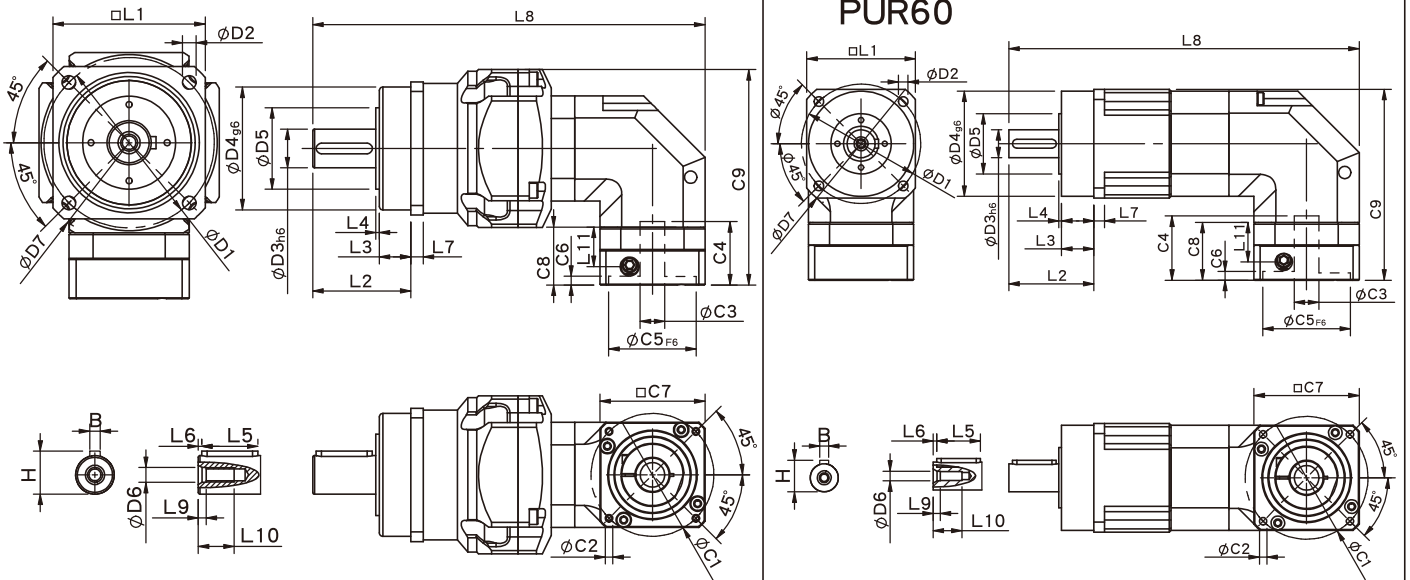
Unit:mm

| Dimensions        | PUR60   | PUR75    | PUR100    | PUR140   | PUR180    | PUR220    |
|-------------------|---------|----------|-----------|----------|-----------|-----------|
| D1 <sup>H7</sup>  | 68      | 85       | 120       | 165      | 215       | 250       |
| D2                | 5.5     | 6.8      | 9         | 11       | 13        | 17        |
| D3 <sub>h6</sub>  | 16      | 22       | 32        | 40       | 55        | 75        |
| D4 <sub>g6</sub>  | 60      | 70       | 90        | 130      | 160       | 180       |
| D5                | 34.4    | 46.4     | 59.6      | 79.2     | 94.5      | 114.4     |
| D6                | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P | M20x2.5P  | M20x2.5P  |
| D7                | 80      | 100      | 138       | 186      | 239       | 292       |
| L1                | 62      | 76       | 105       | 142      | 180       | 220       |
| L2                | 48.5    | 56       | 88        | 112      | 112       | 138       |
| L3                | 18.5    | 18       | 28        | 27       | 27        | 30        |
| L4                | 1.5     | 2        | 2         | 3        | 3         | 3         |
| L5                | 25      | 32       | 40        | 60       | 70        | 90        |
| L6                | 2       | 2        | 5         | 5        | 6         | 7         |
| L7                | 6       | 7        | 10        | 12       | 15        | 20        |
| L8                | 166.7   | 227      | 260.5     | 346.2    | 414.7     | 490.2     |
| L9                | 4       | 4.5      | 6         | 6        | 8         | 15        |
| L10               | 16.5    | 20.5     | 30        | 38       | 48        | 42        |
| L11               | 22.5    | 21.5     | 31.8      | 44.7     | 44        | 60        |
| C1 <sup>*</sup>   | 70      | 90       | 115       | 145      | 200       | 215       |
| C2 <sup>*</sup>   | M5x0.8P | M6x1.0P  | M8x1.25P  | M8x1.25P | M12x1.75P | M12x1.75P |
| C3 <sup>*</sup>   | ≤14/≤19 | ≤19/≤24  | ≤24/≤32   | ≤35      | ≤50       | ≤55       |
| C4 <sup>*</sup>   | 34      | 45       | 53.5      | 76.8     | 78.8      | 98.7      |
| C5 <sup>F6*</sup> | 50      | 70       | 95        | 110      | 114.3     | 180       |
| C6 <sup>*</sup>   | 4       | 4        | 6         | 5.5      | 6         | 6         |
| C7 <sup>*</sup>   | 60      | 90       | 115       | 140      | 180       | 220       |
| C8 <sup>*</sup>   | 33      | 36       | 48        | 65       | 65        | 85        |
| C9 <sup>*</sup>   | 108.8   | 136      | 174.5     | 207      | 247.5     | 287.5     |
| B                 | 5       | 6        | 10        | 12       | 16        | 20        |
| H                 | 18      | 24.5     | 35        | 43       | 59        | 79.5      |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PUR Double Stage Dimensions



## Specifications

Unit:mm

| Dimensions         | PUR60   | PUR60T  | PUR75T   | PUR100T   | PUR140T  | PUR180T  | PUR220T   |
|--------------------|---------|---------|----------|-----------|----------|----------|-----------|
| D1                 | 68      | 68      | 85       | 120       | 165      | 215      | 250       |
| D2                 | 5.5     | 5.5     | 6.8      | 9         | 11       | 13       | 17        |
| D3 h6              | 16      | 16      | 22       | 32        | 40       | 55       | 75        |
| D4 g6              | 60      | 60      | 70       | 90        | 130      | 160      | 180       |
| D5                 | 34.4    | 34.6    | 46.4     | 59.6      | 79.2     | 94.5     | 114.4     |
| D6                 | M5x0.8P | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P | M20x2.5P | M20x2.5P  |
| D7                 | 80      | 80      | 100      | 138       | 186      | 239      | 292       |
| L1                 | 62      | 62      | 76       | 105       | 142      | 180      | 220       |
| L2                 | 48.5    | 48.5    | 56       | 88        | 112      | 112      | 138       |
| L3                 | 18.5    | 18.5    | 18       | 28        | 27       | 27       | 30        |
| L4                 | 1.5     | 1.5     | 2        | 2         | 3        | 3        | 3         |
| L5                 | 25      | 25      | 32       | 40        | 60       | 70       | 90        |
| L6                 | 2       | 2       | 2        | 5         | 5        | 6        | 7         |
| L7                 | 6       | 6       | 7        | 10        | 12       | 15       | 20        |
| L8                 | 199.7   | 170.3   | 223.7    | 286.5     | 358.5    | 445.4    | 537.2     |
| L9                 | 4       | 4       | 4.5      | 6         | 6        | 8        | 15        |
| L10                | 16.5    | 16.5    | 20.5     | 30        | 38       | 48       | 42        |
| L11                | 22.5    | 15.5    | 22.5     | 21.5      | 31.8     | 44.7     | 44        |
| C1 <sup>2</sup>    | 70      | 46      | 70       | 90        | 115      | 145      | 200       |
| C2 <sup>2</sup>    | M5x0.8P | M4x0.7P | M5x0.8P  | M6x1.0P   | M8x1.25P | M8x1.25P | M12x1.75P |
| C3 <sup>2</sup>    | ≤14/≤19 | ≤8/≤11  | ≤14/≤19  | ≤19/≤24   | ≤24/≤32  | ≤35      | ≤50       |
| C4 <sup>2</sup>    | 34      | 29      | 34       | 45        | 53.5     | 76.8     | 78.8      |
| C5 <sup>2</sup> F6 | 50      | 30      | 50       | 70        | 95       | 110      | 114.3     |
| C6 <sup>2</sup>    | 4       | 4       | 4        | 6         | 6        | 5.5      | 6         |
| C7 <sup>2</sup>    | 60      | 42.6    | 60       | 90        | 115      | 140      | 180       |
| C8 <sup>2</sup>    | 33      | 25      | 33       | 36        | 48       | 65       | 65        |
| C9 <sup>2</sup>    | 108.8   | 80.5    | 122.8    | 148.5     | 188      | 223.5    | 267.5     |
| B                  | 6       | 5       | 6        | 10        | 12       | 16       | 20        |
| H                  | 18      | 18      | 24.5     | 35        | 43       | 59       | 79.5      |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PUR Specifications Table

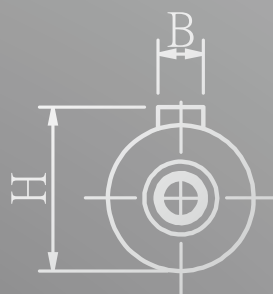
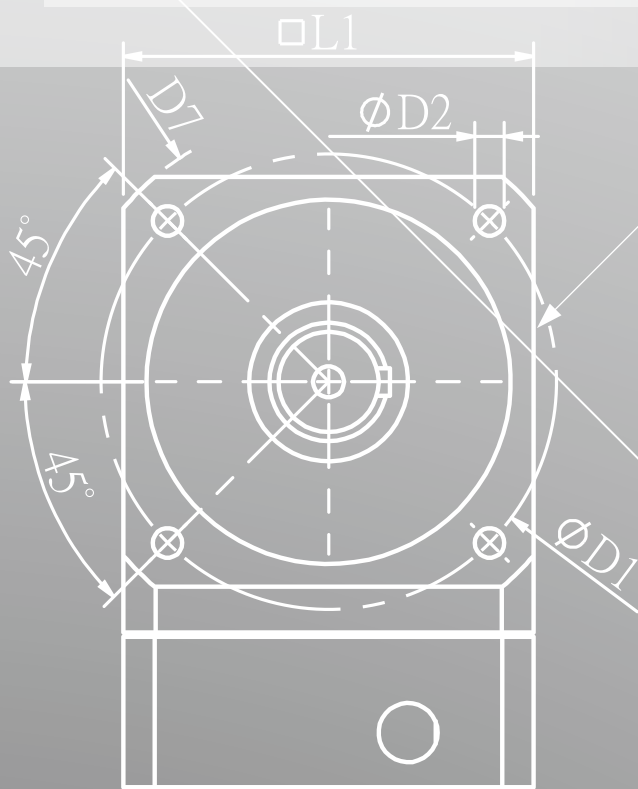
| Specifications                                                                                                                                                                                                                    |                          | Stage                                                                                                 | Ratio  | PUR-60                               | PUR-75  | PUR-100  | PUR-140  | PUR-180  | PUR-220  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------|--------|--------------------------------------|---------|----------|----------|----------|----------|
| Nominal Output Torque $T_{2N}$                                                                                                                                                                                                    | $N \bullet m$            | 1                                                                                                     | 3      | 53                                   | 145     | 180      | 340      | 580      | 950      |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 4      | 55                                   | 150     | 240      | 500      | 1100     | 1500     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 5      | 54                                   | 140     | 290      | 600      | 1200     | 1800     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 6      | 46                                   | 135     | 280      | 500      | 1100     | 1620     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 7      | 44                                   | 125     | 270      | 530      | 1100     | 1750     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 8      | 41                                   | 110     | 240      | 470      | 1000     | 1550     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 9      | 37                                   | 95      | 220      | 430      | 900      | 1500     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 10     | 50                                   | 130     | 260      | 540      | 900      | 1500     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 14     | 44                                   | 125     | 270      | 530      | 1100     | 1750     |
|                                                                                                                                                                                                                                   |                          | 20                                                                                                    | 37     | 95                                   | 220     | 430      | 900      | 1450     |          |
|                                                                                                                                                                                                                                   |                          | Stage                                                                                                 | Ratio  | PUR-60 (T)                           | PUR-75T | PUR-100T | PUR-140T | PUR-180T | PUR-220T |
|                                                                                                                                                                                                                                   |                          | 2                                                                                                     | 15     | 53                                   | 145     | 180      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 20     | 55                                   | 150     | 240      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 25     | 54                                   | 140     | 290      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 30     | 53                                   | 145     | 180      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 35     | 54                                   | 140     | 290      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 40     | 55                                   | 150     | 240      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 45     | 54                                   | 140     | 290      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 50     | 54                                   | 140     | 290      | 600      | 1200     | 2000     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 60     | 46                                   | 135     | 280      | 560      | 1100     | 1850     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 70     | 44                                   | 125     | 270      | 530      | 1100     | 1750     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 80     | 41                                   | 110     | 240      | 480      | 1000     | 1550     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 90     | 37                                   | 95      | 220      | 430      | 900      | 1500     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 100    | 37                                   | 95      | 220      | 430      | 900      | 1450     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 120    | 46                                   | 135     | 280      | 560      | 1100     | 1850     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 140    | 44                                   | 125     | 270      | 530      | 1100     | 1750     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 160    | 41                                   | 110     | 240      | 480      | 1000     | 1550     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 180    | 37                                   | 95      | 220      | 430      | 900      | 1500     |
|                                                                                                                                                                                                                                   |                          |                                                                                                       | 200    | 37                                   | 95      | 220      | 430      | 900      | 1450     |
| Emergency Stop Torque $T_{2NOT}$                                                                                                                                                                                                  | $N \bullet m$            | ( 3.0 times of Nominal Output Torque)<br>(*Max. Output Torque $T_{2B}$ =60% of Emergency Stop Torque) |        |                                      |         |          |          |          |          |
| Nominal Input Speed $n_{1N}$                                                                                                                                                                                                      | rpm                      | 1,2                                                                                                   | 3-200  | 5000                                 | 4000    | 4000     | 3000     | 3000     | 2000     |
| Max. Input Speed $n_{1max}$                                                                                                                                                                                                       | rpm                      | 1,2                                                                                                   | 3-200  | 10000                                | 8000    | 8000     | 6000     | 6000     | 4000     |
| Micro Backlash P0                                                                                                                                                                                                                 | arcmin                   | 1                                                                                                     | 3-20   | -                                    | ≤ 3     | ≤ 2      | ≤ 2      | ≤ 2      | ≤ 2      |
|                                                                                                                                                                                                                                   |                          | 2                                                                                                     | 15-200 | -                                    | ≤ 5     | ≤ 4      | ≤ 4      | ≤ 4      | ≤ 4      |
| Precision Backlash P1                                                                                                                                                                                                             | arcmin                   | 1                                                                                                     | 3-20   | ≤ 5                                  | ≤ 5     | ≤ 4      | ≤ 4      | ≤ 4      | ≤ 4      |
|                                                                                                                                                                                                                                   |                          | 2                                                                                                     | 15-200 | ≤ 7                                  | ≤ 7     | ≤ 7      | ≤ 7      | ≤ 7      | ≤ 7      |
| Standard Backlash P2                                                                                                                                                                                                              | arcmin                   | 1                                                                                                     | 3-20   | ≤ 7                                  | ≤ 7     | ≤ 6      | ≤ 6      | ≤ 6      | ≤ 6      |
|                                                                                                                                                                                                                                   |                          | 2                                                                                                     | 15-200 | ≤ 9                                  | ≤ 9     | ≤ 9      | ≤ 9      | ≤ 9      | ≤ 9      |
| Torsional Rigidity                                                                                                                                                                                                                | $N \bullet m$<br>/arcmin | 1,2                                                                                                   | 3-200  | 7                                    | 14      | 25       | 50       | 150      | 220      |
| Max. Radial Load $F_{2rB}^1$                                                                                                                                                                                                      | N                        | 1,2                                                                                                   | 3-200  | 4130                                 | 5220    | 10650    | 17600    | 22000    | 27800    |
| Max. Axial Load $F_{2aB}^1$                                                                                                                                                                                                       | N                        | 1,2                                                                                                   | 3-200  | 2500                                 | 3300    | 5700     | 11300    | 14000    | 16200    |
| Operating Temp.                                                                                                                                                                                                                   | °C                       |                                                                                                       | 3-200  | -10 °C ~+90 °C                       |         |          |          |          |          |
| Service Life                                                                                                                                                                                                                      | hr                       |                                                                                                       | 3-200  | 30,000 (15,000 Continuous operation) |         |          |          |          |          |
| Efficiency                                                                                                                                                                                                                        | %                        | 1                                                                                                     | 3-20   | ≥ 95%                                |         |          |          |          |          |
|                                                                                                                                                                                                                                   |                          | 2                                                                                                     | 15-200 | ≥ 92%                                |         |          |          |          |          |
| Weight                                                                                                                                                                                                                            | kg                       | 1                                                                                                     | 3-20   | 3.1                                  | 5.5     | 12.5     | 25.5     | 46       | 75       |
|                                                                                                                                                                                                                                   |                          | 2                                                                                                     | 15-200 | 3.7(3.3)                             | 4.9     | 13.6     | 27       | 50       | 88       |
| Mounting Position                                                                                                                                                                                                                 | -                        | 1,2                                                                                                   | 3-200  | Any direction                        |         |          |          |          |          |
| Noise Level <sup>2</sup>                                                                                                                                                                                                          | dBA/1m                   | 1,2                                                                                                   | 3-200  | 64                                   | 66      | 68       | 70       | 72       | 74       |
| Protection Class                                                                                                                                                                                                                  | -                        | 1,2                                                                                                   | 3-200  | IP65                                 |         |          |          |          |          |
| Lubrication                                                                                                                                                                                                                       | -                        | 1,2                                                                                                   | 3-200  | Synthetic Lubricant                  |         |          |          |          |          |
| Inertia (J1)                                                                                                                                                                                                                      |                          |                                                                                                       |        |                                      |         |          |          |          |          |
| Stage                                                                                                                                                                                                                             | Ratio                    | unit                                                                                                  |        | PUR-60                               | PUR-75  | PUR-100  | PUR-140  | PUR-180  | PUR-220  |
| 1                                                                                                                                                                                                                                 | 3/4/5/7/9                | $Kg \bullet cm^2$                                                                                     |        | 0.40                                 | 2.28    | 6.87     | 24.2     | 69.8     | 138.2    |
|                                                                                                                                                                                                                                   | 6/8/10/14/20             |                                                                                                       |        | 0.30                                 | 1.45    | 4.76     | 14.5     | 50.3     | 103.6    |
| Stage                                                                                                                                                                                                                             | Ratio                    |                                                                                                       |        | PUR-60(T)                            | PUR-75T | PUR-100T | PUR-140T | PUR-180T | PUR-220T |
| 2                                                                                                                                                                                                                                 | 15/20/25/35/45           |                                                                                                       |        | 0.40(0.08)                           | 0.72    | 3.02     | 7.83     | 27.7     | 80.3     |
|                                                                                                                                                                                                                                   | others                   |                                                                                                       |        | 0.30(0.06)                           | 0.38    | 1.64     | 5.00     | 15.9     | 55.3     |
| * 1. Applied to the output shaft center at 100 rpm.                                                                                                                                                                               |                          |                                                                                                       |        |                                      |         |          |          |          |          |
| * 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. |                          |                                                                                                       |        |                                      |         |          |          |          |          |
| ※ The above figures/specifications are subject to change without prior notice.                                                                                                                                                    |                          |                                                                                                       |        |                                      |         |          |          |          |          |

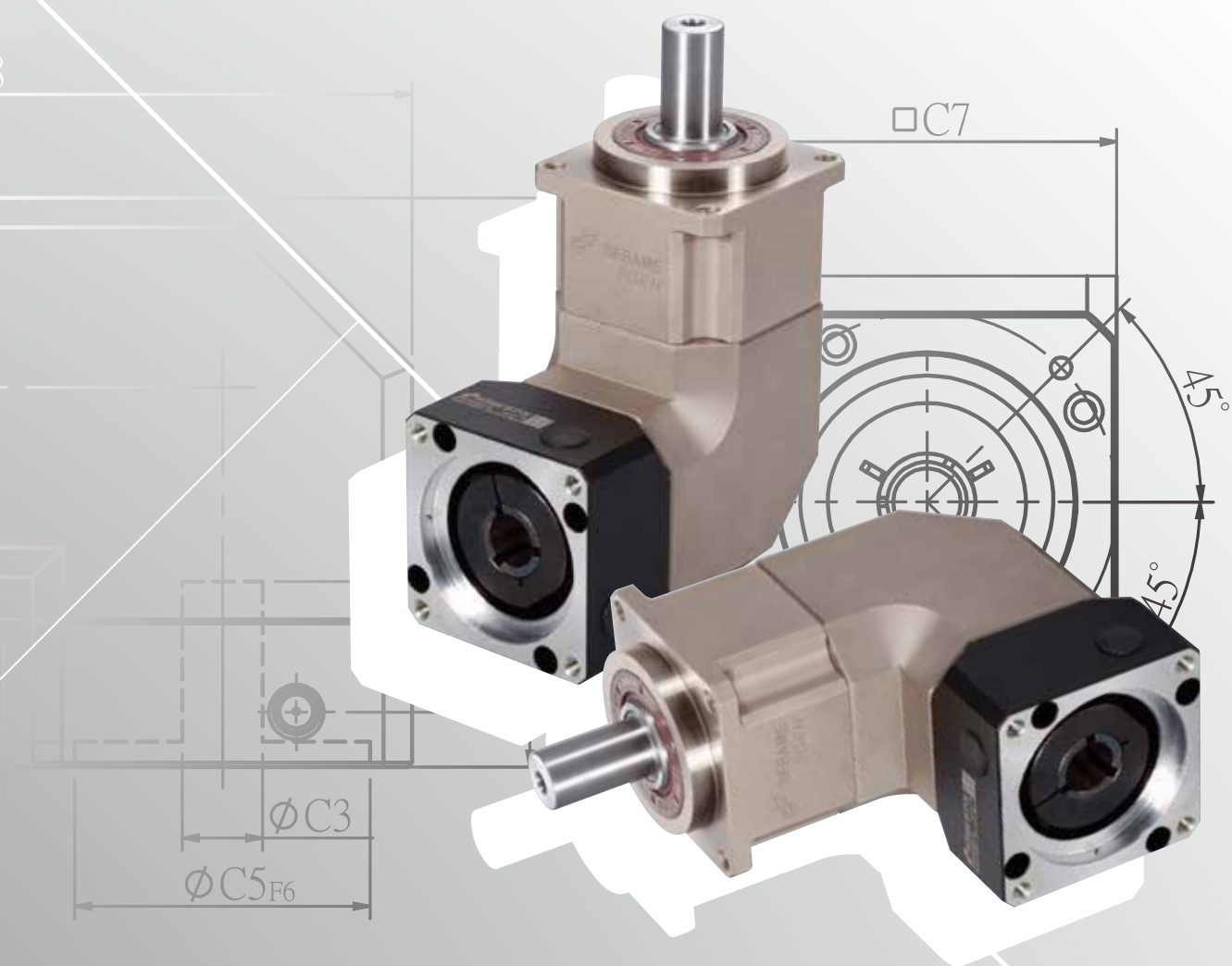
Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

# PLANETARY GEARHEADS

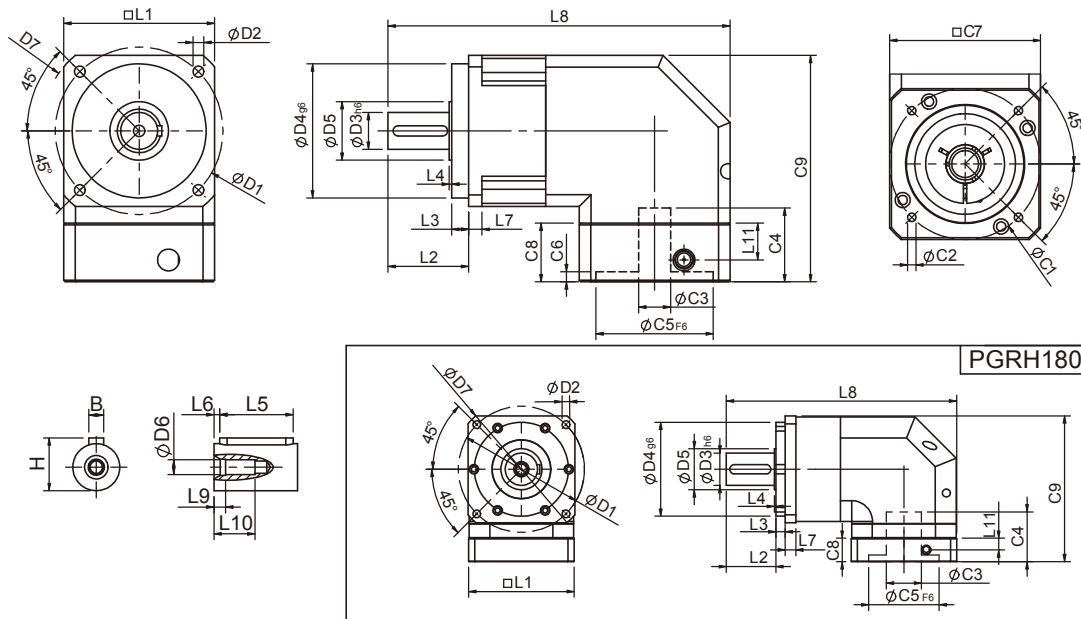


# ***PGRH SERIES***





## PGRH Single Stage Dimensions



## Specifications

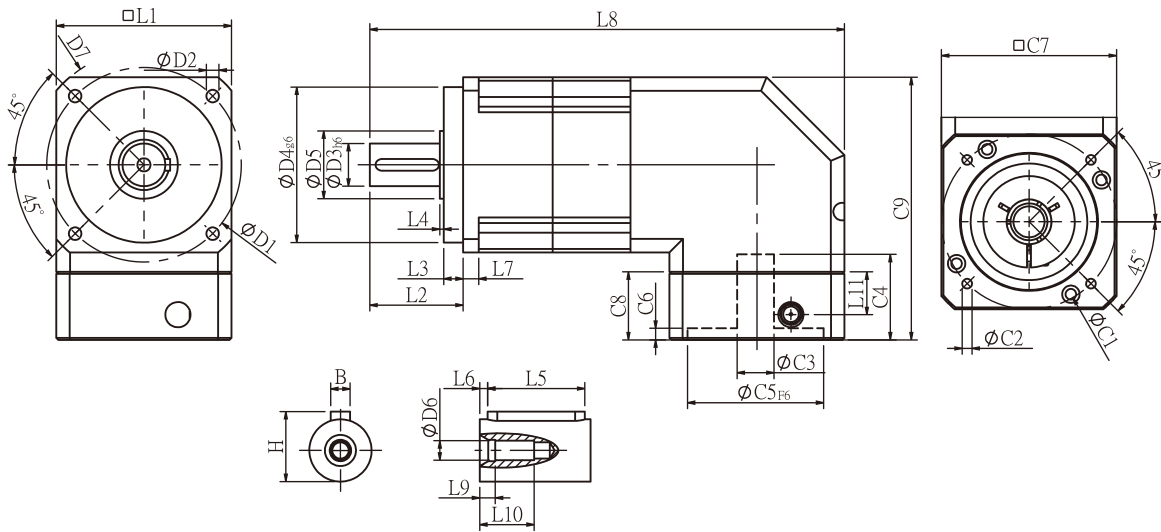
Unit:mm

| Dimensions                    | PGRH42  | PGRH60  | PGRH90   | PGRH115   | PGRH142  | PGRH180   | PGRH220   |
|-------------------------------|---------|---------|----------|-----------|----------|-----------|-----------|
| D1                            | 50      | 70      | 100      | 130       | 165      | 215       | 250       |
| D2                            | 3.4     | 5.5     | 6.5      | 8.5       | 10.5     | 13        | 17        |
| D3 <sub>h6</sub>              | 13      | 16      | 22       | 32        | 40       | 55        | 75        |
| D4 <sub>g6</sub>              | 35      | 50      | 80       | 110       | 130      | 160       | 180       |
| D5                            | 15      | 25      | 35       | 45        | 50       | 70        | 114.4     |
| D6                            | M4x0.7P | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P | M20x2.5P  | M20x2.5P  |
| D7                            | 56      | 80      | 118      | 148       | 186      | 239       | 292       |
| L1                            | 42.6    | 60      | 90       | 115       | 142      | 180       | 220       |
| L2                            | 26      | 37      | 48       | 63        | 91.5     | 100.5     | 138       |
| L3                            | 5.5     | 7       | 10       | 10        | 10       | 16        | 30        |
| L4                            | 1       | 1.5     | 1.5      | 3.5       | 2.5      | 2.5       | 3         |
| L5                            | 15      | 25      | 32       | 40        | 60       | 70        | 90        |
| L6                            | 2       | 2       | 3        | 5         | 5        | 6         | 7         |
| L7                            | 4       | 6       | 8        | 11        | 16       | 18        | 20        |
| L8                            | 103.6   | 148.2   | 204      | 246.5     | 325      | 392.7     | 490.2     |
| L9                            | 4       | 4       | 4.5      | 6         | 6        | 8         | 15        |
| L10                           | 14      | 16.5    | 20.5     | 30        | 38       | 48        | 42        |
| L11                           | 13.5    | 21.5    | 22       | 32        | 44.7     | 20        | 60        |
| C1 <sup>2</sup>               | 46      | 70      | 90       | 115       | 145      | 200       | 215       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  | M8x1.25P  | M8x1.25P | M12x1.75P | M12x1.75P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  | ≤24/≤32   | ≤35      | ≤50       | ≤55       |
| C4 <sup>2</sup>               | 29      | 34      | 44       | 53        | 76.8     | 78.8      | 98.7      |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       | 95        | 110      | 114.3     | 180       |
| C6 <sup>2</sup>               | 6       | 5       | 5        | 6         | 9        | 6         | 6         |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       | 115       | 140      | 182       | 220       |
| C8 <sup>2</sup>               | 25      | 33      | 35       | 48        | 65       | 40        | 85        |
| C9 <sup>2</sup>               | 70.8    | 107.8   | 135      | 174.5     | 207      | 248.5     | 287.5     |
| B                             | 5       | 5       | 6        | 10        | 12       | 16        | 20        |
| H                             | 15      | 18      | 24.5     | 35        | 43       | 59        | 79.5      |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGRH Double Stage Dimensions-1



## Specifications

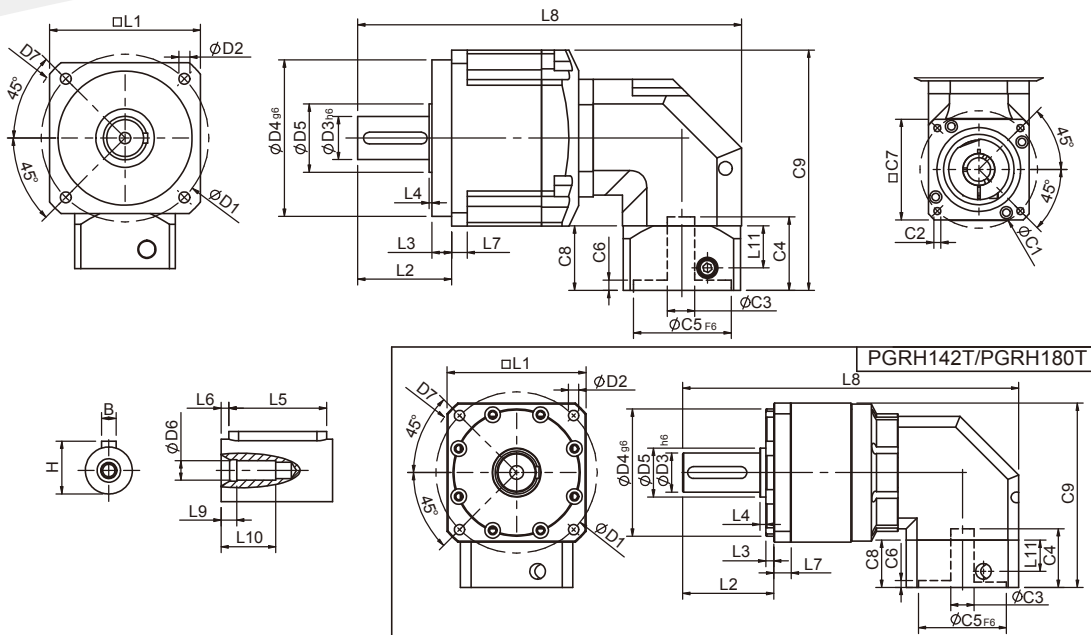
Unit:mm

| Dimensions                    | PGRH42  | PGRH60  | PGRH90   |
|-------------------------------|---------|---------|----------|
| D1                            | 50      | 70      | 100      |
| D2                            | 3.4     | 5.5     | 6.5      |
| D3 <sub>h6</sub>              | 13      | 16      | 22       |
| D4 <sub>g6</sub>              | 35      | 50      | 80       |
| D5                            | 15      | 25      | 35       |
| D6                            | M4x0.7P | M5x0.8P | M8x1.25P |
| D7                            | 56      | 80      | 118      |
| L1                            | 42.6    | 60      | 90       |
| L2                            | 26      | 37      | 48       |
| L3                            | 5.5     | 7       | 10       |
| L4                            | 1       | 1.5     | 1.5      |
| L5                            | 15      | 25      | 32       |
| L6                            | 2       | 2       | 3        |
| L7                            | 4       | 6       | 8        |
| L8                            | 130.6   | 181.2   | 248      |
| L9                            | 4       | 4       | 4.5      |
| L10                           | 14      | 16.5    | 20.5     |
| L11                           | 13.5    | 21.5    | 22       |
| C1 <sup>2</sup>               | 46      | 70      | 90       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  |
| C4 <sup>2</sup>               | 29      | 34      | 44       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       |
| C6 <sup>2</sup>               | 6       | 5       | 5        |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       |
| C8 <sup>2</sup>               | 25      | 33      | 35       |
| C9 <sup>2</sup>               | 70.8    | 107.8   | 135      |
| B                             | 5       | 5       | 6        |
| H                             | 15      | 18      | 24.5     |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGRH Double Stage Dimensions-2



## Specifications

Unit:mm

| Dimensions                    | PGRH60T | PGRH90T  | PGRH115T  | PGRH142T | PGRH180T | PGRH220T  |
|-------------------------------|---------|----------|-----------|----------|----------|-----------|
| D1                            | 70      | 100      | 130       | 165      | 215      | 250       |
| D2                            | 5.5     | 6.5      | 8.5       | 10.5     | 13       | 17        |
| D3 <sub>h6</sub>              | 16      | 22       | 32        | 40       | 55       | 75        |
| D4 <sub>g6</sub>              | 50      | 80       | 110       | 130      | 160      | 180       |
| D5                            | 25      | 35       | 45        | 50       | 70       | 114.4     |
| D6                            | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P | M20x2.5P | M20x2.5P  |
| D7                            | 80      | 118      | 148       | 186      | 239      | 292       |
| L1                            | 60      | 90       | 115       | 142      | 182      | 220       |
| L2                            | 37      | 48       | 63        | 91.5     | 100.5    | 138       |
| L3                            | 7       | 10       | 10        | 10       | 16       | 30        |
| L4                            | 1.5     | 1.5      | 3.5       | 2.5      | 2.5      | 3         |
| L5                            | 25      | 32       | 40        | 60       | 70       | 90        |
| L6                            | 2       | 3        | 5         | 5        | 6        | 7         |
| L7                            | 6       | 8        | 11        | 16       | 18       | 20        |
| L8                            | 151.8   | 200.7    | 272.5     | 345.5    | 424.5    | 537.2     |
| L9                            | 4       | 4.5      | 6         | 6        | 8        | 15        |
| L10                           | 16.5    | 20.5     | 30        | 38       | 48       | 42        |
| L11                           | 13.5    | 21.5     | 22        | 32       | 44.7     | 44        |
| C1 <sup>2</sup>               | 46      | 70       | 90        | 115      | 145      | 200       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P  | M6x1.0P   | M8x1.25P | M8x1.25P | M12x1.75P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19  | ≤19/≤24   | ≤24/≤32  | ≤35      | ≤50       |
| C4 <sup>2</sup>               | 29      | 34       | 45.2      | 53.5     | 76.8     | 78.8      |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50       | 70        | 95       | 110      | 114.3     |
| C6 <sup>2</sup>               | 6       | 5        | 5         | 6        | 9        | 6         |
| C7 <sup>2</sup>               | 42.6    | 60       | 90        | 115      | 140      | 180       |
| C8 <sup>2</sup>               | 25      | 33       | 35        | 48       | 65       | 65        |
| C9 <sup>2</sup>               | 79.5    | 122.8    | 147.5     | 188      | 207      | 267.5     |
| B                             | 5       | 6        | 10        | 12       | 16       | 20        |
| H                             | 18      | 24.5     | 35        | 43       | 59       | 79.5      |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

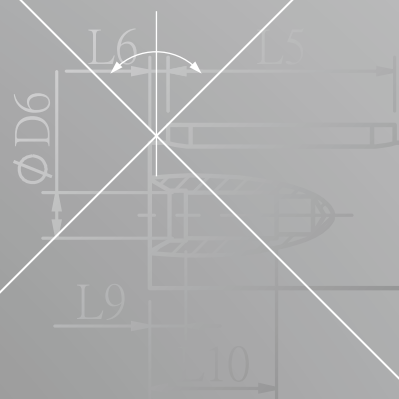
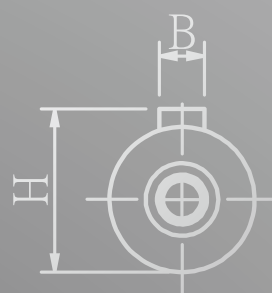
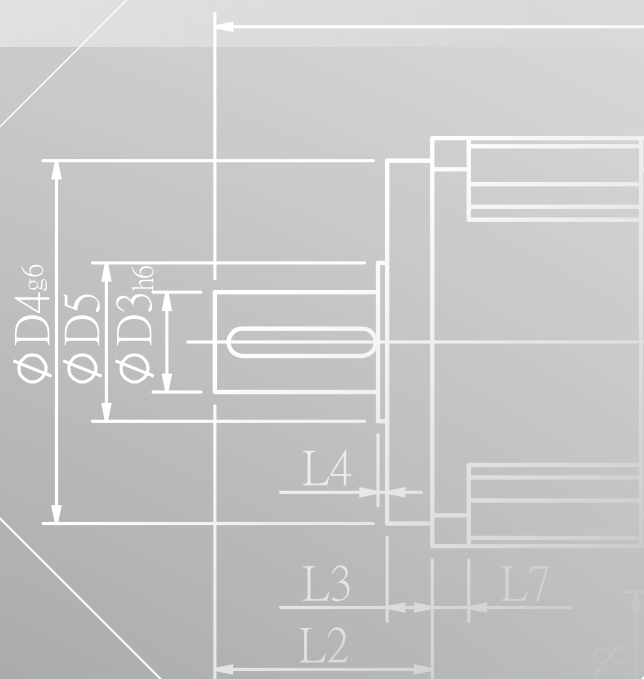
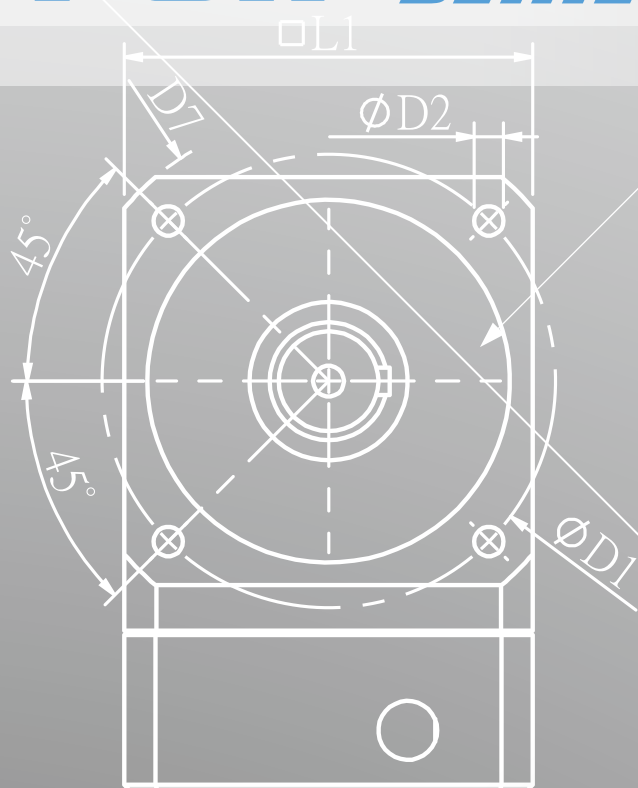
★ Specification subject to change without notice.

## PGRH Specifications Table

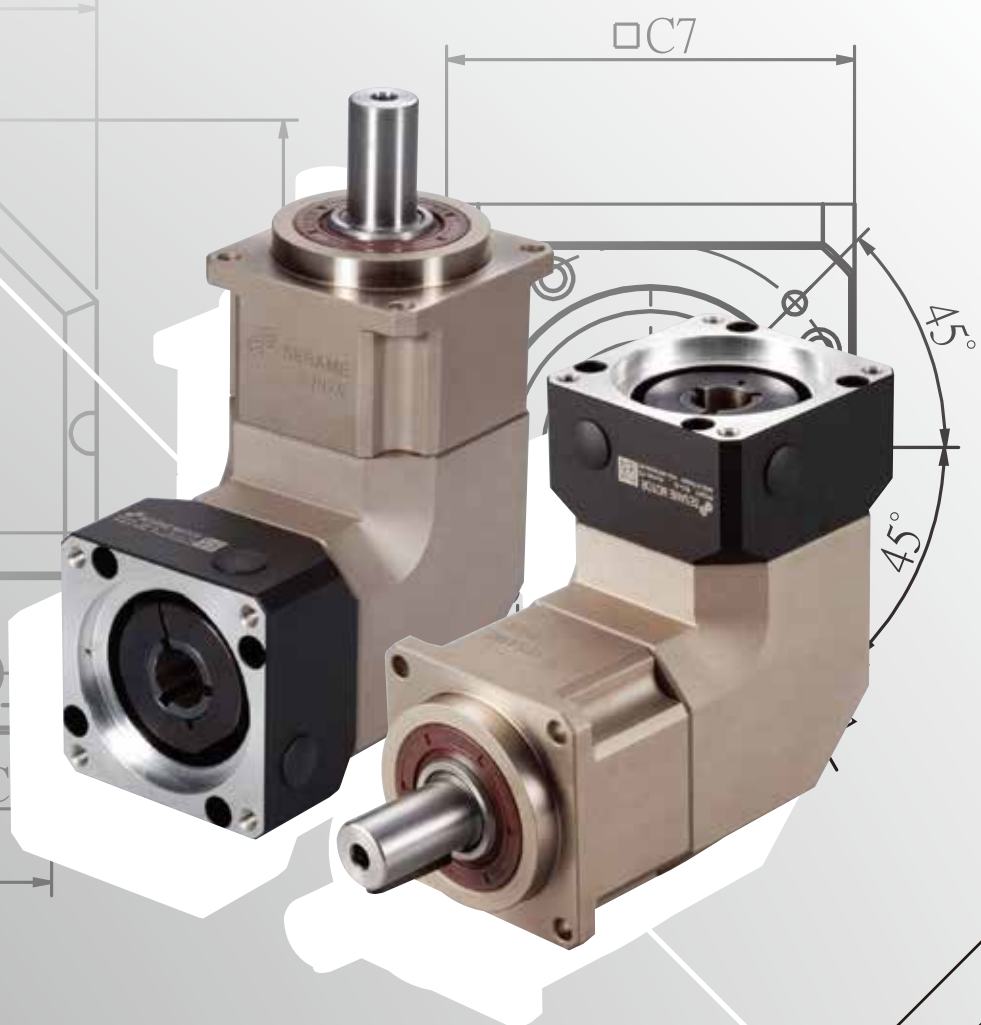
| Specifications                                                                                                                                                                                                                    |                        | Stage           | Ratio                                                                                                  | PGRH-42                              | PGRH-60        | PGRH-90        | PGRH-115     | PGRH-142     | PGRH-180   | PGRH-220   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|--------------------------------------------------------------------------------------------------------|--------------------------------------|----------------|----------------|--------------|--------------|------------|------------|
| Nominal Output Torque $T_{2N}$                                                                                                                                                                                                    | $N \cdot m$            | 1               | 3                                                                                                      | 10                                   | 40             | 95             | 200          | 380          | 750        | 950        |
|                                                                                                                                                                                                                                   |                        |                 | 4                                                                                                      | 12                                   | 48             | 120            | 260          | 520          | 1000       | 1500       |
|                                                                                                                                                                                                                                   |                        |                 | 5                                                                                                      | 15                                   | 60             | 150            | 325          | 600          | 1200       | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 6                                                                                                      | 18                                   | 55             | 150            | 310          | 560          | 1100       | 1900       |
|                                                                                                                                                                                                                                   |                        |                 | 7                                                                                                      | 19                                   | 50             | 140            | 300          | 530          | 1100       | 1800       |
|                                                                                                                                                                                                                                   |                        |                 | 8                                                                                                      | 17                                   | 45             | 120            | 260          | 480          | 1000       | 1600       |
|                                                                                                                                                                                                                                   |                        |                 | 9                                                                                                      | 14                                   | 40             | 100            | 230          | 450          | 900        | 1500       |
|                                                                                                                                                                                                                                   |                        |                 | 10                                                                                                     | 15                                   | 60             | 150            | 325          | 600          | 1200       | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 14                                                                                                     | 14                                   | 50             | 140            | 300          | 530          | 1100       | 1800       |
|                                                                                                                                                                                                                                   |                        | 20              | 14                                                                                                     | 40                                   | 100            | 230            | 450          | 900          | 1500       |            |
|                                                                                                                                                                                                                                   |                        | Stage           | Ratio                                                                                                  | PGRH-42                              | PGRH-60 (T)    | PGRH-90(T)     | PGRH-115T    | PGRH-142T    | PGRH-180T  | PGRH-220T  |
|                                                                                                                                                                                                                                   |                        | 2               | 15                                                                                                     | 14                                   | 50             | 130            | 290          | 520          | 950        | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 20                                                                                                     | 14                                   | 50             | 140            | 300          | 550          | 1000       | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 25                                                                                                     | 15                                   | 60             | 150            | 325          | 600          | 1200       | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 30                                                                                                     | 19                                   | 55             | 150            | 310          | 600          | 1100       | 1900       |
|                                                                                                                                                                                                                                   |                        |                 | 35                                                                                                     | 19                                   | 50             | 140            | 300          | 550          | 1100       | 1800       |
|                                                                                                                                                                                                                                   |                        |                 | 40                                                                                                     | 17                                   | 45             | 120            | 260          | 500          | 1000       | 1600       |
|                                                                                                                                                                                                                                   |                        |                 | 45                                                                                                     | 17                                   | 40             | 100            | 230          | 450          | 900        | 1500       |
|                                                                                                                                                                                                                                   |                        |                 | 50                                                                                                     | 17                                   | 60             | 150            | 325          | 600          | 1200       | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 60                                                                                                     | 20                                   | 55             | 150            | 310          | 600          | 1100       | 1900       |
|                                                                                                                                                                                                                                   |                        |                 | 70                                                                                                     | 20                                   | 50             | 140            | 300          | 530          | 1100       | 1800       |
|                                                                                                                                                                                                                                   |                        |                 | 80                                                                                                     | 20                                   | 45             | 120            | 260          | 480          | 1000       | 1600       |
|                                                                                                                                                                                                                                   |                        |                 | 90                                                                                                     | 14                                   | 40             | 100            | 230          | 450          | 900        | 1500       |
|                                                                                                                                                                                                                                   |                        |                 | 100                                                                                                    | 14                                   | 60             | 150            | 325          | 600          | 1200       | 2000       |
|                                                                                                                                                                                                                                   |                        |                 | 120                                                                                                    | 17                                   | 55             | 150            | 310          | 560          | 1100       | 1900       |
|                                                                                                                                                                                                                                   |                        |                 | 140                                                                                                    | 17                                   | 50             | 140            | 300          | 530          | 1100       | 1800       |
|                                                                                                                                                                                                                                   |                        |                 | 160                                                                                                    | 14                                   | 45             | 120            | 260          | 480          | 1000       | 1600       |
|                                                                                                                                                                                                                                   |                        |                 | 180                                                                                                    | 12                                   | 40             | 100            | 230          | 450          | 900        | 1500       |
|                                                                                                                                                                                                                                   |                        |                 | 200                                                                                                    | 12                                   | 40             | 100            | 230          | 450          | 900        | 1500       |
| Emergency Stop Torque $T_{2NOT}$                                                                                                                                                                                                  | $N \cdot m$            |                 | ( 3.0 times of Nominal Output Torque)<br>(* Max. Output Torque $T_{2B}$ =60% of Emergency Stop Torque) |                                      |                |                |              |              |            |            |
| Nominal Input Speed $n_{1N}$                                                                                                                                                                                                      | rpm                    | 1,2             | 3-200                                                                                                  | 5000                                 | 5000           | 4000           | 4000         | 3000         | 3000       | 2000       |
| Max. Input Speed $n_{1max}$                                                                                                                                                                                                       | rpm                    | 1,2             | 3-200                                                                                                  | 10000                                | 10000          | 8000           | 8000         | 6000         | 6000       | 4000       |
| Micro Backlash $P_0$                                                                                                                                                                                                              | arcmin                 | 1<br>2          | 3-20<br>15-200                                                                                         | -<br>-                               | -<br>-         | ≤ 3<br>≤ 5     | ≤ 2<br>≤ 4   | ≤ 2<br>≤ 4   | ≤ 2<br>≤ 4 | ≤ 2<br>≤ 4 |
| Precision Backlash $P_1$                                                                                                                                                                                                          | arcmin                 | 1<br>2          | 3-20<br>15-200                                                                                         | ≤ 5<br>≤ 7                           | ≤ 5<br>≤ 7     | ≤ 5<br>≤ 7     | ≤ 4<br>≤ 7   | ≤ 4<br>≤ 7   | ≤ 4<br>≤ 7 | ≤ 4<br>≤ 7 |
| Standard Backlash $P_2$                                                                                                                                                                                                           | arcmin                 | 1<br>2          | 3-20<br>15-200                                                                                         | ≤ 7<br>≤ 9                           | ≤ 7<br>≤ 9     | ≤ 7<br>≤ 9     | ≤ 6<br>≤ 9   | ≤ 6<br>≤ 9   | ≤ 6<br>≤ 9 | ≤ 6<br>≤ 9 |
| Torsional Rigidity                                                                                                                                                                                                                | $N \cdot m$<br>/arcmin | 1,2             | 3-200                                                                                                  | 3                                    | 7              | 14             | 25           | 50           | 145        | 225        |
| Max. Radial Load $F_{2rB}^1$                                                                                                                                                                                                      | N                      | 1,2             | 3-200                                                                                                  | 760                                  | 1570           | 3250           | 6620         | 9400         | 14500      | 33000      |
| Max. Axial Load $F_{2aB}^1$                                                                                                                                                                                                       | N                      | 1,2             | 3-200                                                                                                  | 410                                  | 750            | 1870           | 3310         | 4670         | 6460       | 18530      |
| Operating Temp.                                                                                                                                                                                                                   | °C                     |                 | 3-200                                                                                                  | -10 °C ~ +90 °C                      |                |                |              |              |            |            |
| Service Life                                                                                                                                                                                                                      | hr                     |                 | 3-200                                                                                                  | 20,000 (10,000 Continuous operation) |                |                |              |              |            |            |
| Efficiency                                                                                                                                                                                                                        | %                      | 1<br>2          | 3-20<br>15-200                                                                                         | ≥ 95%<br>≥ 92%                       |                |                |              |              |            |            |
| Weight                                                                                                                                                                                                                            | kg                     | 1<br>2          | 3-20<br>15-200                                                                                         | 1.0<br>1.4                           | 2.6<br>3.3/2.9 | 6.8<br>8.9/7.2 | 13.5<br>14.8 | 25.1<br>26.7 | 42<br>46   | 75<br>88   |
| Mounting Position                                                                                                                                                                                                                 | -                      | 1,2             | 3-200                                                                                                  | Any direction                        |                |                |              |              |            |            |
| Noise Level <sup>2</sup>                                                                                                                                                                                                          | dBA/1m                 | 1,2             | 3-200                                                                                                  | 61                                   | 63             | 65             | 68           | 70           | 72         | 74         |
| Protection Class                                                                                                                                                                                                                  | -                      | 1,2             | 3-200                                                                                                  | IP65                                 |                |                |              |              |            |            |
| Lubrication                                                                                                                                                                                                                       | -                      | 1,2             | 3-200                                                                                                  | Synthetic Lubricant                  |                |                |              |              |            |            |
| Inertia (J1)                                                                                                                                                                                                                      |                        |                 |                                                                                                        |                                      |                |                |              |              |            |            |
| Stage                                                                                                                                                                                                                             | Ratio                  | unit            |                                                                                                        | PGRH-42                              | PGRH-60        | PGRH-90        | PGRH-115     | PGRH-142     | PGRH-180   | PGRH-220   |
| 1                                                                                                                                                                                                                                 | 3/4/5/7/9              | $Kg \cdot cm^2$ |                                                                                                        | 0.06                                 | 0.40           | 2.28           | 6.87         | 24.2         | 69.8       | 138.2      |
|                                                                                                                                                                                                                                   | 6/8/10/14/20           |                 |                                                                                                        | 0.05                                 | 0.30           | 1.45           | 4.76         | 14.5         | 50.3       | 103.6      |
| Stage                                                                                                                                                                                                                             | Ratio                  |                 |                                                                                                        | PGRH-42                              | PGRH-60(T)     | PGRH-90(T)     | PGRH-115T    | PGRH-142T    | PGRH-180T  | PGRH-220T  |
| 2                                                                                                                                                                                                                                 | 15/20/25/35/45         |                 |                                                                                                        | 0.06                                 | 0.40(0.08)     | 2.28(0.72)     | 3.02         | 7.83         | 27.7       | 80.3       |
|                                                                                                                                                                                                                                   | others                 |                 |                                                                                                        | 0.05                                 | 0.30(0.06)     | 1.45(0.38)     | 1.64         | 5.00         | 15.9       | 55.3       |
| * 1. Applied to the output shaft center at 100 rpm.                                                                                                                                                                               |                        |                 |                                                                                                        |                                      |                |                |              |              |            |            |
| * 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. |                        |                 |                                                                                                        |                                      |                |                |              |              |            |            |
| ※ The above figures/specifications are subject to change without prior notice.                                                                                                                                                    |                        |                 |                                                                                                        |                                      |                |                |              |              |            |            |

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

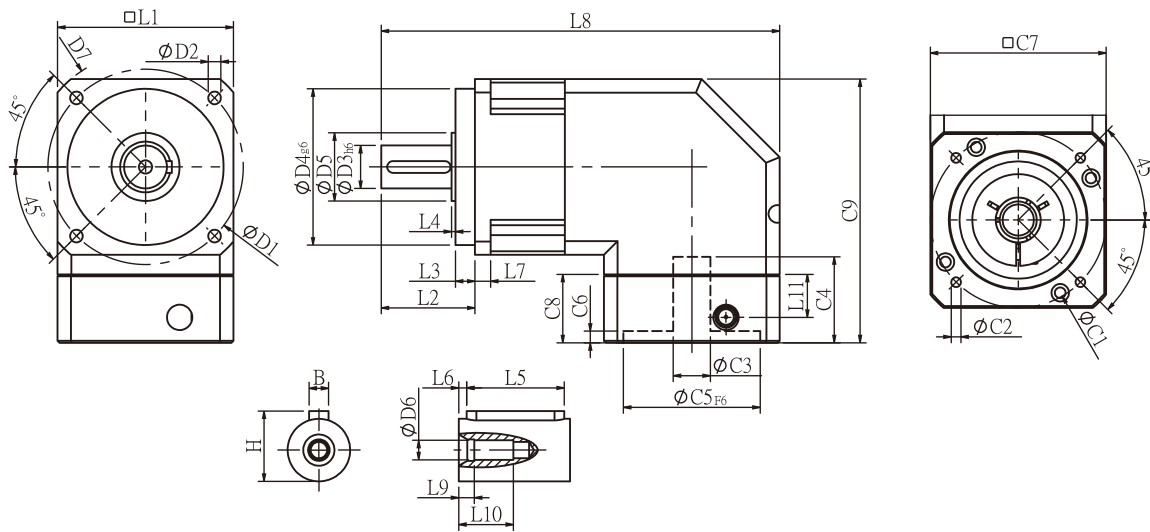
# ***PGR SERIES***



L8



## PGR Single Stage Dimensions



## Specifications

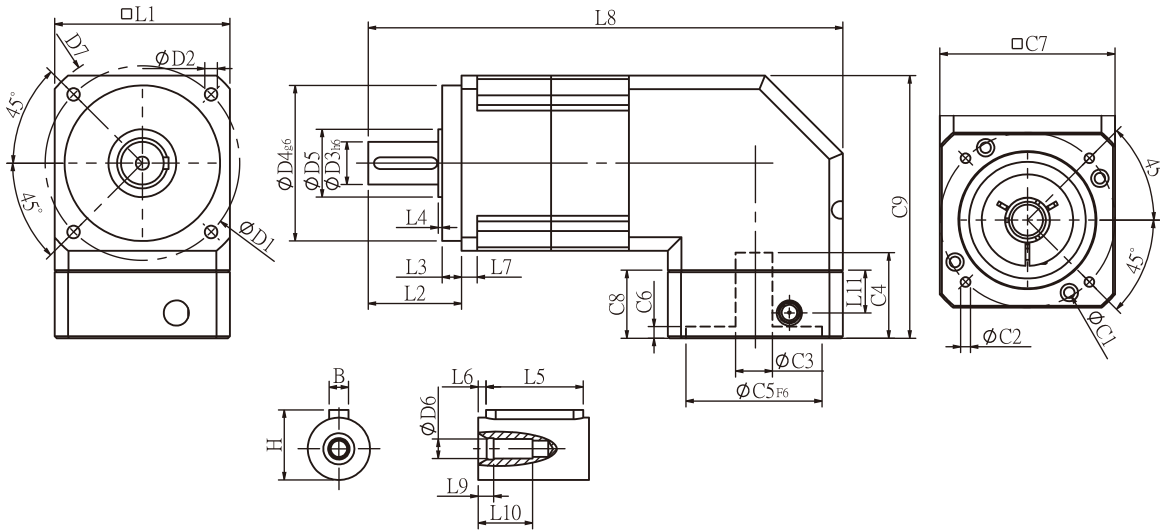
Unit:mm

| Dimensions                    | PGR42   | PGR60   | PGR90    | PGR115    | PGR142   |
|-------------------------------|---------|---------|----------|-----------|----------|
| D1                            | 50      | 70      | 100      | 130       | 165      |
| D2                            | 3.4     | 5.5     | 6.5      | 8.5       | 10.5     |
| D3 <sub>h6</sub>              | 13      | 16      | 22       | 32        | 40       |
| D4 <sub>g6</sub>              | 35      | 50      | 80       | 110       | 130      |
| D5                            | 15      | 25      | 35       | 45        | 50       |
| D6                            | M4x0.7P | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P |
| D7                            | 56      | 80      | 118      | 148       | 186      |
| L1                            | 42.6    | 60      | 90       | 115       | 142      |
| L2                            | 26      | 37      | 48       | 62        | 93       |
| L3                            | 5.5     | 7       | 10       | 8         | 8        |
| L4                            | 1.5     | 1.5     | 1.5      | 3         | 6        |
| L5                            | 15      | 25      | 32       | 40        | 60       |
| L6                            | 2       | 2       | 3        | 5         | 5        |
| L7                            | 4       | 6       | 8        | 12        | 18       |
| L8                            | 103.6   | 148.7   | 204      | 244.5     | 330      |
| L9                            | 4       | 4       | 4.5      | 6         | 6        |
| L10                           | 14      | 16.5    | 20.5     | 30        | 38       |
| L11                           | 13.5    | 21.5    | 22       | 32        | 44.7     |
| C1 <sup>2</sup>               | 46      | 70      | 90       | 115       | 145      |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  | M8x1.25P  | M8x1.25P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  | ≤24/≤32   | ≤35      |
| C4 <sup>2</sup>               | 29      | 34      | 44       | 53        | 75       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       | 95        | 110      |
| C6 <sup>2</sup>               | 6       | 5       | 5        | 6         | 9        |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       | 115       | 140      |
| C8 <sup>2</sup>               | 25      | 33      | 35       | 48        | 65       |
| C9 <sup>2</sup>               | 70.8    | 107.8   | 135      | 174.5     | 207      |
| B                             | 5       | 5       | 6        | 10        | 12       |
| H                             | 15      | 18      | 24.5     | 35        | 43       |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGR Double Stage Dimensions-1



## Specifications

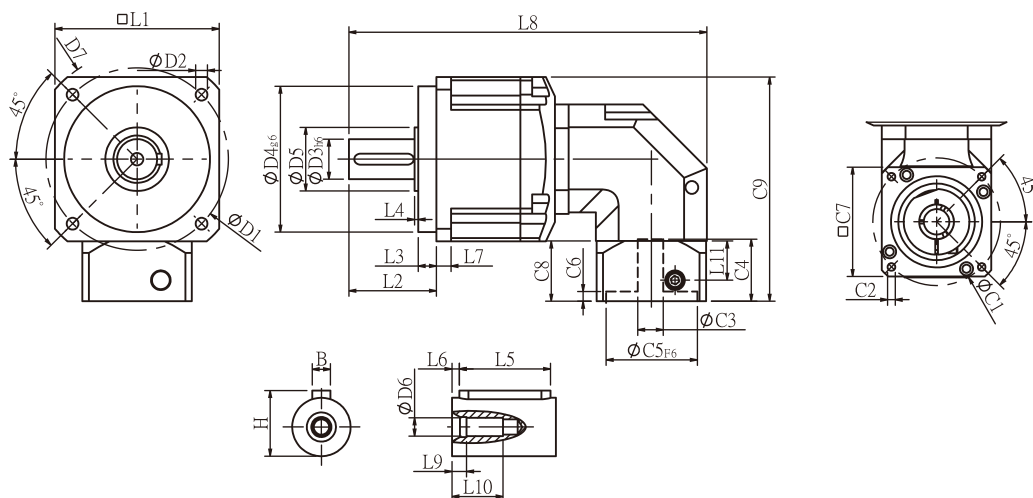
Unit:mm

| Dimensions                    | PGR42   | PGR60   | PGR90    | PGR115    | PGR142   |
|-------------------------------|---------|---------|----------|-----------|----------|
| D1                            | 50      | 70      | 100      | 130       | 165      |
| D2                            | 3.4     | 5.5     | 6.5      | 8.5       | 10.5     |
| D3 <sub>h6</sub>              | 13      | 16      | 22       | 32        | 40       |
| D4 <sub>g6</sub>              | 35      | 50      | 80       | 110       | 130      |
| D5                            | 15      | 25      | 35       | 45        | 50       |
| D6                            | M4x0.7P | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P |
| D7                            | 56      | 80      | 118      | 148       | 186      |
| L1                            | 42.6    | 60      | 90       | 115       | 142      |
| L2                            | 26      | 37      | 48       | 62        | 93       |
| L3                            | 5.5     | 7       | 10       | 8         | 8        |
| L4                            | 1.5     | 1.5     | 1.5      | 3         | 6        |
| L5                            | 15      | 25      | 32       | 40        | 60       |
| L6                            | 2       | 2       | 3        | 5         | 5        |
| L7                            | 4       | 6       | 8        | 12        | 18       |
| L8                            | 129.6   | 176.7   | 244      | 292.5     | 391      |
| L9                            | 4       | 4       | 4.5      | 6         | 6        |
| L10                           | 14      | 16.5    | 20.5     | 30        | 38       |
| L11                           | 13.5    | 21.5    | 22       | 32        | 44.7     |
| C1 <sup>2</sup>               | 46      | 70      | 90       | 115       | 145      |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  | M8x1.25P  | M8x1.25P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  | ≤24/≤32   | ≤35      |
| C4 <sup>2</sup>               | 29      | 34      | 44       | 53        | 75       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       | 95        | 110      |
| C6 <sup>2</sup>               | 6       | 5       | 5        | 6         | 9        |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       | 115       | 140      |
| C8 <sup>2</sup>               | 25      | 33      | 35       | 48        | 65       |
| C9 <sup>2</sup>               | 70.8    | 107.8   | 135      | 174.5     | 207      |
| B                             | 5       | 5       | 6        | 10        | 12       |
| H                             | 15      | 18      | 24.5     | 35        | 43       |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGR Double Stage Dimensions-2



## Specifications

Unit:mm

| Dimensions                    | PGR60T  | PGR90T   | PGR115T   | PGR142T  |
|-------------------------------|---------|----------|-----------|----------|
| D1                            | 70      | 100      | 130       | 165      |
| D2                            | 5.5     | 6.5      | 8.5       | 10.5     |
| D3 <sub>h6</sub>              | 16      | 22       | 32        | 40       |
| D4 <sub>g6</sub>              | 50      | 80       | 110       | 130      |
| D5                            | 25      | 35       | 45        | 50       |
| D6                            | M5x0.8P | M8x1.25P | M12x1.75P | M16x2.0P |
| D7                            | 80      | 118      | 148       | 186      |
| L1                            | 60      | 90       | 115       | 142      |
| L2                            | 37      | 48       | 62        | 93       |
| L3                            | 7       | 10       | 8         | 8        |
| L4                            | 1.5     | 1.5      | 3         | 6        |
| L5                            | 25      | 32       | 40        | 60       |
| L6                            | 2       | 3        | 5         | 5        |
| L7                            | 6       | 8        | 12        | 18       |
| L8                            | 145.1   | 196.2    | 269.4     | 343.5    |
| L9                            | 4       | 4.5      | 6         | 6        |
| L10                           | 16.5    | 20.5     | 30        | 38       |
| L11                           | 13.5    | 21.5     | 22        | 32       |
| C1 <sup>2</sup>               | 46      | 70       | 90        | 115      |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P  | M6x1.0P   | M8x1.25P |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19  | ≤19/≤24   | ≤24/≤32  |
| C4 <sup>2</sup>               | 29      | 34       | 44        | 53       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50       | 70        | 95       |
| C6 <sup>2</sup>               | 6       | 5        | 5         | 6        |
| C7 <sup>2</sup>               | 42.6    | 60       | 90        | 115      |
| C8 <sup>2</sup>               | 25      | 33       | 35        | 48       |
| C9 <sup>2</sup>               | 79.5    | 122.8    | 147.5     | 188      |
| B                             | 5       | 6        | 10        | 12       |
| H                             | 18      | 24.5     | 35        | 43       |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGR Specifications Table

| Specifications                   |                     | Stage           | Ratio                                                                                                  | PGR-42                               | PGR-60         | PGR-90         | PGR-115           | PGR-142           |
|----------------------------------|---------------------|-----------------|--------------------------------------------------------------------------------------------------------|--------------------------------------|----------------|----------------|-------------------|-------------------|
| Nominal Output Torque $T_{2N}$   | $N \cdot m$         | 1               | 3                                                                                                      | 13.8                                 | 35.3           | 76.2           | 220               | 380               |
|                                  |                     |                 | 4                                                                                                      | 11.9                                 | 35.9           | 74.6           | 249               | 450               |
|                                  |                     |                 | 5                                                                                                      | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 6                                                                                                      | 12.5                                 | 39.4           | 90.9           | 220               | 420               |
|                                  |                     |                 | 7                                                                                                      | 11.9                                 | 36.0           | 85.6           | 219               | 400               |
|                                  |                     |                 | 8                                                                                                      | 10.9                                 | 32.4           | 85.0           | 216               | 363               |
|                                  |                     |                 | 9                                                                                                      | 9.8                                  | 28.7           | 80.0           | 210               | 320               |
|                                  |                     |                 | 10                                                                                                     | 13.8                                 | 43.0           | 95.2           | 260               | 473               |
|                                  |                     | Stage           | Ratio                                                                                                  | PGR-42                               | PGR-60 / 60T   | PGR-90 / 90T   | PGR-115 / 115T    | PGR-142 / 142T    |
|                                  |                     | 2               | 15                                                                                                     | 13.8                                 | 44.2           | 95.2           | 283               | 482               |
|                                  |                     |                 | 20                                                                                                     | 11.9                                 | 35.9           | 74.6           | 249               | 490               |
|                                  |                     |                 | 25                                                                                                     | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 30                                                                                                     | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 35                                                                                                     | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 40                                                                                                     | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 45                                                                                                     | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 50                                                                                                     | 13.8                                 | 43.0           | 95.2           | 283               | 473               |
|                                  |                     |                 | 60                                                                                                     | 12.5                                 | 39.4           | 90.9           | 266               | 436               |
|                                  |                     |                 | 70                                                                                                     | 11.9                                 | 36.0           | 85.6           | 219               | 400               |
|                                  |                     |                 | 80                                                                                                     | 10.9                                 | 32.4           | 85.0           | 216               | 363               |
|                                  |                     |                 | 90                                                                                                     | 9.8                                  | 28.7           | 80.0           | 210               | 320               |
|                                  |                     | 100             | 10.1                                                                                                   | 25.0                                 | 75.0           | 210            | 320               |                   |
| Emergency Stop Torque $T_{2NOT}$ | $N \cdot m$         |                 | (3.0 times of Nominal Output Torque)<br>( * Max. Output Torque $T_{2B}$ =60% of Emergency Stop Torque) |                                      |                |                |                   |                   |
| Nominal Input Speed $n_{1N}$     | rpm                 | 1,2             | 3-100                                                                                                  | 3000                                 | 3000           | 3000           | 2500              | 2000              |
| Max. Input Speed $n_{1max}$      | rpm                 | 1,2             | 3-100                                                                                                  | 6000                                 | 6000           | 6000           | 5000              | 4000              |
| Micro Backlash P0                | arcmin              | 1<br>2          | 3-10<br>15-100                                                                                         | -<br>-                               | -<br>-         | -<br>-         | ≤ 4<br>≤ 6        | ≤ 4<br>≤ 6        |
| Precision Backlash P1            | arcmin              | 1<br>2          | 3-10<br>15-100                                                                                         | -<br>-                               | -<br>-         | ≤ 6<br>≤ 9     | ≤ 6<br>≤ 8        | ≤ 6<br>≤ 8        |
| Standard Backlash P2             | arcmin              | 1<br>2          | 3-10<br>15-100                                                                                         | ≤ 12<br>≤ 15                         | ≤ 9<br>≤ 12    | ≤ 9<br>≤ 12    | ≤ 9<br>≤ 11       | ≤ 9<br>≤ 11       |
| Torsional Rigidity               | $N \cdot m$ /arcmin | 1,2             | 3-100                                                                                                  | 1.0                                  | 2.8            | 7.5            | 15.5              | 30                |
| Max. Radial Load $F_{2rB}^1$     | N                   | 1,2             | 3-100                                                                                                  | 350                                  | 960            | 1630           | 3380              | 6150              |
| Max. Axial Load $F_{2aB}^1$      | N                   | 1,2             | 3-100                                                                                                  | 320                                  | 900            | 1420           | 2930              | 5510              |
| Operating Temp.                  | °C                  |                 | 3-100                                                                                                  | -10°C ~ +90°C                        |                |                |                   |                   |
| Service Life                     | hr                  |                 | 3-100                                                                                                  | 20,000 (10,000 Continuous operation) |                |                |                   |                   |
| Efficiency                       | %                   | 1<br>2          | 3-10<br>15-100                                                                                         | ≥ 94%<br>≥ 90%                       |                |                |                   |                   |
| Weight                           | kg                  | 1<br>2          | 3-10<br>15-100                                                                                         | 1.0<br>1.3                           | 2.5<br>3.2/2.8 | 6.5<br>8.6/6.9 | 13.2<br>17.7/14.5 | 24.6<br>29.7/26.2 |
| Mounting Position                | -                   | 1,2             | 3-100                                                                                                  | Any direction                        |                |                |                   |                   |
| Noise Level <sup>2</sup>         | dB(A)/1m            | 1,2             | 3-100                                                                                                  | 65                                   | 67             | 70             | 70                | 75                |
| Protection Class                 | -                   | 1,2             | 3-100                                                                                                  | IP65                                 |                |                |                   |                   |
| Lubrication                      | -                   | 1,2             | 3-100                                                                                                  | Synthetic Lubricant                  |                |                |                   |                   |
| Inertia (J1)                     |                     |                 |                                                                                                        |                                      |                |                |                   |                   |
| Stage                            | Ratio               | unit            |                                                                                                        | PGR-42                               | PGR-60         | PGR-90         | PGR-115           | PGR-142           |
| 1                                | 3/4/5/7/9           | $Kg \cdot cm^2$ |                                                                                                        | 0.06                                 | 0.40           | 2.28           | 6.87              | 24.2              |
|                                  | 6/8/10              |                 |                                                                                                        | 0.05                                 | 0.30           | 1.45           | 4.76              | 14.5              |
| Stage                            | Ratio               |                 |                                                                                                        | PGR-42                               | PGR-60(T)      | PGR-90(T)      | PGR-115(T)        | PGR-142(T)        |
| 2                                | 15/20/25/35/45      |                 |                                                                                                        | 0.06                                 | 0.40(0.08)     | 2.28(0.72)     | 6.87(3.02)        | 24.2(7.83)        |
|                                  | others              |                 |                                                                                                        | 0.05                                 | 0.30(0.06)     | 1.45(0.38)     | 4.76(1.64)        | 14.5(5.00)        |

\* 1. Applied to the output shaft center at 100 rpm.

\* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

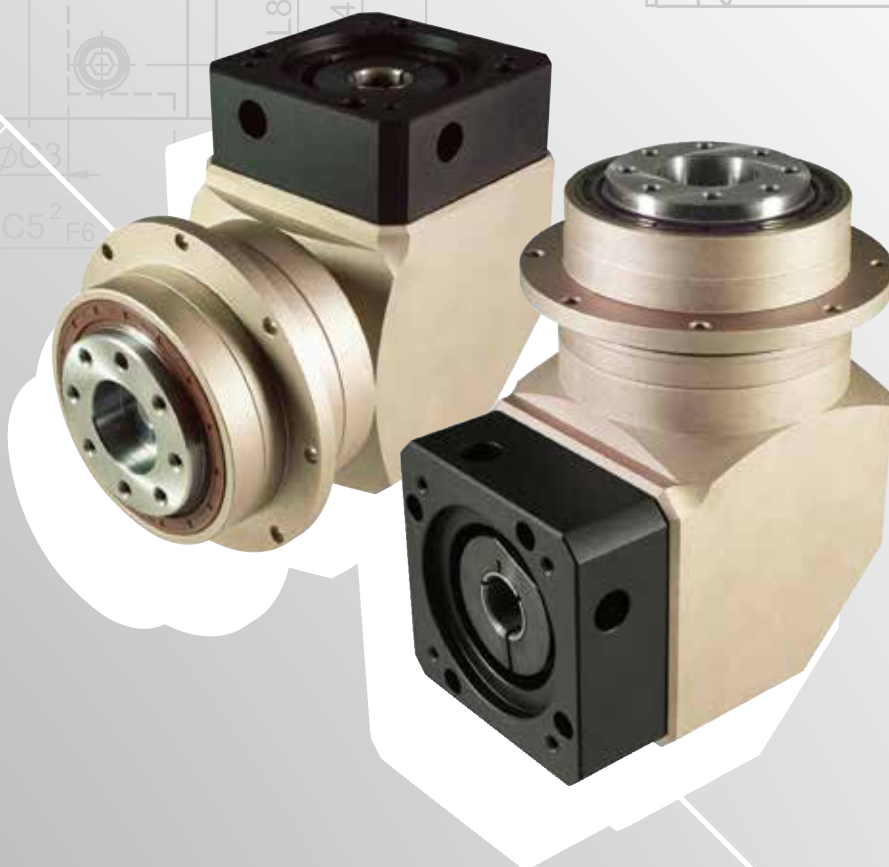
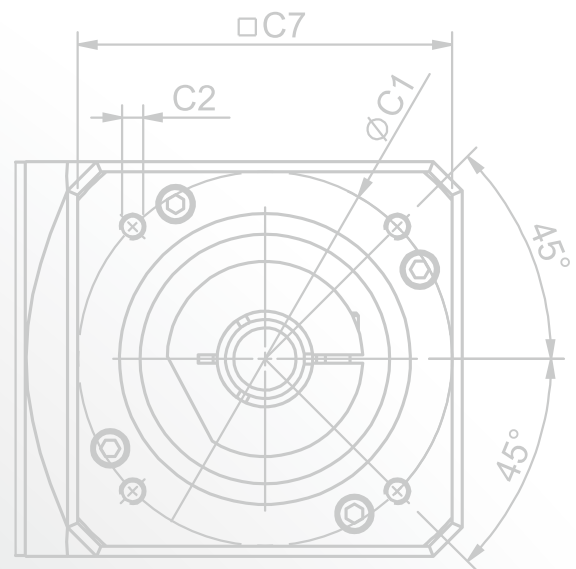
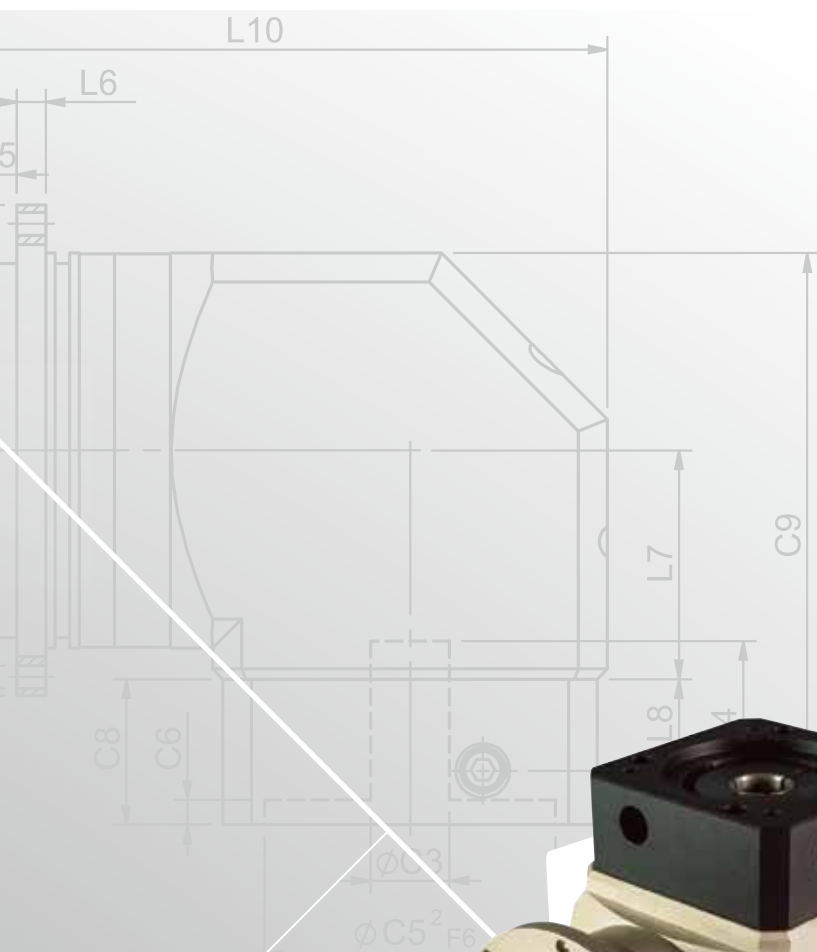
\* 3. PGR115T-□□-P0 is not applicable.

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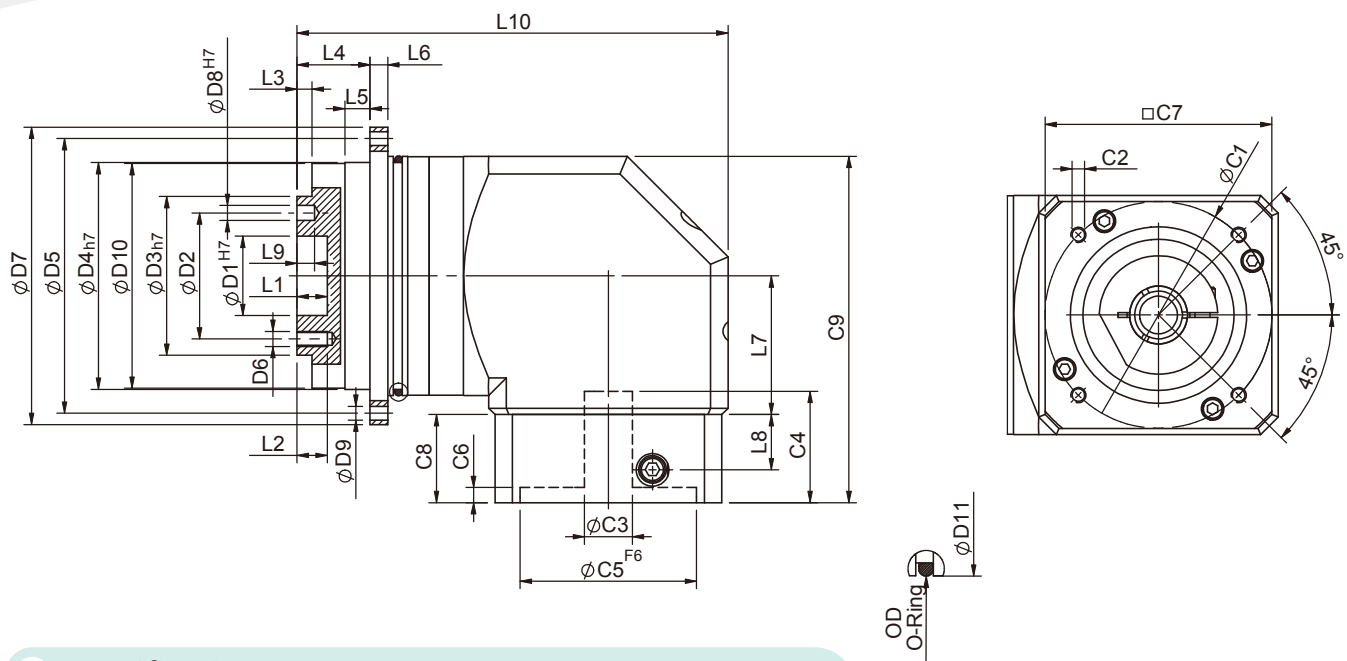
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# PGFR SERIES





## PGFR Single Stage Dimensions



## Specifications

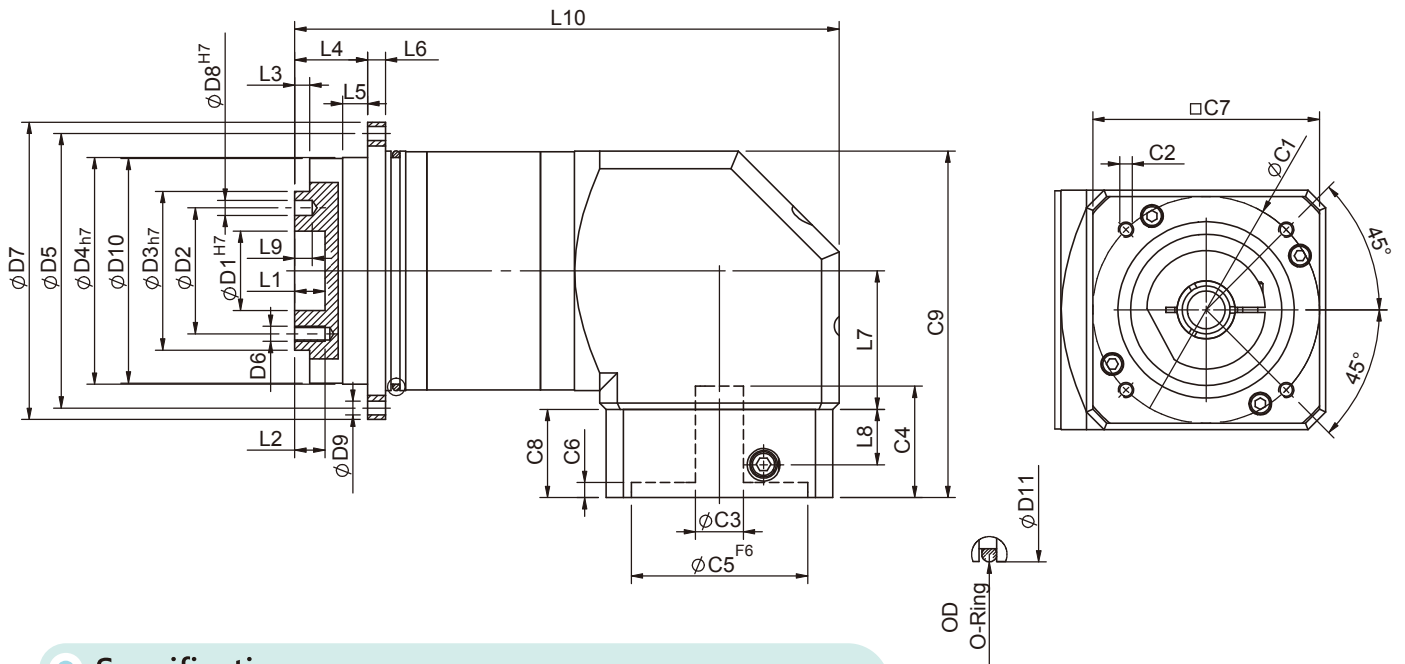
Unit:mm

| Dimensions         | PGFR42  | PGFR60  | PGFR90  | PGFR115 | PGFR142  |
|--------------------|---------|---------|---------|---------|----------|
| D1 <sup>H7</sup>   | 12      | 20      | 31.5    | 40      | 50       |
| D2                 | 20      | 31.5    | 50      | 63      | 80       |
| D3 <sub>h7</sub>   | 28      | 40      | 63      | 80      | 100      |
| D4 <sub>h7</sub>   | 47      | 64      | 90      | 110     | 140      |
| D5                 | 67      | 79      | 109     | 135     | 168      |
| D6                 | M3x0.5P | M5x0.8P | M6x1.0P | M6x1.0P | M8x1.25P |
| D7                 | 72      | 86      | 118     | 145     | 179      |
| D8 <sup>H7</sup>   | 3       | 5       | 6       | 6       | 8        |
| D9                 | 3.4     | 4.5     | 5.5     | 5.5     | 6.6      |
| D10                | 46.2    | 63.2    | 89.2    | 109.2   | 139.2    |
| D11                | 60      | 70      | 95      | 120     | 152      |
| L1                 | 4       | 8       | 12      | 12      | 12       |
| L2                 | 6       | 7.2     | 12      | 13.5    | 16       |
| L3                 | 3       | 3       | 6       | 6       | 6        |
| L4                 | 19.5    | 19.5    | 29      | 29      | 38       |
| L5                 | 7       | 7       | 10      | 10      | 14.6     |
| L6                 | 4       | 4       | 7       | 8       | 10       |
| L7                 | 32.2    | 44.8    | 55      | 69      | 71       |
| L8                 | 13.5    | 21.5    | 22      | 32      | 44.7     |
| L9                 | 4       | 6       | 7       | 7       | 7        |
| L10                | 92.2    | 123.9   | 171.1   | 200.2   | 250.7    |
| C1 *               | 46      | 70      | 90      | 90      | 145      |
| C2 *               | M4x0.7P | M5x0.8P | M6x1.0P | M6x1.0P | M8x1.25P |
| C3 *               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24 | ≤24/≤32 | ≤35      |
| C4 *               | 29      | 34      | 44      | 53.5    | 76.8     |
| C5 <sup>F6</sup> * | 30      | 50      | 70      | 70      | 110      |
| C6 *               | 6       | 5       | 5       | 5.5     | 9        |
| C7 *               | 42.6    | 60      | 90      | 115     | 140      |
| C8 *               | 25      | 33      | 35      | 48      | 65       |
| C9 *               | 78.5    | 112.8   | 137.5   | 176.5   | 225.5    |
| OD                 | 56x2    | 66x2    | 90x3    | 110x3   | 145x3    |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGFR Double Stage Dimensions-1



## Specifications

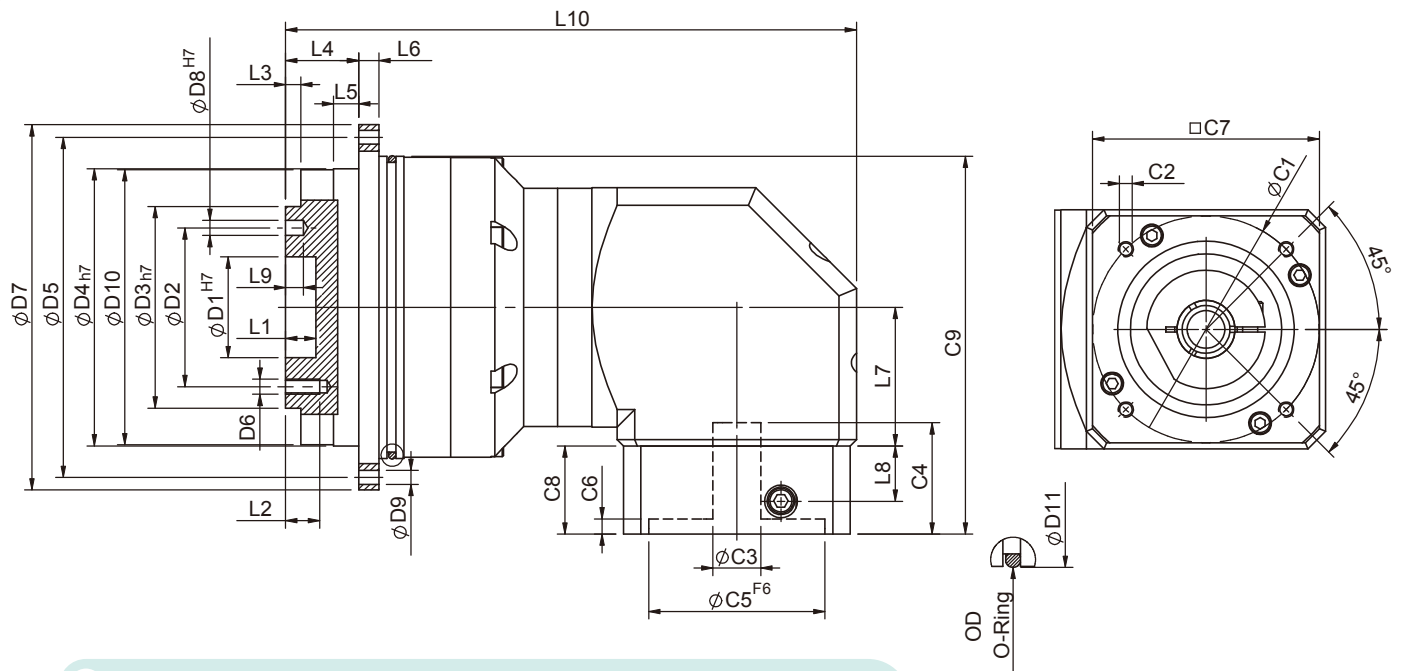
Unit:mm

| Dimensions         | PGFR42  | PGFR60  | PGFR90  |
|--------------------|---------|---------|---------|
| D1 <sup>H7</sup>   | 12      | 20      | 31.5    |
| D2                 | 20      | 31.5    | 50      |
| D3 <sup>h7</sup>   | 28      | 40      | 63      |
| D4 <sup>h7</sup>   | 47      | 64      | 90      |
| D5                 | 67      | 79      | 109     |
| D6                 | M3x0.5P | M5x0.8P | M6x1.0P |
| D7                 | 72      | 86      | 118     |
| D8 <sup>H7</sup>   | 3       | 5       | 6       |
| D9                 | 3.4     | 4.5     | 5.5     |
| D10                | 46.2    | 63.2    | 89.2    |
| D11                | 60      | 70      | 95      |
| L1                 | 4       | 8       | 12      |
| L2                 | 6       | 7.2     | 12      |
| L3                 | 3       | 3       | 6       |
| L4                 | 19.5    | 19.5    | 29      |
| L5                 | 7       | 7       | 10      |
| L6                 | 4       | 4       | 7       |
| L7                 | 32.2    | 44.8    | 55      |
| L8                 | 13.5    | 21.5    | 22      |
| L9                 | 4       | 6       | 7       |
| L10                | 119.9   | 159.3   | 216.1   |
| C1 *               | 46      | 70      | 90      |
| C2 *               | M4x0.7P | M5x0.8P | M6x1.0P |
| C3 *               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24 |
| C4 *               | 29      | 34      | 44      |
| C5 <sup>F6</sup> * | 30      | 50      | 70      |
| C6 *               | 6       | 5       | 5       |
| C7 *               | 42.6    | 60      | 90      |
| C8 *               | 25      | 33      | 35      |
| C9 *               | 78.5    | 112.8   | 137.5   |
| OD                 | 56x2    | 66x2    | 90x3    |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

★ Specification subject to change without notice.

## PGFR Double Stage Dimensions-2



## Specifications

Unit:mm

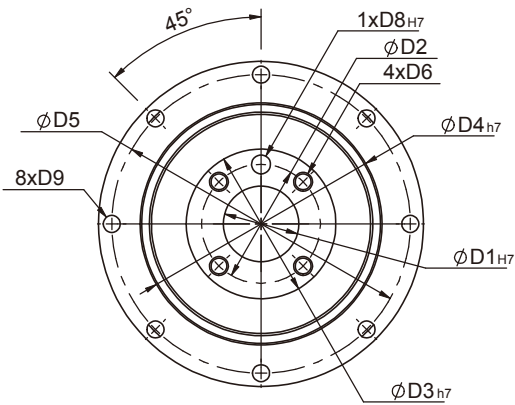
| Dimensions         | PGFR60T | PGFR90T | PGFR115T | PGFR142T |
|--------------------|---------|---------|----------|----------|
| D1 <sup>H7</sup>   | 20      | 31.5    | 40       | 50       |
| D2                 | 31.5    | 50      | 63       | 80       |
| D3 <sub>h7</sub>   | 40      | 63      | 80       | 100      |
| D4 <sub>h7</sub>   | 64      | 90      | 110      | 140      |
| D5                 | 79      | 109     | 135      | 168      |
| D6                 | M5x0.8P | M6x1.0P | M6x1.0P  | M8x1.25P |
| D7                 | 86      | 118     | 145      | 179      |
| D8 <sup>H7</sup>   | 5       | 6       | 6        | 8        |
| D9                 | 4.5     | 5.5     | 5.5      | 6.6      |
| D10                | 63.2    | 89.2    | 109.2    | 139.2    |
| D11                | 70      | 95      | 120      | 152      |
| L1                 | 8       | 12      | 12       | 12       |
| L2                 | 7.2     | 12      | 13.5     | 16       |
| L3                 | 3       | 6       | 6        | 6        |
| L4                 | 19.5    | 29      | 29       | 38       |
| L5                 | 7       | 10      | 10       | 14.6     |
| L6                 | 4       | 7       | 8        | 10       |
| L7                 | 32.2    | 44.8    | 55       | 69       |
| L8                 | 13.5    | 21.5    | 22       | 32       |
| L9                 | 6       | 7       | 7        | 7        |
| L10                | 126.6   | 171.3   | 226.6    | 270.7    |
| C1 *               | 46      | 70      | 90       | 90       |
| C2 *               | M4x0.7P | M5x0.8P | M6x1.0P  | M6x1.0P  |
| C3 *               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  | ≤24/≤32  |
| C4 *               | 29      | 34      | 44       | 53.5     |
| C5 <sup>F6</sup> * | 30      | 50      | 70       | 70       |
| C6 *               | 6       | 5       | 5        | 5.5      |
| C7 *               | 42.6    | 60      | 90       | 115      |
| C8 *               | 25      | 33      | 35       | 48       |
| C9 *               | 84.4    | 125.3   | 150      | 176.5    |
| OD                 | 66x2    | 90x3    | 110x3    | 145x3    |

★ C1~C9 are motor specific dimensions (metric std shown). Size may vary according to motor flange.

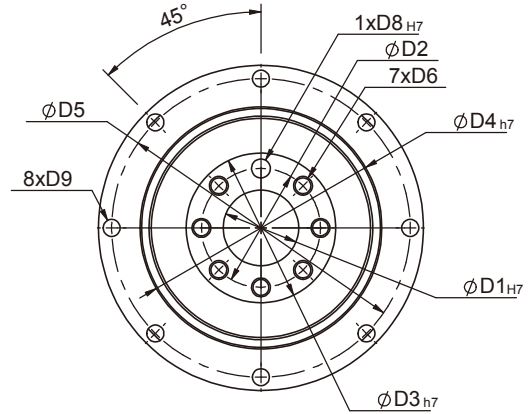
★ Specification subject to change without notice.

## PGFR Flange Dimensions

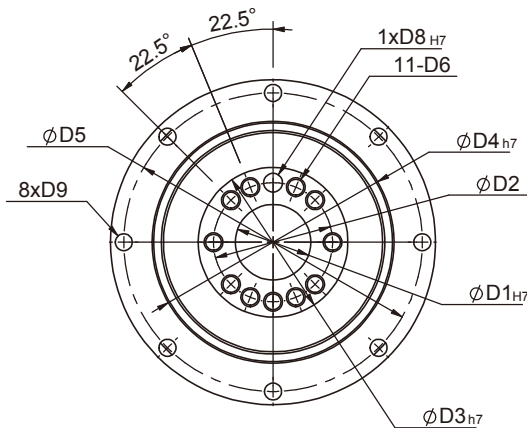
PGFR42



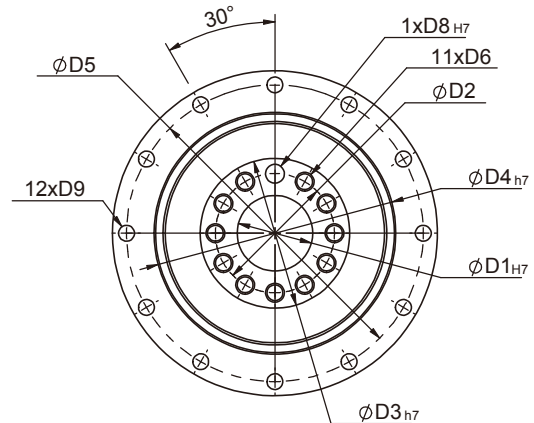
PGFR60  
PGFR90



PGFR115



PGFR142



## Specifications

Unit:mm

| Dimensions       | PGFR42  | PGFR60  | PGFR90  | PGFR115 | PGFR142  |
|------------------|---------|---------|---------|---------|----------|
| D1 <sub>H7</sub> | 12      | 20      | 31.5    | 40      | 50       |
| D2               | 20      | 31.5    | 50      | 63      | 80       |
| D3 <sub>h7</sub> | 28      | 40      | 63      | 80      | 100      |
| D4 <sub>h7</sub> | 47      | 64      | 90      | 110     | 140      |
| D5               | 67      | 79      | 109     | 135     | 168      |
| D6               | M3x0.5P | M5x0.8P | M6x1.0P | M6x1.0P | M8x1.25P |
| D8 <sub>H7</sub> | 3       | 5       | 6       | 6       | 8        |
| D9               | 3.4     | 4.5     | 5.5     | 5.5     | 6.6      |

★ Specification subject to change without notice.

## PGFR Specifications Table

| Specifications                                    |                  | Stage                                                                                                          | Ratio  | PGFR-42                              | PGFR-60              | PGFR-90              | PGFR-115  | PGFR-142  |
|---------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------|--------|--------------------------------------|----------------------|----------------------|-----------|-----------|
| Nominal Output Torque T <sub>2N</sub>             | N • m            | 1                                                                                                              | 3      | -                                    | 40                   | 105                  | 180       | 340       |
|                                                   |                  |                                                                                                                | 4      | 16                                   | 43                   | 110                  | 240       | 500       |
|                                                   |                  |                                                                                                                | 5      | 17                                   | 50                   | 130                  | 290       | 600       |
|                                                   |                  |                                                                                                                | 7      | 14                                   | 44                   | 125                  | 270       | 530       |
|                                                   |                  |                                                                                                                | 10     | 17                                   | 50                   | 130                  | 260       | 540       |
|                                                   |                  |                                                                                                                | 14     | 14                                   | 44                   | 125                  | 270       | 530       |
|                                                   |                  |                                                                                                                | 20     | 11                                   | 37                   | 95                   | 220       | 430       |
|                                                   |                  | Stage                                                                                                          | Ratio  | PGFR-42                              | PGFR-60/<br>PGFR-60T | PGFR-90/<br>PGFR-90T | PGFR-115T | PGFR-142T |
|                                                   |                  | 2                                                                                                              | 15     | -                                    | 40                   | 105                  | 180       | 600       |
|                                                   |                  |                                                                                                                | 20     | 16                                   | 43                   | 110                  | 240       | 600       |
|                                                   |                  |                                                                                                                | 25     | 17                                   | 50                   | 130                  | 290       | 600       |
|                                                   |                  |                                                                                                                | 30     | 17                                   | 40                   | 105                  | 180       | 600       |
|                                                   |                  |                                                                                                                | 35     | 17                                   | 50                   | 130                  | 290       | 600       |
|                                                   |                  |                                                                                                                | 40     | 16                                   | 43                   | 110                  | 240       | 600       |
|                                                   |                  |                                                                                                                | 50     | 17                                   | 50                   | 130                  | 290       | 600       |
|                                                   |                  |                                                                                                                | 70     | 14                                   | 44                   | 125                  | 270       | 530       |
|                                                   |                  |                                                                                                                | 100    | 11                                   | 37                   | 95                   | 220       | 430       |
|                                                   |                  |                                                                                                                | 140    | 14                                   | 44                   | 125                  | 270       | 530       |
|                                                   |                  |                                                                                                                | 200    | 11                                   | 37                   | 95                   | 220       | 430       |
| Emergency Stop Torque T <sub>2NOT</sub>           | N • m            | ( 3 0 times of Nominal Output Torque)<br>(* Max. Output Torque T <sub>2B</sub> = 60% of Emergency Stop Torque) |        |                                      |                      |                      |           |           |
| Nominal Input Speed n <sub>1N</sub>               | rpm              | 1,2                                                                                                            | 3-200  | 5000                                 | 5000                 | 4000                 | 4000      | 3000      |
| Max. Input Speed n <sub>1max</sub>                | rpm              | 1,2                                                                                                            | 3-200  | 10000                                | 10000                | 8000                 | 8000      | 5000      |
| Micro Backlash P0                                 | arcmin           | 1                                                                                                              | 3-20   | -                                    | -                    | ≤ 4                  | ≤ 2       | ≤ 2       |
|                                                   |                  | 2                                                                                                              | 15-200 | -                                    | -                    | ≤ 6                  | ≤ 4       | ≤ 4       |
| Precision Backlash P1                             | arcmin           | 1                                                                                                              | 3-20   | ≤ 6                                  | ≤ 6                  | ≤ 6                  | ≤ 4       | ≤ 4       |
|                                                   |                  | 2                                                                                                              | 15-200 | ≤ 8                                  | ≤ 8                  | ≤ 8                  | ≤ 7       | ≤ 7       |
| Standard Backlash P2                              | arcmin           | 1                                                                                                              | 3-20   | ≤ 8                                  | ≤ 8                  | ≤ 8                  | ≤ 6       | ≤ 6       |
|                                                   |                  | 2                                                                                                              | 15-200 | ≤ 10                                 | ≤ 10                 | ≤ 10                 | ≤ 9       | ≤ 9       |
| Torsional Rigidity                                | N • m<br>/arcmin | 1,2                                                                                                            | 3-200  | 6                                    | 12                   | 28                   | 75        | 145       |
| Max. Bending Moment M <sub>2kB</sub> <sup>1</sup> | N • m            | 1,2                                                                                                            | 3-200  | 22.5                                 | 36                   | 76                   | 140       | 950       |
| Max. Axial Load F <sub>2aB</sub> <sup>1</sup>     | N                | 1,2                                                                                                            | 3-200  | 465                                  | 635                  | 1060                 | 1580      | 6400      |
| Operating Temp.                                   | °C               |                                                                                                                | 3-200  | -10 °C ~ +90 °C                      |                      |                      |           |           |
| Service Life                                      | hr               |                                                                                                                | 3-200  | 20,000 (10,000 Continuous operation) |                      |                      |           |           |
| Efficiency                                        | %                | 1                                                                                                              | 3-20   | ≥ 95%                                |                      |                      |           |           |
|                                                   |                  | 2                                                                                                              | 15-200 | ≥ 92%                                |                      |                      |           |           |
| Weight                                            | kg               | 1                                                                                                              | 3-20   | 1.1                                  | 2.2                  | 6.3                  | 13.5      | 25.1      |
|                                                   |                  | 2                                                                                                              | 15-200 | 1.6                                  | 2.9/2.1              | 8.3/5.0              | 14.8      | 26.7      |
| Mounting Position                                 | -                | 1,2                                                                                                            | 3-200  | Any direction                        |                      |                      |           |           |
| Noise Level <sup>2</sup>                          | dBA/1m           | 1,2                                                                                                            | 3-200  | 62                                   | 64                   | 66                   | 68        | 70        |
| Protection Class                                  | -                | 1,2                                                                                                            | 3-200  | IP65                                 |                      |                      |           |           |
| Lubrication                                       | -                | 1,2                                                                                                            | 3-200  | Synthetic Lubricant                  |                      |                      |           |           |
| Inertia (J1)                                      |                  |                                                                                                                |        |                                      |                      |                      |           |           |
| Stage                                             | Ratio            | unit                                                                                                           |        | PGFR-42                              | PGFR-60              | PGFR-90              | PGFR-115  | PGFR-142  |
| 1                                                 | 3/4/5/7          | Kg • cm <sup>2</sup>                                                                                           |        | 0.06                                 | 0.40                 | 2.28                 | 6.87      | 24.2      |
|                                                   | 10/14/20         |                                                                                                                |        | 0.05                                 | 0.30                 | 1.45                 | 4.76      | 14.5      |
| Stage                                             | Ratio            |                                                                                                                |        | PGFR-42                              | PGFR-60(T)           | PGFR-90(T)           | PGFR-115T | PGFR-142T |
| 2                                                 | 15/20/25/35      |                                                                                                                |        | 0.06                                 | 0.40(0.08)           | 2.28(0.72)           | 3.02      | 7.83      |
|                                                   | others           |                                                                                                                |        | 0.05                                 | 0.30(0.06)           | 1.45(0.38)           | 1.64      | 5.00      |

\* 1. Applied to the output shaft center at 100 rpm.

\* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

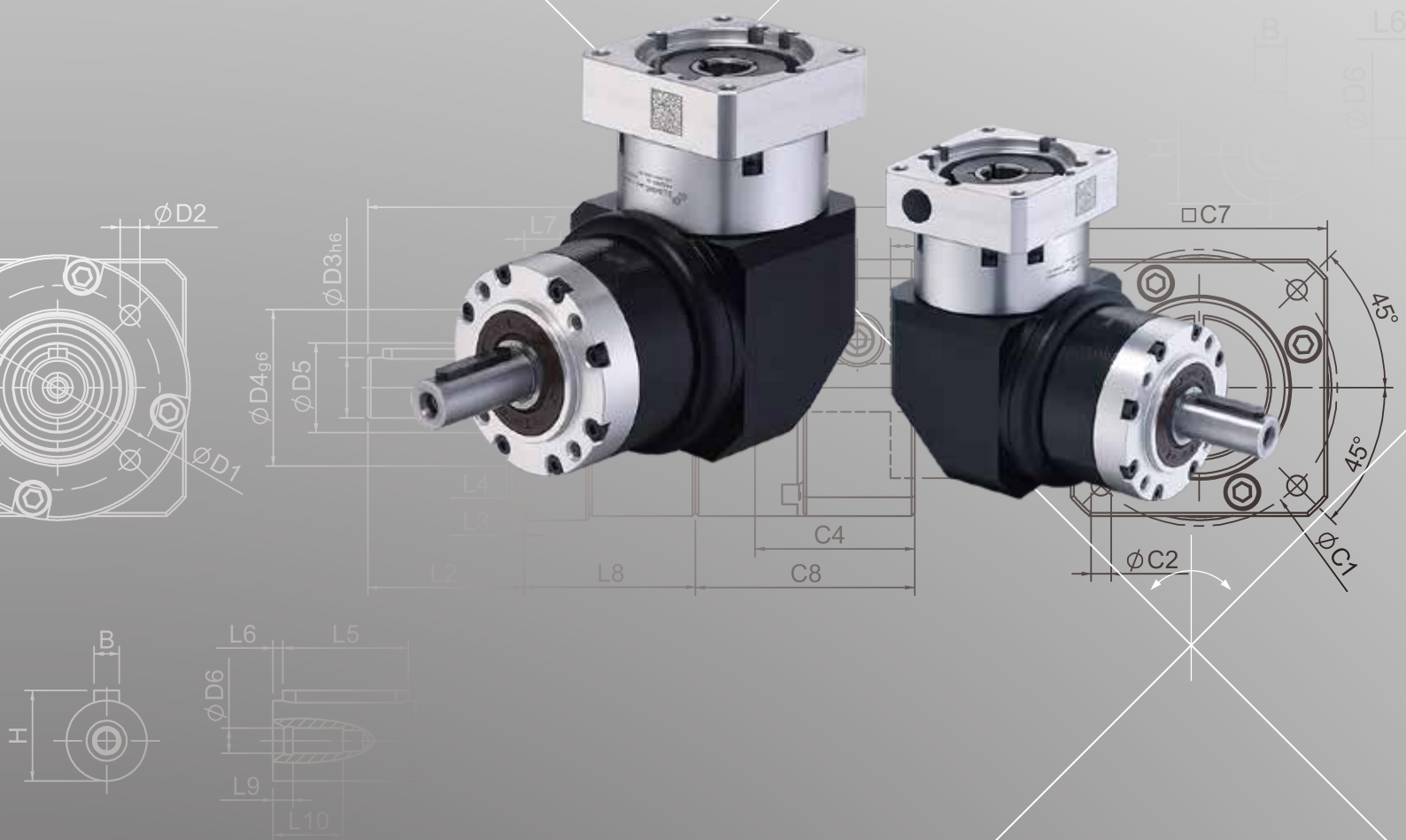
※ The above figures/specifications are subject to change without prior notice.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

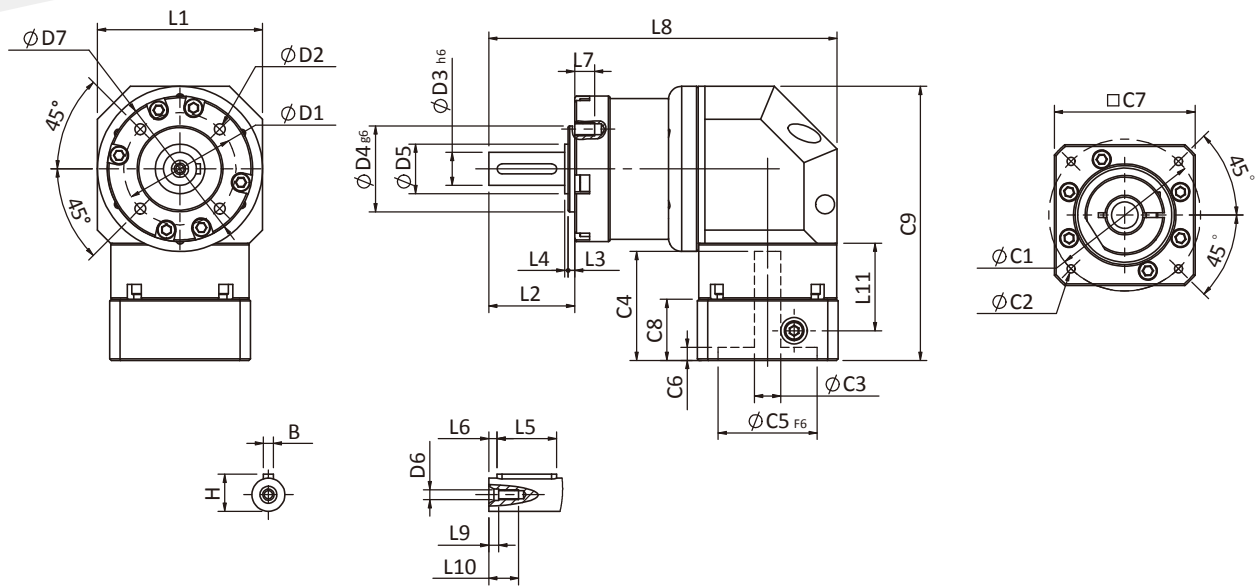
# PLANETARY GEARHEADS



# ***PNSR SERIES***



## PNSR Single Stage Dimensions



## Specifications

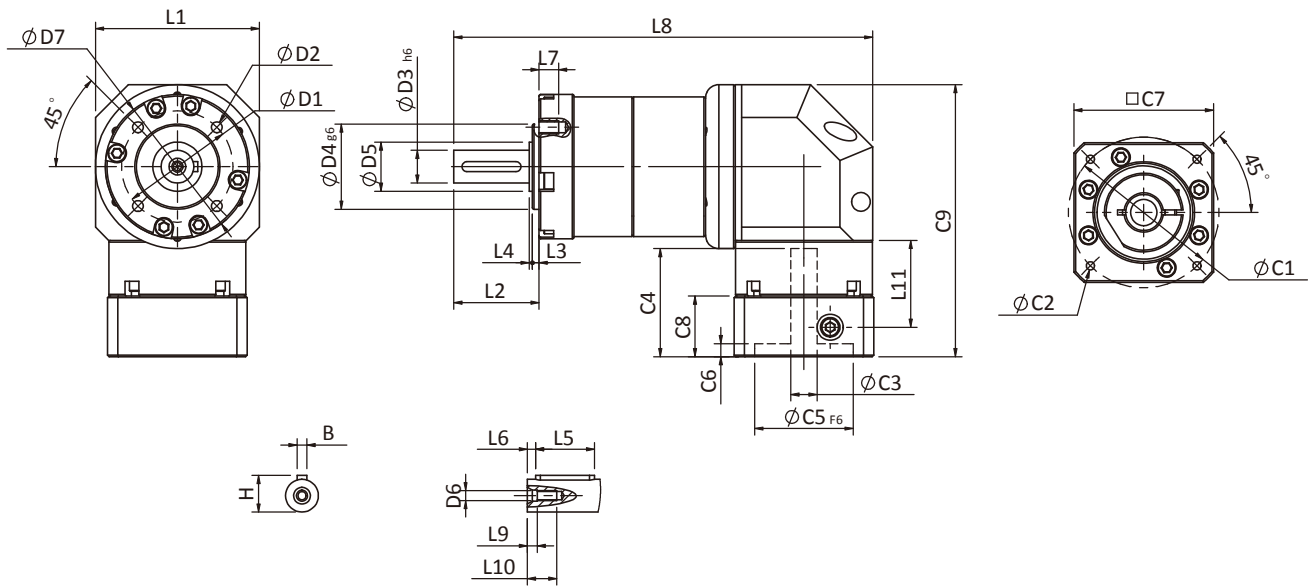
Unit: mm

| Dimensions                    | PNSR40  | PNSR60  | PNSR80  | PNSR120 |
|-------------------------------|---------|---------|---------|---------|
| D1                            | 34      | 52      | 70      | -       |
| D2                            | M4x0.7P | M5x0.8P | M6x1.0P | -       |
| D3 <sub>h6</sub>              | 10      | 14      | 20      | -       |
| D4 <sub>g6</sub>              | 26      | 40      | 60      | -       |
| D5                            | 15      | 20      | 35      | -       |
| D6                            | M3x0.5P | M5x0.8P | M6x1.0P | -       |
| D7                            | 44      | 60      | 90      | -       |
| L1                            | 50      | 70      | -       | -       |
| L2                            | 26      | 35      | 40      | -       |
| L3                            | 2       | 3       | 3       | -       |
| L4                            | 1       | 1       | 1       | -       |
| L5                            | 18      | 25      | 28      | -       |
| L6                            | 2.5     | 2.5     | 4       | -       |
| L7                            | 6       | 8       | 10      | -       |
| L8                            | 105.4   | 139.7   | 189.2   | -       |
| L9                            | 3       | 4       | 4.5     | -       |
| L10                           | 9       | 16.5    | 16.5    | -       |
| L11                           | 26.5    | 36      | 40.7    | -       |
| C1 <sup>2</sup>               | 46      | 70      | 90      | -       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P | -       |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24 | -       |
| C4 <sup>2</sup>               | 33      | 44      | 57      | -       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70      | -       |
| C6 <sup>2</sup>               | 4       | 4       | 6       | -       |
| C7 <sup>2</sup>               | 42.6    | 60      | 90      | -       |
| C8 <sup>2</sup>               | 18.5    | 20      | 26      | -       |
| C9 <sup>2</sup>               | 83      | 111.4   | 150.2   | -       |
| B                             | 3       | 5       | 6       | -       |
| H                             | 11.2    | 16      | 22.5    | -       |

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PNSR Double Stage Dimensions-1



## Specifications

Unit: mm

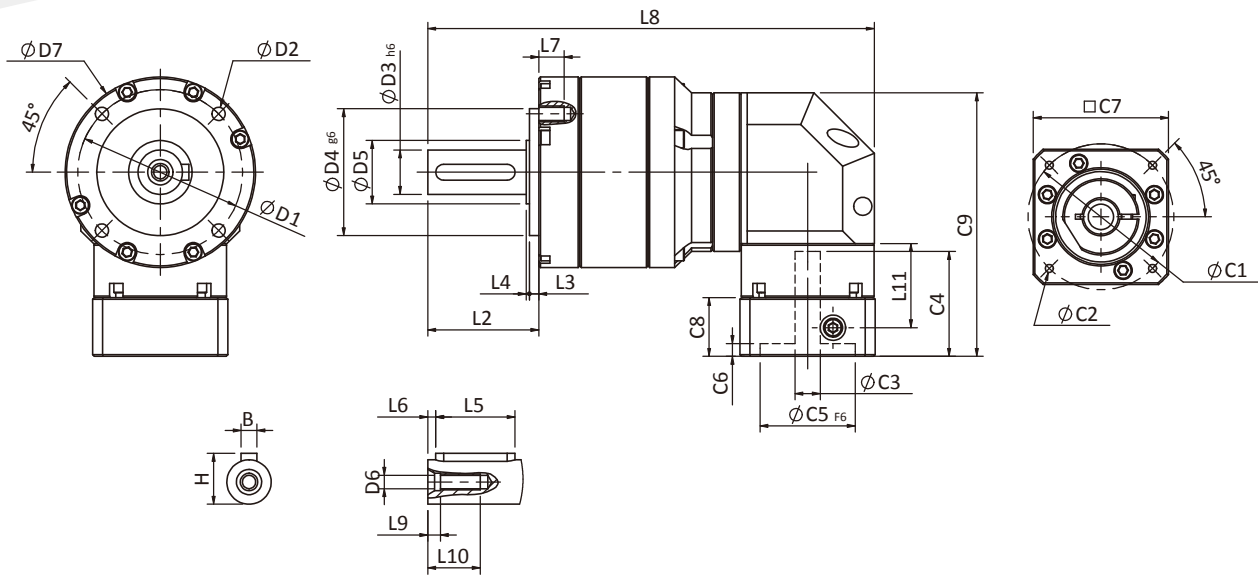
| Dimensions                    | PNSR40  | PNSR60  | PNSR80  | PNSR120 |
|-------------------------------|---------|---------|---------|---------|
| D1                            | 34      | 52      | 70      | -       |
| D2                            | M4x0.7P | M5x0.8P | M6x1.0P | -       |
| D3 <sub>h6</sub>              | 10      | 14      | 20      | -       |
| D4 <sub>g6</sub>              | 26      | 40      | 60      | -       |
| D5                            | 15      | 20      | 35      | -       |
| D6                            | M3x0.5P | M5x0.8P | M6x1.0P | -       |
| D7                            | 44 (45) | 60      | 90      | -       |
| L1                            | 50      | 70      | -       | -       |
| L2                            | 26      | 35      | 40      | -       |
| L3                            | 2       | 3       | 3       | -       |
| L4                            | 1       | 1       | 1       | -       |
| L5                            | 18      | 25      | 28      | -       |
| L6                            | 2.5     | 2.5     | 4       | -       |
| L7                            | 6       | 8       | 10      | -       |
| L8                            | 127.9   | 166.7   | 223     | -       |
| L9                            | 3       | 4       | 4.5     | -       |
| L10                           | 9       | 16.5    | 16.5    | -       |
| L11                           | 26.5    | 36      | 40.7    | -       |
| C1 <sup>2</sup>               | 46      | 70      | 90      | -       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P | -       |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24 | -       |
| C4 <sup>2</sup>               | 33      | 44      | 57      | -       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70      | -       |
| C6 <sup>2</sup>               | 4       | 4       | 6       | -       |
| C7 <sup>2</sup>               | 42.6    | 60      | 90      | -       |
| C8 <sup>2</sup>               | 18.5    | 20      | 26      | -       |
| C9 <sup>2</sup>               | 83      | 111.4   | 150.2   | -       |
| B                             | 3       | 5       | 6       | -       |
| H                             | 11.2    | 16      | 22.5    | -       |

\*1. D7=45 when gear ratios are 100, 200, and 300.

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PNSR Double Stage Dimensions-2



## Specifications

Unit: mm

| Dimensions                    | PNSR60T | PNSR80T | PNSR120T |
|-------------------------------|---------|---------|----------|
| D1                            | 52      | 70      | 100      |
| D2                            | M5x0.8P | M6x1.0P | M10x1.5P |
| D3 <sub>h6</sub>              | 14      | 20      | 25       |
| D4 <sub>g6</sub>              | 40      | 60      | 80       |
| D5                            | 20      | 35      | 40       |
| D6                            | M5x0.8P | M6x1.0P | M10x1.5P |
| D7                            | 60      | 90      | 116      |
| L1                            | -       | -       | -        |
| L2                            | 35      | 40      | 55       |
| L3                            | 3       | 3       | 4        |
| L4                            | 1       | 1       | 1        |
| L5                            | 25      | 28      | 40       |
| L6                            | 2.5     | 4       | 5        |
| L7                            | 8       | 10      | 15       |
| L8                            | 140.7   | 181.8   | 268.9    |
| L9                            | 4       | 4.5     | 6        |
| L10                           | 16.5    | 16.5    | 26       |
| L11                           | 26.5    | 36      | 40.7     |
| C1 <sup>2</sup>               | 46      | 70      | 90       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  |
| C4 <sup>2</sup>               | 33      | 44      | 57       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       |
| C6 <sup>2</sup>               | 4       | 4       | 6        |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       |
| C8 <sup>2</sup>               | 18.5    | 20      | 26       |
| C9 <sup>2</sup>               | 83      | 111.4   | 150.2    |
| B                             | 5       | 6       | 8        |
| H                             | 16      | 22.5    | 28       |

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PNSR Specifications Table

| Specifications                   |                       | Stage                                                                                               | Ratio                | PNSR-40                                        | PNSR-60                                         | PNSR-80                 | PNSR-120               |           |
|----------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------|-------------------------------------------------|-------------------------|------------------------|-----------|
| Nominal Output Torque $T_{2N}$   | $N \bullet m$         | 1                                                                                                   | 3                    | 9                                              | 28                                              | 85                      | 200                    |           |
|                                  |                       |                                                                                                     | 4                    | 10                                             | 32                                              | 80                      | 215                    |           |
|                                  |                       |                                                                                                     | 5                    | 11                                             | 35                                              | 95                      | 215                    |           |
|                                  |                       |                                                                                                     | 7                    | 10                                             | 28                                              | 85                      | 200                    |           |
|                                  |                       |                                                                                                     | 8                    | 10                                             | 32                                              | 80                      | 215                    |           |
|                                  |                       |                                                                                                     | 9                    | 9                                              | 28                                              | 85                      | 200                    |           |
|                                  |                       |                                                                                                     | 10                   | 11                                             | 35                                              | 95                      | 215                    |           |
|                                  |                       |                                                                                                     | 12                   | 10                                             | 32                                              | 80                      | 215                    |           |
|                                  |                       |                                                                                                     | 14                   | 10                                             | 28                                              | 85                      | 200                    |           |
|                                  |                       |                                                                                                     | 15                   | 11                                             | 35                                              | 95                      | 215                    |           |
|                                  |                       |                                                                                                     | 16                   | 8                                              | 23                                              | 75                      | 195                    |           |
|                                  |                       |                                                                                                     | Stage                | Ratio                                          | PNSR-40                                         | PNSR-60/<br>PNSR-60T    | PNSR-80/<br>PNSR-80T   | PNSR-120T |
|                                  |                       |                                                                                                     | 2                    | 20                                             | 11                                              | 35/31                   | 95/95                  | 215       |
|                                  |                       |                                                                                                     |                      | 25                                             | 11                                              | 35/30                   | 95/95                  | 215       |
|                                  |                       |                                                                                                     |                      | 30                                             | 11                                              | 35/30                   | 95/95                  | 215       |
|                                  |                       |                                                                                                     |                      | 35                                             | 11                                              | 35/28                   | 95/95                  | 215       |
|                                  |                       | 40                                                                                                  |                      | 11                                             | 35/31                                           | 95/95                   | 215                    |           |
|                                  |                       | 50                                                                                                  |                      | 11                                             | 35/30                                           | 95/95                   | 215                    |           |
|                                  |                       | 60                                                                                                  |                      | 11                                             | 35/30                                           | 95/95                   | 215                    |           |
|                                  |                       | 70                                                                                                  |                      | 10                                             | 35/28                                           | 95/95                   | 215                    |           |
|                                  |                       | 80                                                                                                  |                      | 11                                             | 35/27                                           | 95/92                   | 215                    |           |
|                                  |                       | 98                                                                                                  |                      | 10                                             | -                                               | -                       | -                      |           |
|                                  |                       | 100                                                                                                 |                      | -                                              | 35/27                                           | 95/82                   | 205                    |           |
|                                  |                       | 120                                                                                                 |                      | 11                                             | 35/27                                           | 95/92                   | 215                    |           |
|                                  |                       | 160                                                                                                 | -                    | 23/23                                          | 75/75                                           | 195                     |                        |           |
|                                  |                       | 200                                                                                                 | 8                    | 21/21                                          | 65/65                                           | 180                     |                        |           |
|                                  |                       | 243                                                                                                 | 8                    | 23/23                                          | 75/75                                           | 195                     |                        |           |
|                                  |                       | 300                                                                                                 | 8                    | 21/21                                          | 65/65                                           | 180                     |                        |           |
| Emergency Stop Torque $T_{2NOT}$ | $N \bullet m$         | (2.5 times of Nominal Output Torque)<br>Max. Output Torque $T_{2B}$ = 60% of Emergency Stop Torque) |                      |                                                |                                                 |                         |                        |           |
| Nominal Input Speed $n_{1N}$     | rpm                   | 1,2                                                                                                 | 3-300                | 4500                                           | 4000                                            | 3000                    | 2500                   |           |
| Max. Input Speed $n_{1max}$      | rpm                   | 1,2                                                                                                 | 3-300                | 7500                                           | 7000                                            | 6000                    | 5000                   |           |
| Standard Backlash P2             | arcmin                | 1<br>2                                                                                              | 3-16<br>20-300       | $\leq 18$<br>$\leq 20$                         | $\leq 15$<br>$\leq 17$                          | $\leq 13$<br>$\leq 15$  | $\leq 11$<br>$\leq 13$ |           |
| Torsional Rigidity               | $N \bullet m$ /arcmin | 1,2                                                                                                 | 3-300                | 1.2                                            | 3.5                                             | 8.5                     | 17                     |           |
| Max. Radial Load $F_{2RB}^1$     | N                     | 1,2                                                                                                 | 3-300                | 580                                            | 890                                             | 2050                    | 4370                   |           |
| Max. Axial Load $F_{2aB}^1$      | N                     | 1,2                                                                                                 | 3-300                | 410                                            | 430                                             | 1100                    | 2630                   |           |
| Operating Temp.                  | °C                    | 1,2                                                                                                 | 3-300                | -10°C ~ +90°C                                  |                                                 |                         |                        |           |
| Service Life                     | hr                    | 1,2                                                                                                 | 3-300                | 20,000 (10,000 Continuous operation)           |                                                 |                         |                        |           |
| Efficiency                       | %                     | 1<br>2                                                                                              | 3-16<br>20-300       | $\geq 95\%$<br>$\geq 90\%$                     |                                                 |                         |                        |           |
| Weight                           | kg                    | 1<br>2                                                                                              | 3-16<br>20-300       | 1.0<br>1.2                                     | 2.4<br>2.9/2.7                                  | 6.1<br>8.1/6.5          | 12.2<br>13.8           |           |
| Mounting Position                | -                     | 1,2                                                                                                 | 3-300                | Any direction                                  |                                                 |                         |                        |           |
| Noise Level <sup>2</sup>         | dBA/1m                | 1,2                                                                                                 | 3-300                | 66                                             | 68                                              | 70                      | 73                     |           |
| Protection Class                 | -                     | 1,2                                                                                                 | 3-300                | IP 65                                          |                                                 |                         |                        |           |
| Lubrication                      | -                     | 1,2                                                                                                 | 3-300                | Synthetic Lubricant                            |                                                 |                         |                        |           |
| Inertia (J1)                     |                       |                                                                                                     |                      |                                                |                                                 |                         |                        |           |
| Stage                            | Ratio                 | unit                                                                                                | PNSR-40 ( $\phi$ 8 ) | PNSR-60 ( $\phi$ 14 )                          | PNSR-80 ( $\phi$ 19 )                           | PNSR-120 ( $\phi$ 24 )  |                        |           |
| 1                                | 3, 4, 5, 7            | Kg $\bullet$ cm <sup>2</sup>                                                                        | 0.07                 | 0.40                                           | 2.30                                            | 6.80                    |                        |           |
|                                  | Other ratios          |                                                                                                     | 0.05                 | 0.30                                           | 1.50                                            | 4.70                    |                        |           |
| Stage                            | Ratio                 |                                                                                                     | PNSR-40 ( $\phi$ 8 ) | PNSR-60 ( $\phi$ 14 )<br>PNSR-60T ( $\phi$ 8 ) | PNSR-80 ( $\phi$ 19 )<br>PNSR-80T ( $\phi$ 14 ) | PNSR-120T ( $\phi$ 19 ) |                        |           |
| 2                                | 20, 25, 35            |                                                                                                     | 0.07                 | 0.40/0.07                                      | 2.30/0.40                                       | 2.30                    |                        |           |
|                                  | Other ratios          |                                                                                                     | 0.05                 | 0.30/0.05                                      | 1.50/0.30                                       | 1.50                    |                        |           |

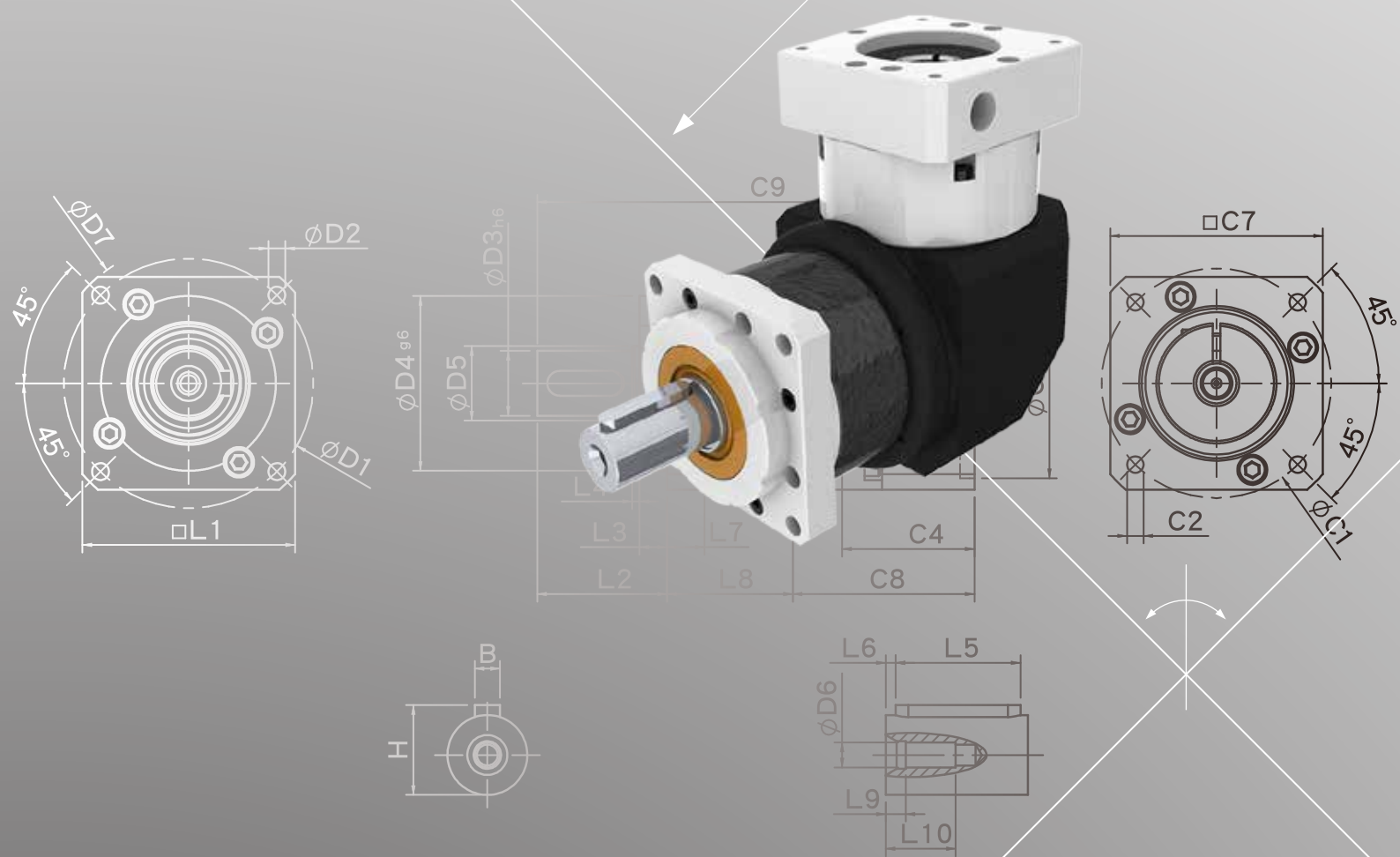
\* 1. Applied to the output shaft center @100rpm.

\* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

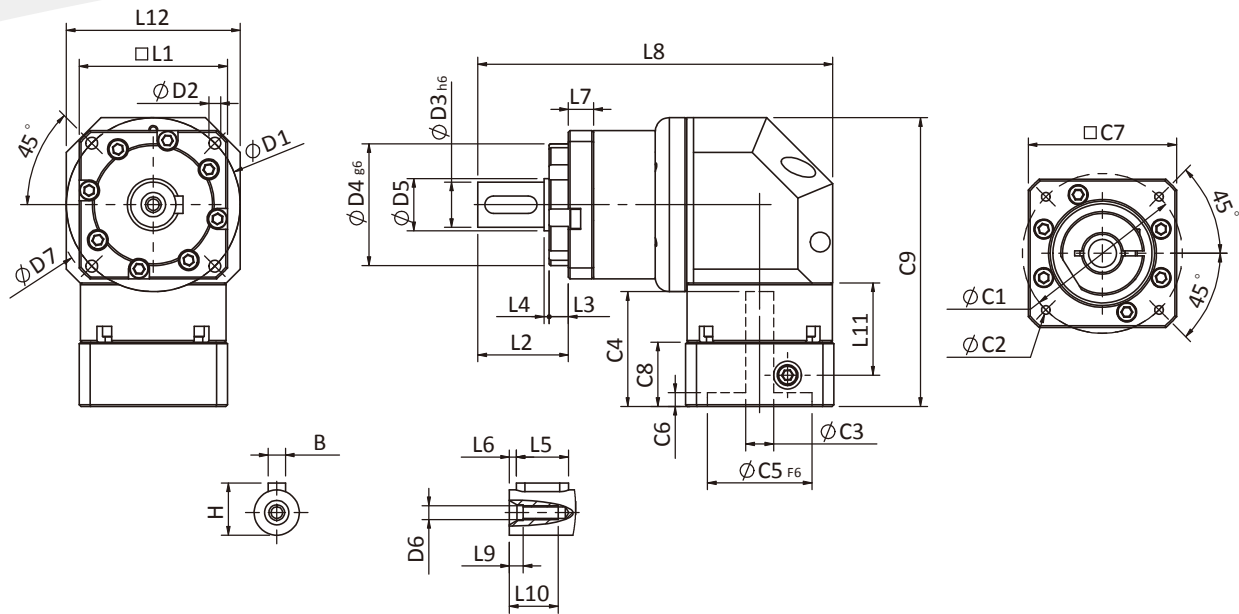
※The above figures/specifications are subject to change without prior notice.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

# ***PAER*** SERIES



## PAER Single Stage Dimensions



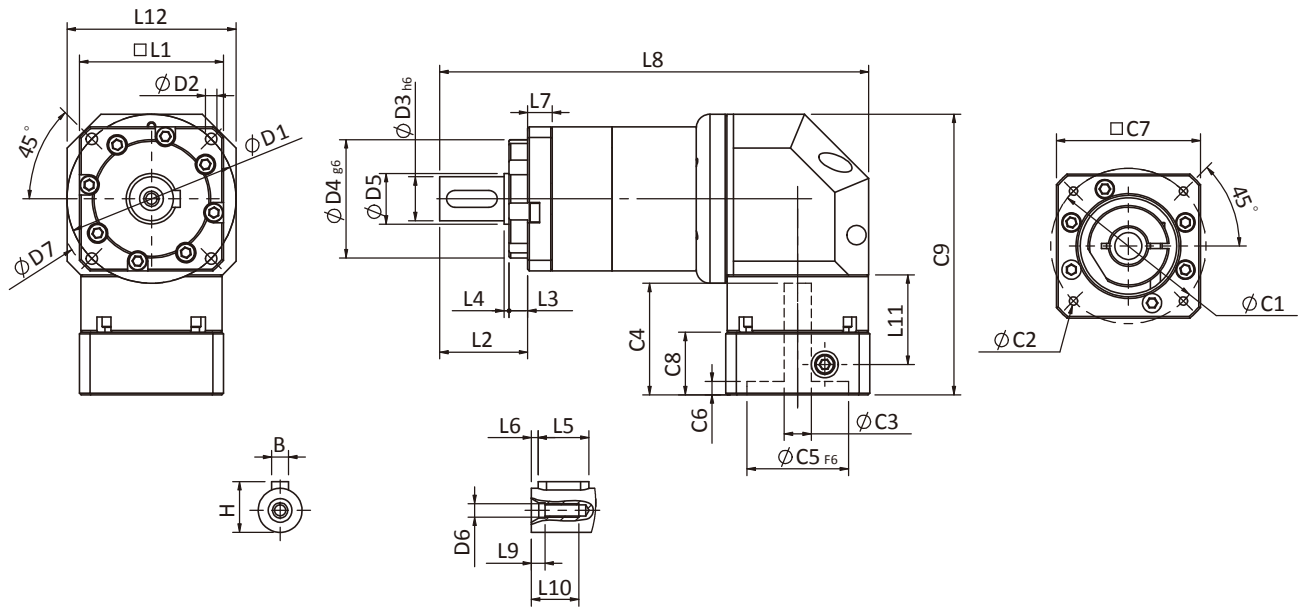
## Specifications

Unit:mm

| Dimensions                    | PAER42  | PAER60  | PAER90   | PAER115 |
|-------------------------------|---------|---------|----------|---------|
| D1                            | 50      | 70      | 100      | -       |
| D2                            | 3.4     | 5.5     | 6.5      | -       |
| D3 <sub>h6</sub>              | 13      | 16      | 22       | -       |
| D4 <sub>g6</sub>              | 35      | 50      | 80       | -       |
| D5                            | 15      | 20      | 35       | -       |
| D6                            | M4x0.7P | M5x0.8P | M8x1.25P | -       |
| D7                            | 56      | 80      | 118      | -       |
| L1                            | 42.6    | 60      | 90       | -       |
| L2                            | 26      | 37      | 48       | -       |
| L3                            | 5.5     | 7       | 10       | -       |
| L4                            | 1.5     | 1.5     | 1.5      | -       |
| L5                            | 15      | 25      | 32       | -       |
| L6                            | 2       | 2       | 3        | -       |
| L7                            | 7.3     | 10      | 12       | -       |
| L8                            | 102     | 143.6   | 194.5    | -       |
| L9                            | 4       | 4       | 4.5      | -       |
| L10                           | 14      | 16.5    | 20.5     | -       |
| L11                           | 26.5    | 36      | 40.7     | -       |
| L12                           | 50      | 70      | 98       | -       |
| C1 <sup>2</sup>               | 46      | 70      | 90       | -       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  | -       |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  | -       |
| C4 <sup>2</sup>               | 33      | 44      | 57       | -       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       | -       |
| C6 <sup>2</sup>               | 4       | 4       | 6        | -       |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       | -       |
| C8 <sup>2</sup>               | 18.5    | 20      | 26       | -       |
| C9 <sup>2</sup>               | 83      | 111.4   | 149.2    | -       |
| B                             | 5       | 5       | 6        | -       |
| H                             | 15      | 18      | 24.5     | -       |

★ C1~C9 are motor specific dimensions(metric std shown ).  
Size may vary according to motor flange.  
★ Specification subject to change without notice.

## PAER Double Stage Dimensions-1



## Specifications

Unit:mm

| Dimensions                    | PAER42    | PAER60  | PAER90   | PAER115 |
|-------------------------------|-----------|---------|----------|---------|
| D1                            | 50        | 70      | 100      | -       |
| D2                            | 3.4       | 5.5     | 6.5      | -       |
| D3 <sub>h6</sub>              | 13        | 16      | 22       | -       |
| D4 <sub>g6</sub>              | 35        | 50      | 80       | -       |
| D5                            | 15        | 20      | 35       | -       |
| D6                            | M4x0.7P   | M5x0.8P | M8x1.25P | -       |
| D7                            | 56        | 80      | 118      | -       |
| L1 <sup>1</sup>               | 42.6 (44) | 60      | 90       | -       |
| L2                            | 26        | 37      | 48       | -       |
| L3                            | 5.5       | 7       | 10       | -       |
| L4                            | 1.5       | 1.5     | 1.5      | -       |
| L5                            | 15        | 25      | 32       | -       |
| L6                            | 2         | 2       | 3        | -       |
| L7                            | 7.3       | 10      | 12       | -       |
| L8                            | 126.9     | 174.3   | 235.5    | -       |
| L9                            | 4         | 4       | 4.5      | -       |
| L10                           | 14        | 16.5    | 20.5     | -       |
| L11                           | 26.5      | 36      | 40.7     | -       |
| L12                           | 50        | 70      | 98       | -       |
| C1 <sup>2</sup>               | 46        | 70      | 90       | -       |
| C2 <sup>2</sup>               | M4x0.7P   | M5x0.8P | M6x1.0P  | -       |
| C3 <sup>2</sup>               | ≤8/≤11    | ≤14/≤19 | ≤19/≤24  | -       |
| C4 <sup>2</sup>               | 33        | 44      | 57       | -       |
| C5 <sup>2</sup> <sub>F6</sub> | 30        | 50      | 70       | -       |
| C6 <sup>2</sup>               | 4         | 4       | 6        | -       |
| C7 <sup>2</sup>               | 42.6      | 60      | 90       | -       |
| C8 <sup>2</sup>               | 18.5      | 20      | 26       | -       |
| C9 <sup>2</sup>               | 83        | 111.4   | 149.2    | -       |
| B                             | 5         | 5       | 6        | -       |
| H                             | 15        | 18      | 24.5     | -       |

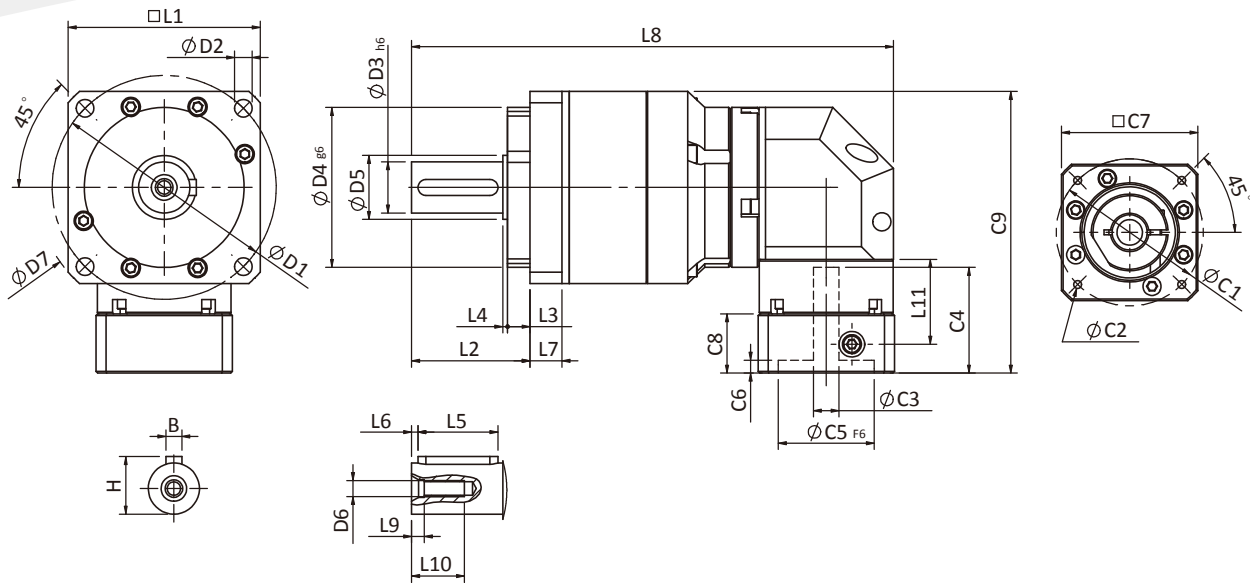
\*1. L1=44 when gear ratios are 100, 200, and 300.

\*2. C1~C9 are motor specific dimensions (metric std shown).

Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PAER Double Stage Dimensions-2



## Specifications

Unit:mm

| Dimensions                    | PAER60T          | PAER90T           | PAER115T          |
|-------------------------------|------------------|-------------------|-------------------|
| D1                            | 70               | 100               | 130               |
| D2                            | 5.5              | 6.5               | 9                 |
| D3 <sub>h6</sub>              | 16               | 22                | 32                |
| D4 <sub>g6</sub>              | 50               | 80                | 110               |
| D5                            | 20               | 35                | 44                |
| D6                            | M5x0.8P          | M8x1.25P          | M12x1.75P         |
| D7                            | 80               | 118               | 148               |
| L1                            | 60               | 90                | 115               |
| L2                            | 37               | 48                | 65                |
| L3                            | 7                | 10                | 12                |
| L4                            | 1.5              | 1.5               | 2                 |
| L5                            | 25               | 32                | 40                |
| L6                            | 2                | 3                 | 5                 |
| L7                            | 10               | 12                | 16                |
| L8                            | 150.6            | 190.6             | 268.1             |
| L9                            | 4                | 4.5               | 6                 |
| L10                           | 16.5             | 20.5              | 30                |
| L11                           | 26.5             | 36                | 40.7              |
| C1 <sup>2</sup>               | 46               | 70                | 90                |
| C2 <sup>2</sup>               | M4x0.7P          | M5x0.8P           | M6x1.0P           |
| C3 <sup>2</sup>               | $\leq 8/\leq 11$ | $\leq 14/\leq 19$ | $\leq 19/\leq 24$ |
| C4 <sup>2</sup>               | 33               | 44                | 57                |
| C5 <sup>2</sup> <sub>F6</sub> | 30               | 50                | 70                |
| C6 <sup>2</sup>               | 4                | 4                 | 6                 |
| C7 <sup>2</sup>               | 42.6             | 60                | 90                |
| C8 <sup>2</sup>               | 18.5             | 20                | 26                |
| C9 <sup>2</sup>               | 88               | 121.4             | 157.7             |
| B                             | 5                | 6                 | 10                |
| H                             | 18               | 24.5              | 35                |

\*2. C1~C9 are motor specific dimensions (metric std shown).  
 Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PAER Specifications Table

| Specifications                                 |                  | Stage                                                                                                      |                | Ratio                                | PAER-42                              | PAER-60                               | PAER-90            | PAER-115 |
|------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------|----------|
| Nominal Output Torque T <sub>2N</sub>          | N • m            | 1                                                                                                          |                | 3                                    | 9                                    | 28                                    | 85                 | 135      |
|                                                |                  |                                                                                                            |                | 4                                    | 10                                   | 32                                    | 80                 | 180      |
|                                                |                  |                                                                                                            |                | 5                                    | 11                                   | 35                                    | 95                 | 215      |
|                                                |                  |                                                                                                            |                | 7                                    | 10                                   | 28                                    | 85                 | 220      |
|                                                |                  |                                                                                                            |                | 8                                    | 10                                   | 32                                    | 80                 | 210      |
|                                                |                  |                                                                                                            |                | 9                                    | 9                                    | 25                                    | 75                 | 210      |
|                                                |                  |                                                                                                            |                | 10                                   | 11                                   | 35                                    | 95                 | 210      |
|                                                |                  |                                                                                                            |                | 12                                   | 10                                   | 32                                    | 80                 | -        |
|                                                |                  |                                                                                                            |                | 14                                   | 10                                   | 28                                    | 85                 | 220      |
|                                                |                  |                                                                                                            | 15             | 11                                   | 35                                   | 95                                    | -                  |          |
|                                                |                  | Stage                                                                                                      | Ratio          | PAER-42                              | PAER-60/<br>PAER-60T                 | PAER-90/<br>PAER-90T                  | PAER-115T          |          |
|                                                |                  | 2                                                                                                          |                | 20                                   | 10                                   | 32                                    | 80                 | 240      |
|                                                |                  |                                                                                                            |                | 25                                   | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 30                                   | 11                                   | 34                                    | 90                 | 230      |
|                                                |                  |                                                                                                            |                | 35                                   | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 40                                   | 10                                   | 32                                    | 80                 | 240      |
|                                                |                  |                                                                                                            |                | 50                                   | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 60                                   | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 70                                   | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 80                                   | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 100                                  | 8                                    | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 120                                  | 11                                   | 35                                    | 95                 | 240      |
|                                                |                  |                                                                                                            |                | 140                                  | -                                    | 28                                    | 85                 | 220      |
|                                                |                  |                                                                                                            |                | 200                                  | 8                                    | 21                                    | 65                 | 190      |
|                                                |                  |                                                                                                            |                | 300                                  | 8                                    | 21                                    | 65                 | 190      |
| Emergency Stop Torque T <sub>2NOT</sub>        | N • m            | (2.5 times of Nominal Output Torque)<br>*Max. Output Torque T <sub>2B</sub> =60% of Emergency Stop Torque) |                |                                      |                                      |                                       |                    |          |
| Nominal Input Speed n <sub>1N</sub>            | rpm              | 1,2                                                                                                        | 3-300          | 4500                                 | 4000                                 | 3000                                  | 2500               |          |
| Max. Input Speed n <sub>1max</sub>             | rpm              | 1,2                                                                                                        | 3-300          | 7500                                 | 7000                                 | 6000                                  | 5000               |          |
| Standard Backlash P2                           | arcmin           | 1<br>2                                                                                                     | 3-16<br>20-300 | ≤ 18<br>≤ 20                         | ≤ 15<br>≤ 17                         | ≤ 13<br>≤ 15                          | ≤ 11<br>≤ 13       |          |
| Torsional Rigidity                             | N • m<br>/arcmin | 1,2                                                                                                        | 3-300          | 1.5                                  | 4.0                                  | 8.5                                   | 17                 |          |
| Max. Radial Load F <sub>2rB</sub> <sup>1</sup> | N                | 1,2                                                                                                        | 3-300          | 760                                  | 1250                                 | 2030                                  | 4200               |          |
| Max. Axial Load F <sub>2aB</sub> <sup>1</sup>  | N                | 1,2                                                                                                        | 3-300          | 410                                  | 700                                  | 1200                                  | 2600               |          |
| Operating Temp.                                | °C               | 1,2                                                                                                        | 3-300          | -10°C ~ +90°C                        |                                      |                                       |                    |          |
| Service Life                                   | hr               | 1,2                                                                                                        | 3-300          | 20,000 (10,000 Continuous operation) |                                      |                                       |                    |          |
| Efficiency                                     | %                | 1<br>2                                                                                                     | 3-16<br>20-300 | ≥ 95%<br>≥ 90%                       |                                      |                                       |                    |          |
| Weight                                         | kg               | 1<br>2                                                                                                     | 3-16<br>20-300 | 1.1<br>1.3                           | 2.6<br>3.2/3.0                       | 6.5<br>8.7/7.1                        | 13.4<br>15.1       |          |
| Mounting Position                              | -                | 1,2                                                                                                        | 3-300          | Any direction                        |                                      |                                       |                    |          |
| Noise Level <sup>2</sup>                       | dBA/1m           | 1,2                                                                                                        | 3-300          | 66                                   | 68                                   | 70                                    | 73                 |          |
| Protection Class                               | -                | 1,2                                                                                                        | 3-300          | IP 65                                |                                      |                                       |                    |          |
| Lubrication                                    | -                | 1,2                                                                                                        | 3-300          | Synthetic Lubricant                  |                                      |                                       |                    |          |
| Inertia (J1)                                   |                  |                                                                                                            |                |                                      |                                      |                                       |                    |          |
| Stage                                          | Ratio            | unit                                                                                                       |                | PAER-42 ( ϕ 8 )                      | PAER-60 ( ϕ 14 )                     | PAER-90 ( ϕ 19 )                      | PAER-115 ( ϕ 24 )  |          |
| 1                                              | 3, 4, 5, 7       | Kg • cm <sup>2</sup>                                                                                       |                | 0.07                                 | 0.40                                 | 2.0                                   | 2.7                |          |
|                                                | Other ratios     |                                                                                                            |                | 0.05                                 | 0.30                                 | 1.5                                   | 2.2                |          |
| Stage                                          | Ratio            |                                                                                                            |                | PAER-42 ( ϕ 8 )                      | PAER-60 ( ϕ 14 )<br>PAER-60T ( ϕ 8 ) | PAER-90 ( ϕ 19 )<br>PAER-90T ( ϕ 14 ) | PAER-115T ( ϕ 19 ) |          |
| 2                                              | 20, 25, 35       |                                                                                                            |                | 0.07                                 | 0.40/0.07                            | 2.30/0.40                             | 2.2                |          |
|                                                | Other ratios     |                                                                                                            |                | 0.05                                 | 0.30/0.05                            | 1.50/0.30                             | 1.5                |          |

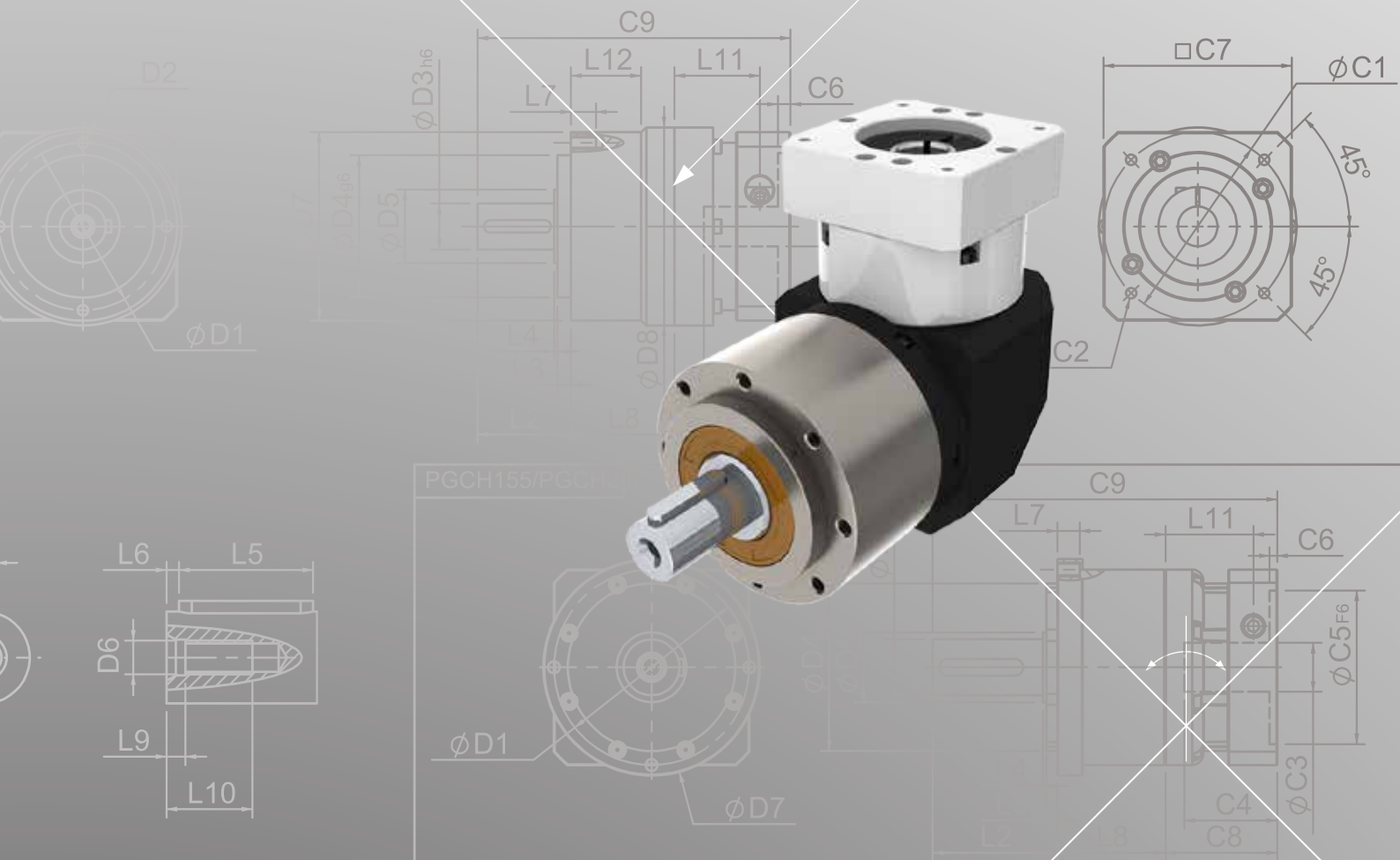
\* 1. Applied to the output shaft center @100rpm.

\* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

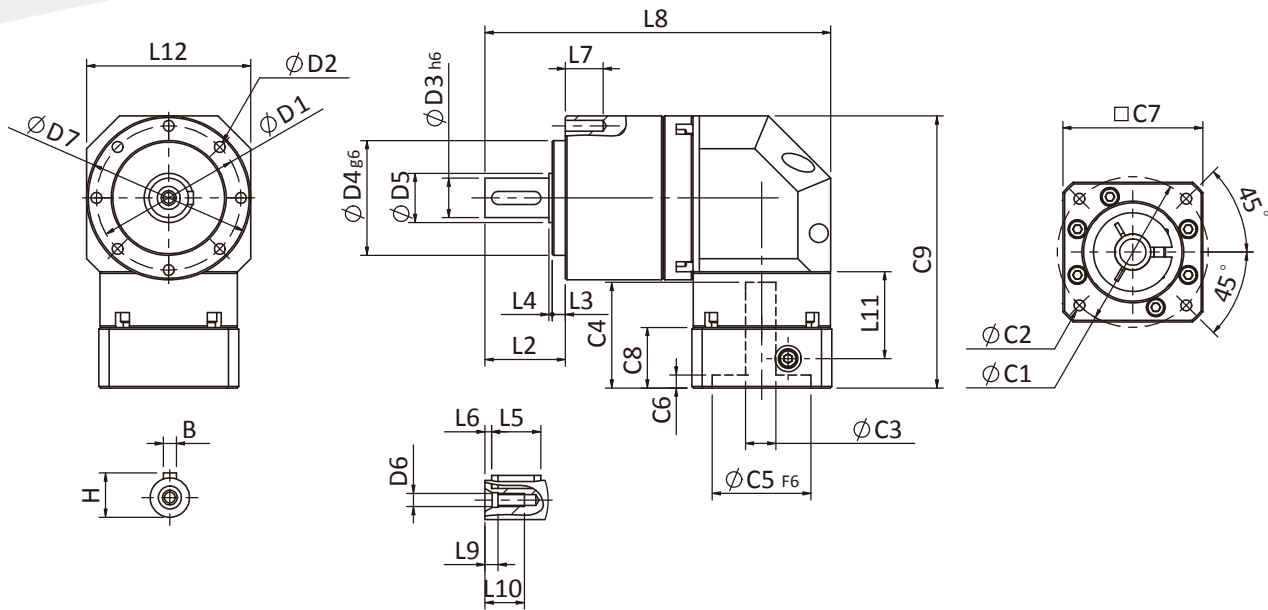
※The above figures/specifications are subject to change without prior notice.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

# ***PGCHR SERIES***



## PGCHR Single Stage Dimensions



## Specifications

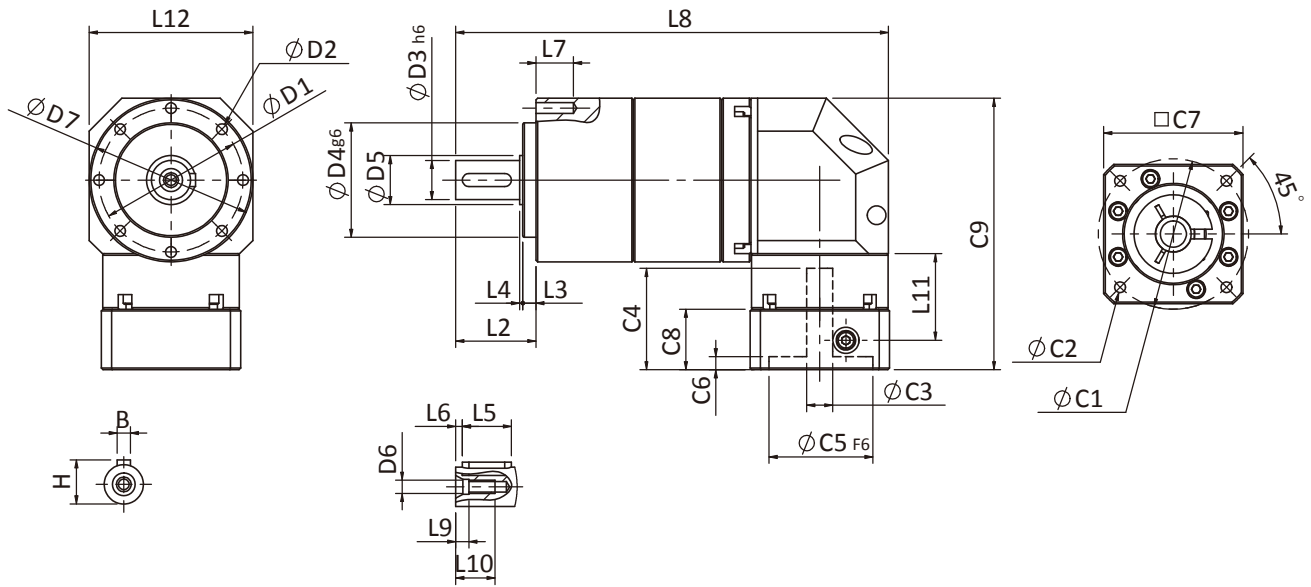
Unit: mm

| Dimensions                    | PGCHR50 | PGCHR70 | PGCHR90  |
|-------------------------------|---------|---------|----------|
| D1                            | 44      | 62      | 80       |
| D2                            | M4x0.7P | M5x0.8P | M6x1.0P  |
| D3 <sub>h6</sub>              | 12      | 16      | 22       |
| D4 <sub>g6</sub>              | 35      | 52      | 68       |
| D5                            | 15      | 25      | 35       |
| D6                            | M4x0.7P | M5x0.8P | M8x1.25P |
| D7                            | 50      | 70      | 90       |
| -                             | -       | -       | -        |
| L2                            | 24.5    | 36      | 44.5     |
| L3                            | 4       | 6       | 6.5      |
| L4                            | 1       | 1.5     | 1.5      |
| L5                            | 15      | 25      | 32       |
| L6                            | 2       | 2       | 3        |
| L7                            | 8       | 10      | 12       |
| L8                            | 105.3   | 144.3   | 201      |
| L9                            | 4       | 4       | 4.5      |
| L10                           | 12      | 16.5    | 20.5     |
| L11                           | 26.5    | 36      | 41.2     |
| L12                           | 50      | 70      | 98       |
| C1 <sup>2</sup>               | 46      | 70      | 90       |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P | M6x1.0P  |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19 | ≤19/≤24  |
| C4 <sup>2</sup>               | 33      | 44      | 57       |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50      | 70       |
| C6 <sup>2</sup>               | 4       | 4       | 6        |
| C7 <sup>2</sup>               | 42.6    | 60      | 90       |
| C8 <sup>2</sup>               | 18.5    | 20      | 26       |
| C9 <sup>2</sup>               | 83      | 111.4   | 149.2    |
| B                             | 4       | 5       | 6        |
| H                             | 13.5    | 18      | 24.5     |

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PGCHR Double Stage Dimensions-1



## Specifications

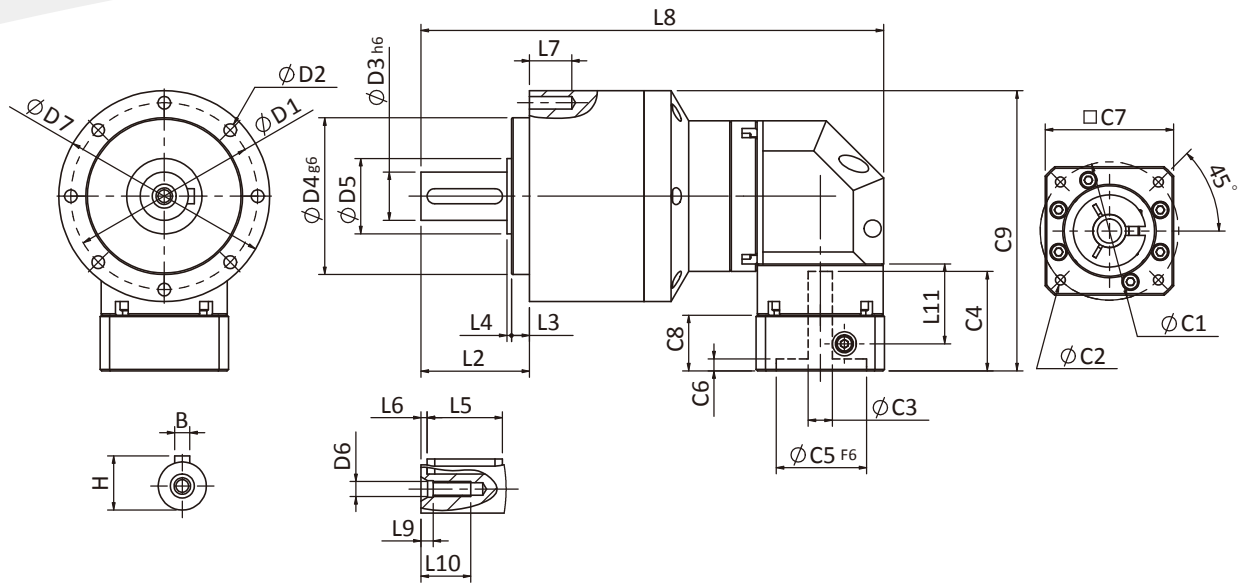
Unit: mm

| Dimensions                    | PGCHR50          | PGCHR70           | PGCHR90           |
|-------------------------------|------------------|-------------------|-------------------|
| D1                            | 44               | 62                | 80                |
| D2                            | M4x0.7P          | M5x0.8P           | M6x1.0P           |
| D3 <sub>h6</sub>              | 12               | 16                | 22                |
| D4 <sub>g6</sub>              | 35               | 52                | 68                |
| D5                            | 15               | 25                | 35                |
| D6                            | M4x0.7P          | M5x0.8P           | M8x1.25P          |
| D7                            | 50               | 70                | 90                |
| -                             | -                | -                 | -                 |
| L2                            | 24.5             | 36                | 44.5              |
| L3                            | 4                | 6                 | 6.5               |
| L4                            | 1                | 1.5               | 1.5               |
| L5                            | 15               | 25                | 32                |
| L6                            | 2                | 2                 | 3                 |
| L7                            | 8                | 10                | 12                |
| L8                            | 132.3            | 177.3             | 245               |
| L9                            | 4                | 4                 | 4.5               |
| L10                           | 12               | 16.5              | 20.5              |
| L11                           | 26.5             | 36                | 41.2              |
| L12                           | 50               | 70                | 98                |
| C1 <sup>2</sup>               | 46               | 70                | 90                |
| C2 <sup>2</sup>               | M4x0.7P          | M5x0.8P           | M6x1.0P           |
| C3 <sup>2</sup>               | $\leq 8/\leq 11$ | $\leq 14/\leq 19$ | $\leq 19/\leq 24$ |
| C4 <sup>2</sup>               | 33               | 44                | 57                |
| C5 <sup>2</sup> <sub>F6</sub> | 30               | 50                | 70                |
| C6 <sup>2</sup>               | 4                | 4                 | 6                 |
| C7 <sup>2</sup>               | 42.6             | 60                | 90                |
| C8 <sup>2</sup>               | 18.5             | 20                | 26                |
| C9 <sup>2</sup>               | 83               | 111.4             | 149.2             |
| B                             | 4                | 5                 | 6                 |
| H                             | 13.5             | 18                | 24.5              |

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PGCHR Double Stage Dimensions-2



## Specifications

Unit: mm

| Dimensions                    | PGCHR70T | PGCHR90T | PGCHR120T |
|-------------------------------|----------|----------|-----------|
| D1                            | 62       | 80       | 108       |
| D2                            | M5x0.8P  | M6x1.0P  | M8x1.25P  |
| D3 <sub>h6</sub>              | 16       | 22       | 32        |
| D4 <sub>g6</sub>              | 52       | 68       | 90        |
| D5                            | 25       | 35       | 45        |
| D6                            | M5x0.8P  | M8x1.25P | M12x1.75P |
| D7                            | 70       | 90       | 120       |
| -                             | -        | -        | -         |
| L2                            | 36       | 44.5     | 60        |
| L3                            | 6        | 6.5      | 7         |
| L4                            | 1.5      | 1.5      | 3.5       |
| L5                            | 25       | 32       | 40        |
| L6                            | 2        | 3        | 5         |
| L7                            | 10       | 12       | 16        |
| L8                            | 153.5    | 196.8    | 269.5     |
| L9                            | 4        | 4.5      | 6         |
| L10                           | 16.5     | 20.5     | 30        |
| L11                           | 26.5     | 36       | 41.2      |
| C1 <sup>2</sup>               | 46       | 70       | 90        |
| C2 <sup>2</sup>               | M4x0.7P  | M5x0.8P  | M6x1.0P   |
| C3 <sup>2</sup>               | ≤8/≤11   | ≤14/≤19  | ≤19/≤24   |
| C4 <sup>2</sup>               | 33       | 44       | 57        |
| C5 <sup>2</sup> <sub>F6</sub> | 30       | 50       | 70        |
| C6 <sup>2</sup>               | 4        | 4        | 6         |
| C7 <sup>2</sup>               | 42.6     | 60       | 90        |
| C8 <sup>2</sup>               | 18.5     | 20       | 26        |
| C9 <sup>2</sup>               | 93       | 123.65   | 160.2     |
| B                             | 5        | 6        | 10        |
| H                             | 18       | 24.5     | 35        |

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

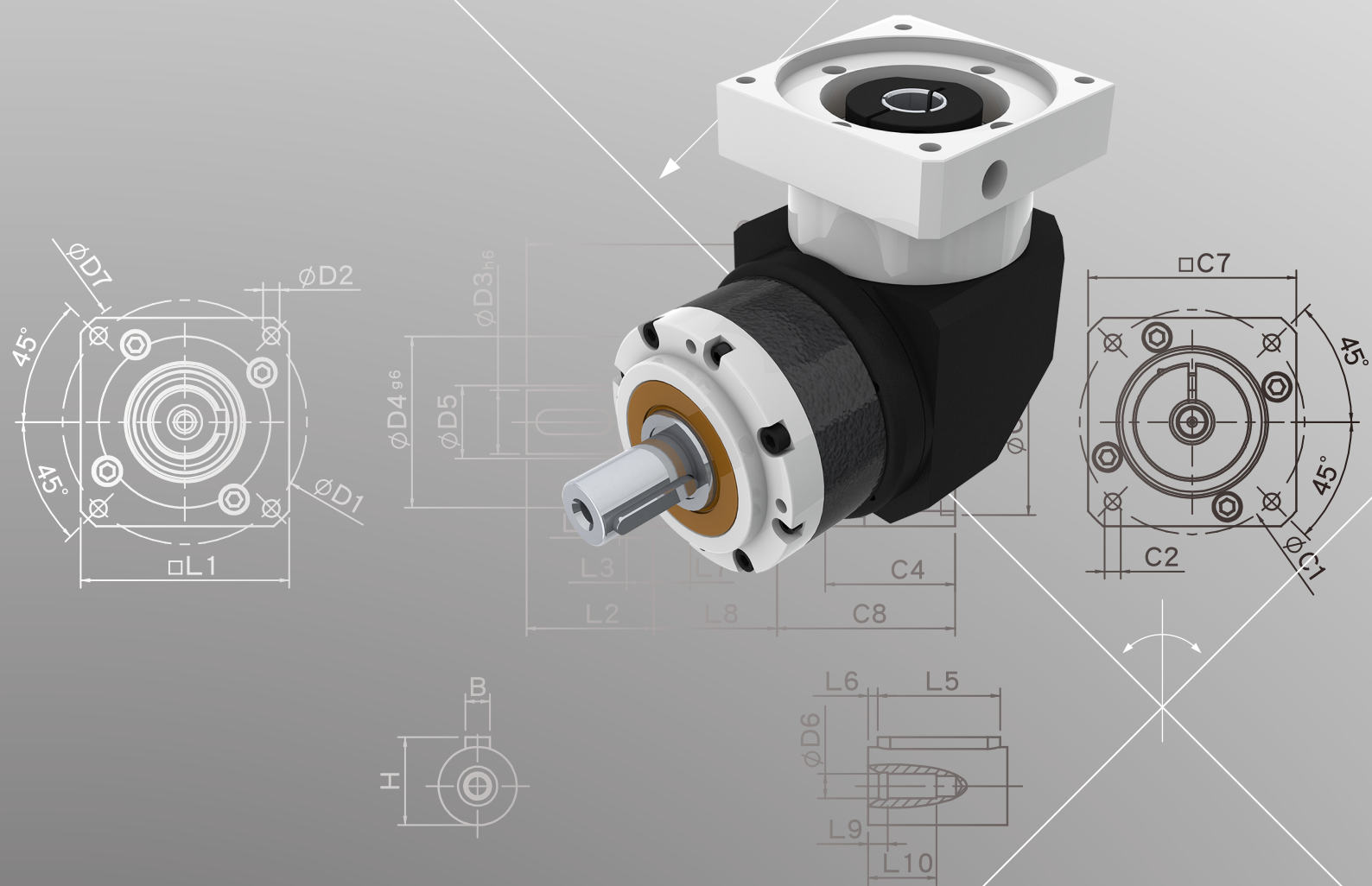
★ Specification subject to change without notice.

## PGCHR Specifications Table

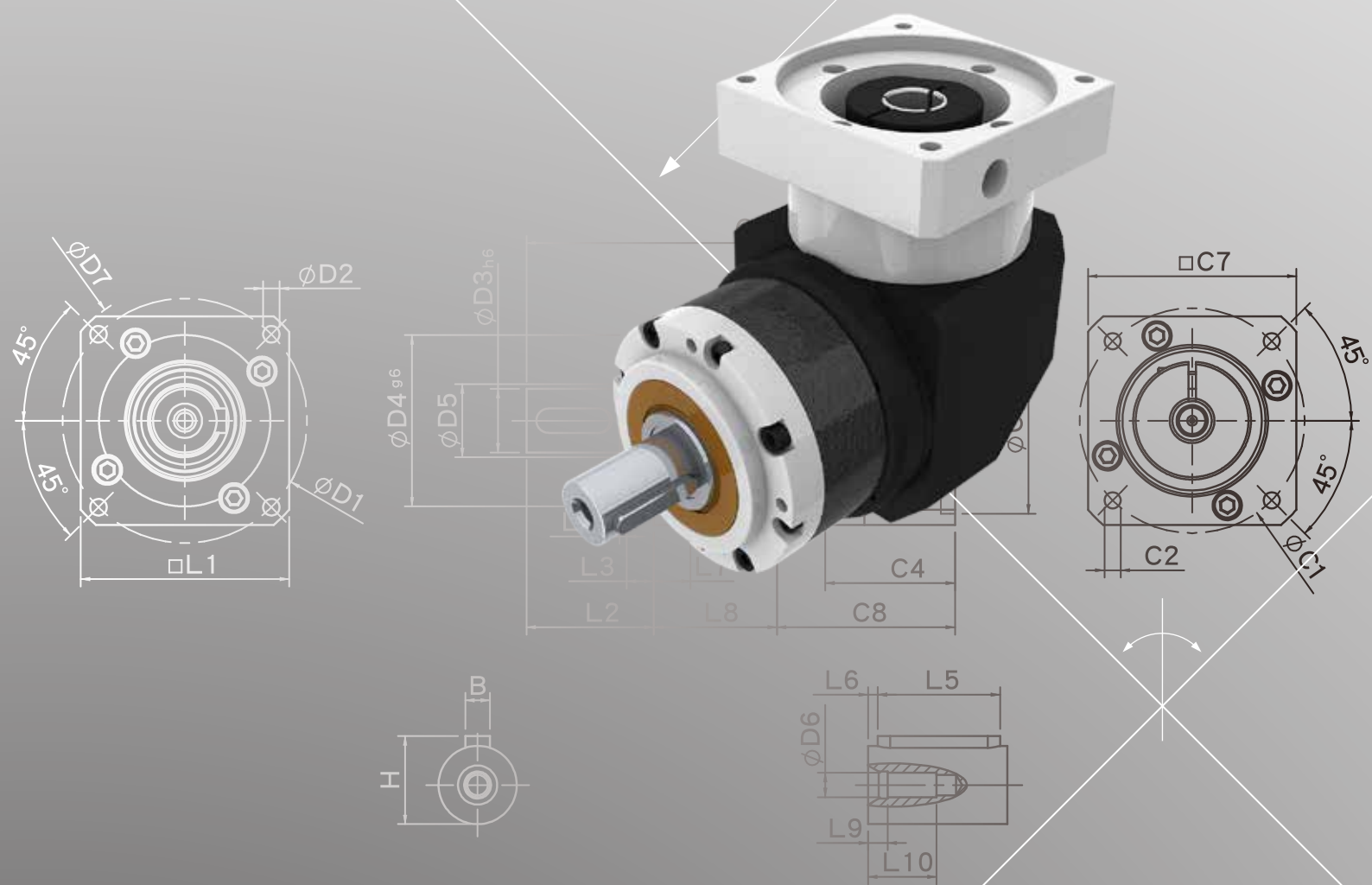
| Specifications                                                                                                                                                                                                                                                                                                                                                        |                  | Stage                | Ratio                                                                                                      | PGCHR-50                               | PGCHR-70                                | PGCHR-90               | PGCHR-120    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|------------------------|--------------|
| Nominal Output Torque T <sub>2N</sub>                                                                                                                                                                                                                                                                                                                                 | N • m            | 1                    | 3                                                                                                          | 16                                     | 36                                      | 105                    | 135          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 4                                                                                                          | 18                                     | 48                                      | 140                    | 180          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 5                                                                                                          | 17                                     | 54                                      | 140                    | 225          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 7                                                                                                          | 14                                     | 44                                      | 125                    | 300          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 8                                                                                                          | 18                                     | 48                                      | 140                    | 260          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 9                                                                                                          | 16                                     | 35                                      | 95                     | 230          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 10                                                                                                         | 17                                     | 50                                      | 140                    | 210          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 12                                                                                                         | 18                                     | 40                                      | 120                    | -            |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 14                                                                                                         | 14                                     | 44                                      | 125                    | 300          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 15                                                                                                         | 17                                     | 45                                      | 135                    | -            |
|                                                                                                                                                                                                                                                                                                                                                                       |                  | 20                   | 11                                                                                                         | 37                                     | 95                                      | 230                    |              |
|                                                                                                                                                                                                                                                                                                                                                                       |                  | Stage                | Ratio                                                                                                      | PGCHR-50                               | PGCHR-70/<br>PGCHR-70T                  | PGCHR-90/<br>PGCHR-90T | PGCHR-120T   |
|                                                                                                                                                                                                                                                                                                                                                                       |                  | 2                    | 20                                                                                                         | 20                                     | 55                                      | 150                    | 300          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 25                                                                                                         | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 30                                                                                                         | 19                                     | 53                                      | 145                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 35                                                                                                         | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 40                                                                                                         | 20                                     | 55                                      | 150                    | 300          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 50                                                                                                         | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 60                                                                                                         | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 70                                                                                                         | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 80                                                                                                         | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 100                                                                                                        | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 120                                                                                                        | 17                                     | 54                                      | 140                    | 330          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 140                                                                                                        | 14                                     | 44                                      | 125                    | 300          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 200                                                                                                        | 11                                     | 37                                      | 95                     | 230          |
|                                                                                                                                                                                                                                                                                                                                                                       |                  |                      | 300                                                                                                        | 11                                     | 37                                      | 95                     | 230          |
| Emergency Stop Torque T <sub>2NOT</sub>                                                                                                                                                                                                                                                                                                                               | N • m            |                      | (2.5 times of Nominal Output Torque)<br>*Max. Output Torque T <sub>2B</sub> =60% of Emergency Stop Torque) |                                        |                                         |                        |              |
| Nominal Input Speed n <sub>1N</sub>                                                                                                                                                                                                                                                                                                                                   | rpm              | 1,2                  | 3-300                                                                                                      | 5000                                   | 4000                                    | 4000                   | 4000         |
| Max. Input Speed n <sub>1max</sub>                                                                                                                                                                                                                                                                                                                                    | rpm              | 1,2                  | 3-300                                                                                                      | 10000                                  | 8000                                    | 8000                   | 8000         |
| Standard Backlash P2                                                                                                                                                                                                                                                                                                                                                  | arcmin           | 1<br>2               | 3-16<br>20-300                                                                                             | ≤ 10<br>≤ 12                           | ≤ 10<br>≤ 12                            | ≤ 9<br>≤ 11            | ≤ 8<br>≤ 10  |
| Torsional Rigidity                                                                                                                                                                                                                                                                                                                                                    | N • m<br>/arcmin | 1,2                  | 3-300                                                                                                      | 3                                      | 7                                       | 14                     | 25           |
| Max. Radial Load F <sub>2RB</sub> <sup>1</sup>                                                                                                                                                                                                                                                                                                                        | N                | 1,2                  | 3-300                                                                                                      | 702                                    | 1377                                    | 2985                   | 6100         |
| Max. Axial Load F <sub>2aB</sub> <sup>1</sup>                                                                                                                                                                                                                                                                                                                         | N                | 1,2                  | 3-300                                                                                                      | 410                                    | 765                                     | 1625                   | 3350         |
| Operating Temp.                                                                                                                                                                                                                                                                                                                                                       | °C               | 1,2                  | 3-300                                                                                                      | -10°C ~ +90°C                          |                                         |                        |              |
| Service Life                                                                                                                                                                                                                                                                                                                                                          | hr               | 1,2                  | 3-300                                                                                                      | 20,000 (10,000 Continuous operation)   |                                         |                        |              |
| Efficiency                                                                                                                                                                                                                                                                                                                                                            | %                | 1<br>2               | 3-16<br>20-300                                                                                             | ≥ 95%<br>≥ 92%                         |                                         |                        |              |
| Weight                                                                                                                                                                                                                                                                                                                                                                | kg               | 1<br>2               | 3-16<br>20-300                                                                                             | 1.1<br>1.4                             | 2.2<br>2.8/2.0                          | 6.0<br>8.0/5.0         | 10.5<br>12.0 |
| Mounting Position                                                                                                                                                                                                                                                                                                                                                     | -                | 1,2                  | 3-300                                                                                                      | Any direction                          |                                         |                        |              |
| Noise Level <sup>2</sup>                                                                                                                                                                                                                                                                                                                                              | dBA/1m           | 1,2                  | 3-300                                                                                                      | 61                                     | 63                                      | 65                     | 68           |
| Protection Class                                                                                                                                                                                                                                                                                                                                                      | -                | 1,2                  | 3-300                                                                                                      | IP 65                                  |                                         |                        |              |
| Lubrication                                                                                                                                                                                                                                                                                                                                                           | -                | 1,2                  | 3-300                                                                                                      | Synthetic Lubricant                    |                                         |                        |              |
| Inertia (J1)                                                                                                                                                                                                                                                                                                                                                          |                  |                      |                                                                                                            |                                        |                                         |                        |              |
| Stage                                                                                                                                                                                                                                                                                                                                                                 | Ratio            | unit                 | PGCHR-50 ( ϕ 8 )                                                                                           | PGCHR-70 ( ϕ 14 )                      | PGCHR-90 ( ϕ 19 )                       | PGCHR-120 ( ϕ 24 )     |              |
| 1                                                                                                                                                                                                                                                                                                                                                                     | 3, 4, 5, 7       | Kg • cm <sup>2</sup> | 0.07                                                                                                       | 0.40                                   | 2.0                                     | 2.7                    |              |
|                                                                                                                                                                                                                                                                                                                                                                       | Other ratios     |                      | 0.05                                                                                                       | 0.30                                   | 1.5                                     | 2.2                    |              |
| Stage                                                                                                                                                                                                                                                                                                                                                                 | Ratio            |                      | PGCHR-50 ( ϕ 8 )                                                                                           | PGCHR-70 ( ϕ 14 )<br>PGCHR-70T ( ϕ 8 ) | PGCHR-90 ( ϕ 19 )<br>PGCHR-90T ( ϕ 14 ) | PGCHR-120T ( ϕ 19 )    |              |
| 2                                                                                                                                                                                                                                                                                                                                                                     | 20, 25, 35       |                      | 0.07                                                                                                       | 0.40/0.07                              | 2.30/0.40                               | 2.0                    |              |
|                                                                                                                                                                                                                                                                                                                                                                       | Other ratios     |                      | 0.05                                                                                                       | 0.30/0.05                              | 1.50/0.30                               | 1.5                    |              |
| * 1. Applied to the output shaft center @100rpm.<br>* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-tage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.<br>※The above figures/specifications are subject to change without prior notice. |                  |                      |                                                                                                            |                                        |                                         |                        |              |

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

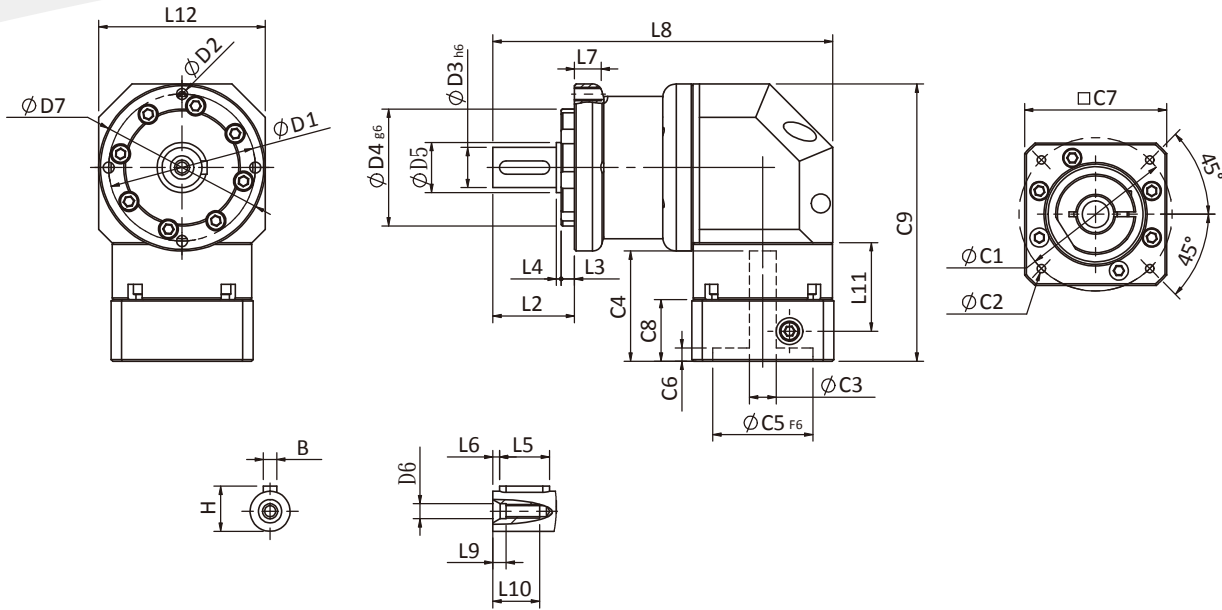
# ***PACR*** SERIES



# ***PACR*** SERIES



## PACR Single Stage Dimensions



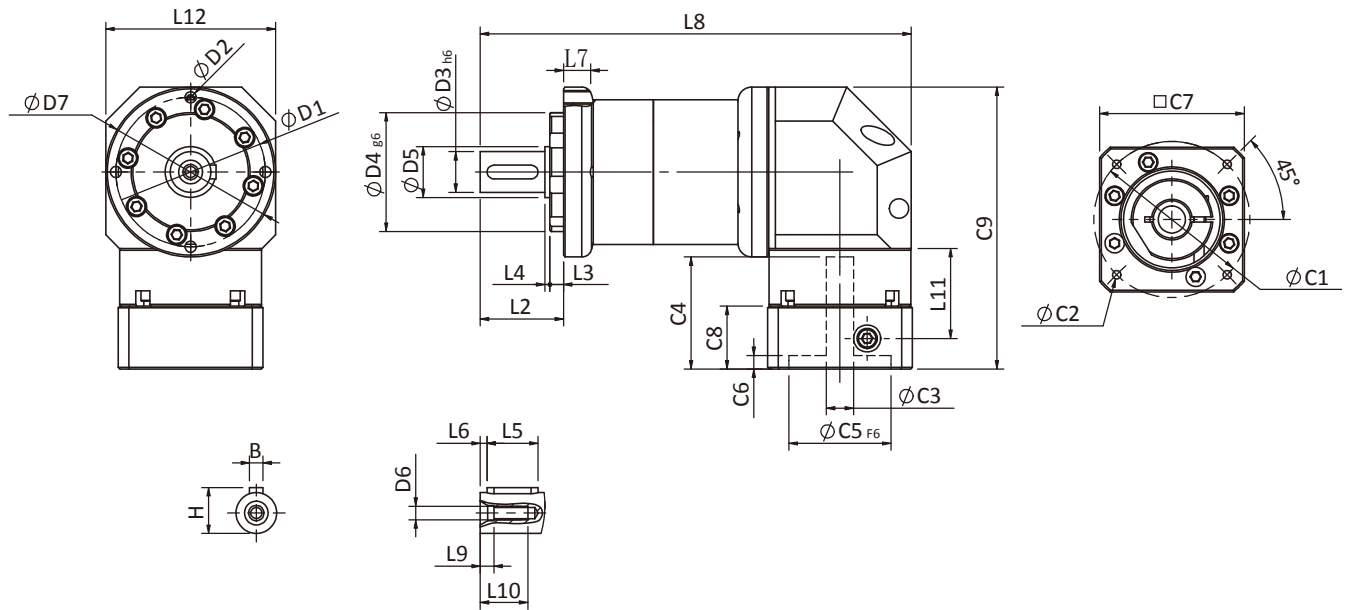
## Specifications

Unit:mm

| Dimensions                    | PACR50           | PACR70            | PACR90            | PACR120 |
|-------------------------------|------------------|-------------------|-------------------|---------|
| D1                            | 44               | 62                | 80                | -       |
| D2                            | M4x0.7P          | M5x0.8P           | M6x1.0P           | -       |
| D3 <sub>H6</sub>              | 12               | 16                | 22                | -       |
| D4 <sub>G6</sub>              | 35               | 52                | 68                | -       |
| D5                            | 15               | 20                | 35                | -       |
| D6                            | M4x0.7P          | M5x0.8P           | M8x1.25P          | -       |
| D7                            | 50               | 70                | 90                | -       |
| L2                            | 24.5             | 36                | 46                | -       |
| L3                            | 4                | 6                 | 7                 | -       |
| L4                            | 1.5              | 1.5               | 2.5               | -       |
| L5                            | 15               | 25                | 32                | -       |
| L6                            | 2                | 2                 | 3                 | -       |
| L7                            | 8.8              | 13.3              | 14                | -       |
| L8                            | 102              | 143.6             | 194.5             | -       |
| L9                            | 4                | 4                 | 4.5               | -       |
| L10                           | 14               | 16.5              | 20.5              | -       |
| L11                           | 26.5             | 36                | 40.7              | -       |
| L12                           | 50               | 70                | 98                | -       |
| C1 <sup>2</sup>               | 46               | 70                | 90                | -       |
| C2 <sup>2</sup>               | M4x0.7P          | M5x0.8P           | M6x1.0P           | -       |
| C3 <sup>2</sup>               | $\leq 8/\leq 11$ | $\leq 14/\leq 19$ | $\leq 19/\leq 24$ | -       |
| C4 <sup>2</sup>               | 33               | 44                | 57                | -       |
| C5 <sup>2</sup> <sub>F6</sub> | 30               | 50                | 70                | -       |
| C6 <sup>2</sup>               | 4                | 4                 | 6                 | -       |
| C7 <sup>2</sup>               | 42.6             | 60                | 90                | -       |
| C8 <sup>2</sup>               | 18.5             | 20                | 26                | -       |
| C9 <sup>2</sup>               | 83               | 111.4             | 149.2             | -       |
| B                             | 4                | 5                 | 6                 | -       |
| H                             | 13.5             | 18                | 24.5              | -       |

★ C1~C9 are motor specific dimensions (metric std shown ).  
Size may vary according to motor flange.  
★ Specification subject to change without notice.

## PACR Double Stage Dimensions-1



## Specifications

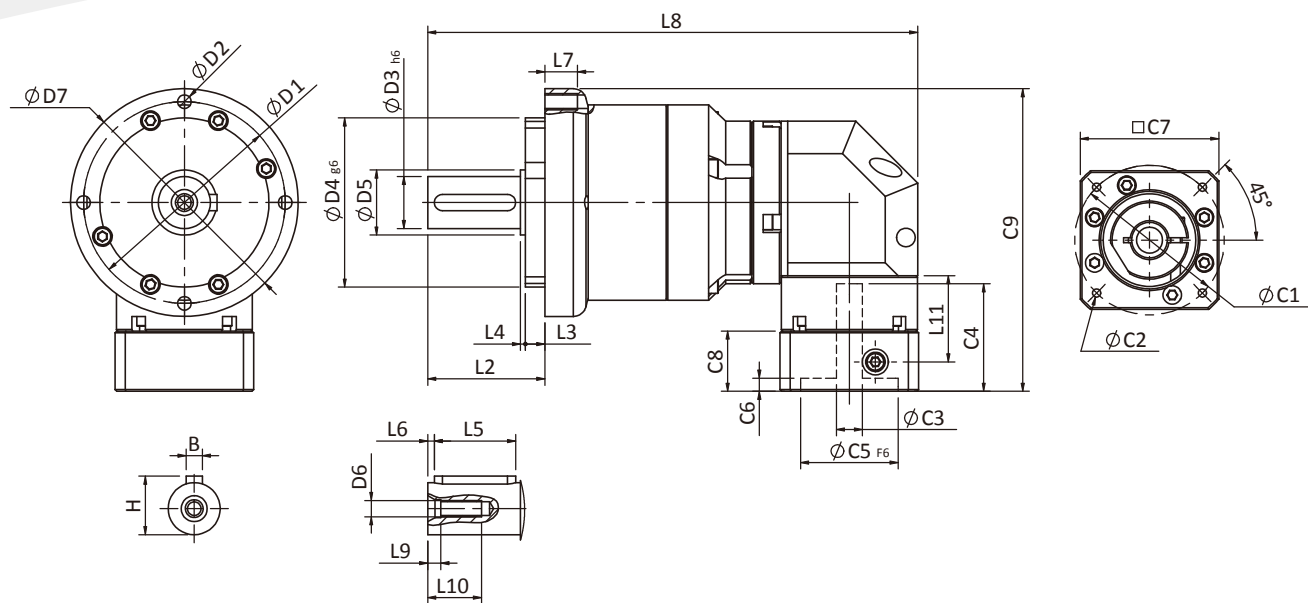
Unit:mm

| Dimensions                    | PACR50           | PACR70            | PACR90            | PACR120 |
|-------------------------------|------------------|-------------------|-------------------|---------|
| D1                            | 44               | 62                | 80                | -       |
| D2                            | M4x0.7P          | M5x0.8P           | M6x1.0P           | -       |
| D3 <sub>h6</sub>              | 12               | 16                | 22                | -       |
| D4 <sub>g6</sub>              | 35               | 52                | 68                | -       |
| D5                            | 15               | 20                | 35                | -       |
| D6                            | M4x0.7P          | M5x0.8P           | M8x1.25P          | -       |
| D7                            | 56               | 70                | 90                | -       |
| L2                            | 24.5             | 36                | 46                | -       |
| L3                            | 4                | 6                 | 7                 | -       |
| L4                            | 1.5              | 1.5               | 2.5               | -       |
| L5                            | 15               | 25                | 32                | -       |
| L6                            | 2                | 2                 | 3                 | -       |
| L7                            | 8.8              | 13.3              | 14                | -       |
| L8                            | 126.9            | 174.3             | 235.5             | -       |
| L9                            | 4                | 4                 | 4.5               | -       |
| L10                           | 14               | 16.5              | 20.5              | -       |
| L11                           | 26.5             | 36                | 40.7              | -       |
| L12                           | 50               | 70                | 98                | -       |
| C1 <sup>2</sup>               | 46               | 70                | 90                | -       |
| C2 <sup>2</sup>               | M4x0.7P          | M5x0.8P           | M6x1.0P           | -       |
| C3 <sup>2</sup>               | $\leq 8/\leq 11$ | $\leq 14/\leq 19$ | $\leq 19/\leq 24$ | -       |
| C4 <sup>2</sup>               | 33               | 44                | 57                | -       |
| C5 <sub>F6</sub> <sup>2</sup> | 30               | 50                | 70                | -       |
| C6 <sup>2</sup>               | 4                | 4                 | 6                 | -       |
| C7 <sup>2</sup>               | 42.6             | 60                | 90                | -       |
| C8 <sup>2</sup>               | 18.5             | 20                | 26                | -       |
| C9 <sup>2</sup>               | 83               | 111.4             | 149.2             | -       |
| B                             | 4                | 5                 | 6                 | -       |
| H                             | 13.5             | 18                | 24.5              | -       |

\*2. C1~C9 are motor specific dimensions (metric std shown).

Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.



Unit:mm

| Dimensions                    | PACR70T | PACR90T  | PACR120T  |
|-------------------------------|---------|----------|-----------|
| D1                            | 62      | 80       | 108       |
| D2                            | M5x0.8P | M6x1.0P  | M8x1.25P  |
| D3 <sub>h6</sub>              | 16      | 22       | 32        |
| D4 <sub>g6</sub>              | 52      | 68       | 90        |
| D5                            | 20      | 35       | 45        |
| D6                            | M5x0.8P | M8x1.25P | M12x1.75P |
| D7                            | 70      | 90       | 120       |
|                               |         |          |           |
| L2                            | 36      | 46       | 60        |
| L3                            | 6       | 7        | 7         |
| L4                            | 1.5     | 2.5      | 2         |
| L5                            | 25      | 32       | 40        |
| L6                            | 2       | 3        | 5         |
| L7                            | 13.3    | 14       | 15        |
| L8                            | 150.6   | 190.6    | 268.1     |
| L9                            | 4       | 4.5      | 6         |
| L10                           | 16.5    | 20.5     | 30        |
| L11                           | 26.5    | 36       | 40.7      |
| C1 <sup>2</sup>               | 46      | 70       | 90        |
| C2 <sup>2</sup>               | M4x0.7P | M5x0.8P  | M6x1.0P   |
| C3 <sup>2</sup>               | ≤8/≤11  | ≤14/≤19  | ≤19/≤24   |
| C4 <sup>2</sup>               | 33      | 44       | 57        |
| C5 <sup>2</sup> <sub>F6</sub> | 30      | 50       | 70        |
| C6 <sup>2</sup>               | 4       | 4        | 6         |
| C7 <sup>2</sup>               | 42.6    | 60       | 90        |
| C8 <sup>2</sup>               | 18.5    | 20       | 26        |
| C9 <sup>2</sup>               | 93      | 121.4    | 160.2     |
| B                             | 5       | 6        | 10        |
| H                             | 18      | 24.5     | 35        |

\*2. C1~C9 are motor specific dimensions (metric std shown).  
 Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PACR Specifications Table

| Specifications                   |                          | Stage                                                                                               | Ratio          | PACR-50                              | PACR-70                                        | PACR-90                                         | PACR-120                |
|----------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------|----------------|--------------------------------------|------------------------------------------------|-------------------------------------------------|-------------------------|
| Nominal Output Torque $T_{2N}$   | $N \bullet m$            | 1                                                                                                   | 3              | 9                                    | 28                                             | 85                                              | 135                     |
|                                  |                          |                                                                                                     | 4              | 10                                   | 32                                             | 80                                              | 180                     |
|                                  |                          |                                                                                                     | 5              | 11                                   | 35                                             | 95                                              | 215                     |
|                                  |                          |                                                                                                     | 7              | 10                                   | 28                                             | 85                                              | 220                     |
|                                  |                          |                                                                                                     | 8              | 10                                   | 32                                             | 80                                              | 210                     |
|                                  |                          |                                                                                                     | 9              | 9                                    | 25                                             | 75                                              | 210                     |
|                                  |                          |                                                                                                     | 10             | 11                                   | 35                                             | 95                                              | 210                     |
|                                  |                          |                                                                                                     | 12             | 10                                   | 32                                             | 80                                              | -                       |
|                                  |                          |                                                                                                     | 14             | 10                                   | 28                                             | 85                                              | 220                     |
|                                  |                          | 15                                                                                                  | 11             | 35                                   | 95                                             | -                                               |                         |
|                                  |                          | Stage                                                                                               | Ratio          | PACR-50                              | PACR-70/<br>PACR-70T                           | PACR-90/<br>PACR-90T                            | PACR-120T               |
|                                  |                          | 2                                                                                                   | 20             | 10                                   | 32                                             | 80                                              | 240                     |
|                                  |                          |                                                                                                     | 25             | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 30             | 11                                   | 34                                             | 90                                              | 230                     |
|                                  |                          |                                                                                                     | 35             | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 40             | 10                                   | 32                                             | 80                                              | 240                     |
|                                  |                          |                                                                                                     | 50             | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 60             | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 70             | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 80             | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 100            | 8                                    | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 120            | 11                                   | 35                                             | 95                                              | 240                     |
|                                  |                          |                                                                                                     | 140            | -                                    | 28                                             | 85                                              | 220                     |
|                                  |                          |                                                                                                     | 200            | 8                                    | 21                                             | 65                                              | 190                     |
|                                  |                          |                                                                                                     | 300            | 8                                    | 21                                             | 65                                              | 190                     |
| Emergency Stop Torque $T_{2NOT}$ | $N \bullet m$            | (2.5 times of Nominal Output Torque)<br>*Max. Output Torque $T_{2B}$ =60% of Emergency Stop Torque) |                |                                      |                                                |                                                 |                         |
| Nominal Input Speed $n_{1N}$     | rpm                      | 1,2                                                                                                 | 3-300          | 4500                                 | 4000                                           | 3000                                            | 2500                    |
| Max. Input Speed $n_{1max}$      | rpm                      | 1,2                                                                                                 | 3-300          | 7500                                 | 7000                                           | 6000                                            | 5000                    |
| Standard Backlash $P_2$          | arcmin                   | 1<br>2                                                                                              | 3-16<br>20-300 | $\leq 18$<br>$\leq 20$               | $\leq 15$<br>$\leq 17$                         | $\leq 13$<br>$\leq 15$                          | $\leq 11$<br>$\leq 13$  |
| Torsional Rigidity               | $N \bullet m$<br>/arcmin | 1,2                                                                                                 | 3-300          | 1.5                                  | 4.0                                            | 8.5                                             | 17                      |
| Max. Radial Load $F_{2rB}^1$     | N                        | 1,2                                                                                                 | 3-300          | 760                                  | 1250                                           | 2030                                            | 4200                    |
| Max. Axial Load $F_{2aB}^1$      | N                        | 1,2                                                                                                 | 3-300          | 410                                  | 700                                            | 1200                                            | 2600                    |
| Operating Temp.                  | °C                       | 1,2                                                                                                 | 3-300          | -10°C ~ +90°C                        |                                                |                                                 |                         |
| Service Life                     | hr                       | 1,2                                                                                                 | 3-300          | 20,000 (10,000 Continuous operation) |                                                |                                                 |                         |
| Efficiency                       | %                        | 1<br>2                                                                                              | 3-16<br>20-300 | $\geq 95\%$<br>$\geq 90\%$           |                                                |                                                 |                         |
| Weight                           | kg                       | 1<br>2                                                                                              | 3-16<br>20-300 | 1.1<br>1.3                           | 2.6<br>3.2/3.0                                 | 6.5<br>8.7/7.1                                  | 13.4<br>15.1            |
| Mounting Position                | -                        | 1,2                                                                                                 | 3-300          | Any direction                        |                                                |                                                 |                         |
| Noise Level <sup>2</sup>         | dBA/1m                   | 1,2                                                                                                 | 3-300          | 66                                   | 68                                             | 70                                              | 73                      |
| Protection Class                 | -                        | 1,2                                                                                                 | 3-300          | IP 65                                |                                                |                                                 |                         |
| Lubrication                      | -                        | 1,2                                                                                                 | 3-300          | Synthetic Lubricant                  |                                                |                                                 |                         |
| Inertia (J1)                     |                          |                                                                                                     |                |                                      |                                                |                                                 |                         |
| Stage                            | Ratio                    | unit                                                                                                |                | PACR-50 ( $\phi$ 8 )                 | PACR-70 ( $\phi$ 14 )                          | PACR-90 ( $\phi$ 19 )                           | PACR-120 ( $\phi$ 24 )  |
| 1                                | 3, 4, 5, 7               | Kg $\bullet$ cm <sup>2</sup>                                                                        |                | 0.07                                 | 0.40                                           | 2.0                                             | 2.7                     |
|                                  | Other ratios             |                                                                                                     |                | 0.05                                 | 0.30                                           | 1.5                                             | 2.2                     |
| Stage                            | Ratio                    |                                                                                                     |                | PACR-50 ( $\phi$ 8 )                 | PACR-70 ( $\phi$ 14 )<br>PACR-70T ( $\phi$ 8 ) | PACR-90 ( $\phi$ 19 )<br>PACR-90T ( $\phi$ 14 ) | PACR-120T ( $\phi$ 19 ) |
| 2                                | 20, 25, 35               |                                                                                                     |                | 0.07                                 | 0.40/0.07                                      | 2.30/0.40                                       | 2.2                     |
|                                  | Other ratios             |                                                                                                     |                | 0.05                                 | 0.30/0.05                                      | 1.50/0.30                                       | 1.5                     |

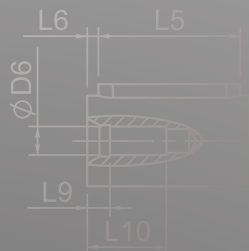
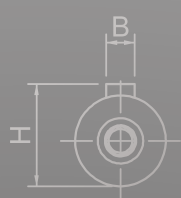
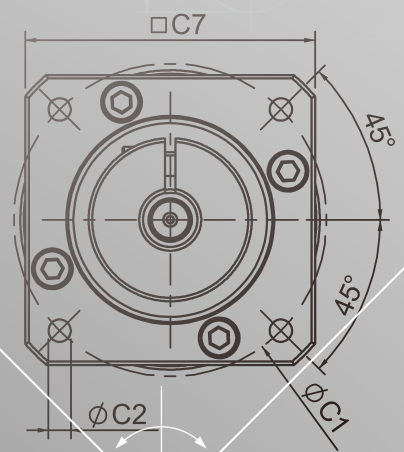
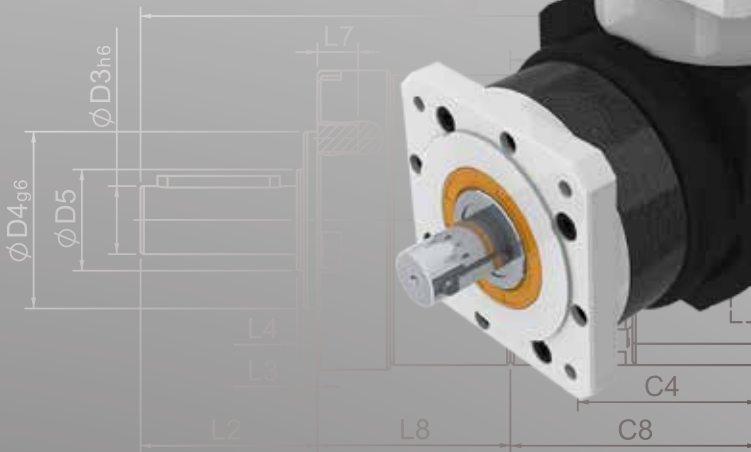
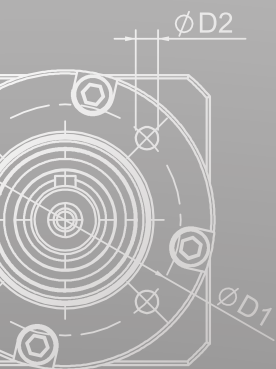
\* 1. Applied to the output shaft center @100rpm.

\* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.

※The above figures/specifications are subject to change without prior notice.

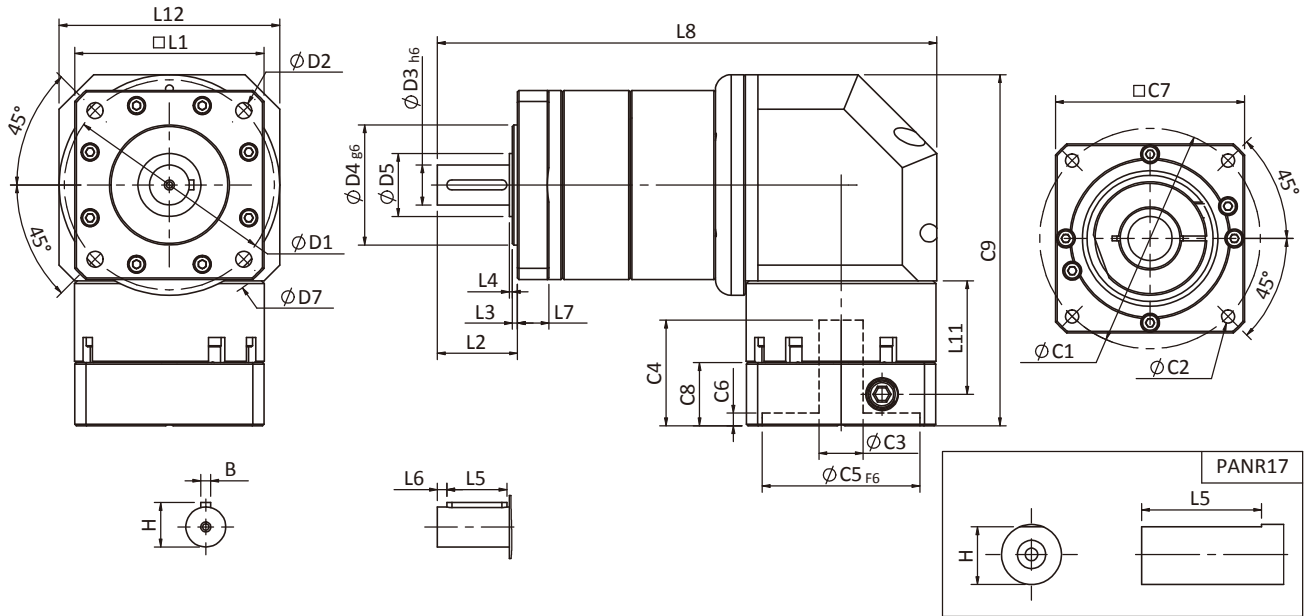
Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

# ***PANR** SERIES*





## PANR Double Stage Dimensions-1



## Specifications

Unit: mm

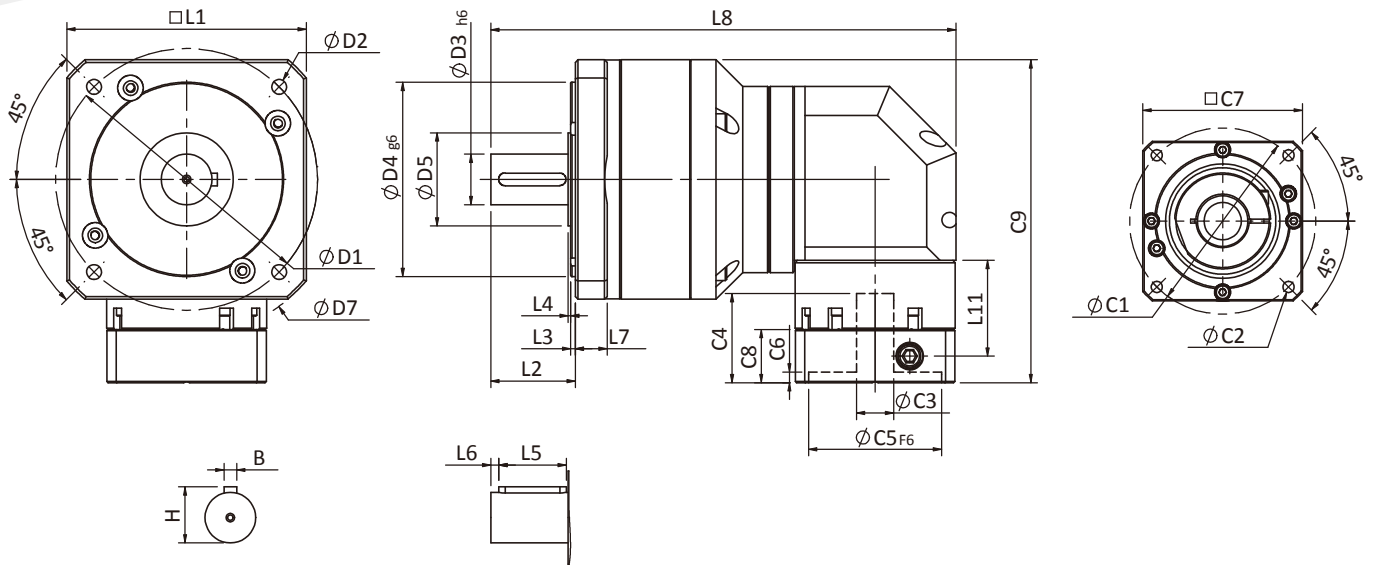
| Dimensions                    | PANR17    | PANR23  | PANR34  | PANR42 |
|-------------------------------|-----------|---------|---------|--------|
| D1                            | 43.8      | 66.67   | 98.425  | -      |
| D2                            | 3.25      | 5.1     | 5.6     | -      |
| D3 <sub>h6</sub>              | 9.525     | 12.7    | 19.05   | -      |
| D4 <sub>g6</sub>              | 21.97     | 38.1    | 73.025  | -      |
| D5                            | 12        | 20      | 35      | -      |
| D7                            | 56        | 80      | 118     | -      |
| L1 <sup>1</sup>               | 42.6 (44) | 60      | 90      | -      |
| L2                            | 25.4      | 25.4    | 31.75   | -      |
| L3                            | 1.6       | 1.6     | 1.7     | -      |
| L4                            | 1         | 1       | 1       | -      |
| L5                            | 19.05     | 19.05   | 25.4    | -      |
| L6                            | -         | 3       | 3       | -      |
| L7                            | 6.5       | 10      | 12      | -      |
| L8                            | 127.65    | 158.5   | 216.05  | -      |
| L11                           | 26.5      | 36      | 40.7    | -      |
| L12                           | 50        | 70      | 98      | -      |
| C1 <sup>2</sup>               | 46        | 70      | 90      | -      |
| C2 <sup>2</sup>               | M4x0.7P   | M5x0.8P | M6x1.0P | -      |
| C3 <sup>2</sup>               | ≤8/≤11    | ≤14/≤19 | ≤19/≤24 | -      |
| C4 <sup>2</sup>               | 33        | 44      | 57      | -      |
| C5 <sup>2</sup> <sub>F6</sub> | 30        | 50      | 70      | -      |
| C6 <sup>2</sup>               | 4         | 4       | 6       | -      |
| C7 <sup>2</sup>               | 42.6      | 60      | 90      | -      |
| C8 <sup>2</sup>               | 18.5      | 20      | 26      | -      |
| C9 <sup>2</sup>               | 83        | 111.4   | 149.2   | -      |
| B                             | -         | 3.175   | 4.763   | -      |
| H                             | 9.14      | 14.1    | 21.1    | -      |

\*1. L1=44 when gear ratios are 100, 200, and 300.

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PANR Double Stage Dimensions-2



## Specifications

Unit: mm

| Dimensions                     | PANR23T | PANR34T | PANR42T | PANR56T |
|--------------------------------|---------|---------|---------|---------|
| D1                             | 66.67   | 98.425  | 125.73  | 177.8   |
| D2                             | 5.1     | 5.6     | 7.1     | 10.2    |
| D3 h <sub>6</sub>              | 12.7    | 19.05   | 25      | 25      |
| D4 g <sub>6</sub>              | 38.1    | 73.025  | 55.55   | 114.3   |
| D5                             | 20      | 35      | 32      | -       |
| D7                             | 80      | 118     | 148     | 195     |
| L1                             | 60      | 90      | 115     | 145     |
| L2                             | 25.4    | 31.75   | 42      | 41      |
| L3                             | 1.6     | 1.7     | 2.4     | 4       |
| L4                             | 1       | 1       | 2       | -       |
| L5                             | 19.05   | 25.4    | 32      | 32      |
| L6                             | 3       | 3       | 4       | 4       |
| L7                             | 10      | 12      | 19      | 20      |
| L8                             | 132.5   | 174.85  | 254.5   | 254.5   |
| L11                            | 26.5    | 36      | 40.7    | 40.7    |
| C1 <sup>2</sup>                | 46      | 70      | 90      | 90      |
| C2 <sup>2</sup>                | M4x0.7P | M5x0.8P | M6x1.0P | M6x1.0P |
| C3 <sup>2</sup>                | ≤8/≤11  | ≤14/≤19 | ≤19/≤24 | ≤19/≤24 |
| C4 <sup>2</sup>                | 33      | 44      | 57      | 57      |
| C5 <sup>2</sup> F <sub>6</sub> | 30      | 50      | 70      | 70      |
| C6 <sup>2</sup>                | 4       | 4       | 6       | 6       |
| C7 <sup>2</sup>                | 42.6    | 60      | 90      | 90      |
| C8 <sup>2</sup>                | 18.5    | 20      | 26      | 26      |
| C9 <sup>2</sup>                | 88      | 121.4   | 157.7   | 157.7   |
| B                              | 3.175   | 4.763   | 8       | 8       |
| H                              | 14.1    | 21.093  | 28      | 28      |

\*2. C1~C9 are motor specific dimensions (metric std shown). Sizes may vary according to the motor flange chosen.

★ Specification subject to change without notice.

## PANR Specifications Table

| Specifications                                                                                                                                                                                                                                                                                                                                                         |                  | Stage                | Ratio                                                                                              | PANR-17                                      | PANR-23                                        | PANR-34                                         | PANR-42/<br>PANR-45    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------|
| Nominal Output Torque $T_{2N}$                                                                                                                                                                                                                                                                                                                                         | N • m            | 1                    | 3                                                                                                  | 9                                            | 28                                             | 85                                              | 135                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 4                                                                                                  | 10                                           | 32                                             | 80                                              | 180                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 5                                                                                                  | 11                                           | 35                                             | 95                                              | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 7                                                                                                  | 10                                           | 28                                             | 85                                              | 200                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 8                                                                                                  | 10                                           | 32                                             | 80                                              | 195                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 9                                                                                                  | 9                                            | 25                                             | 75                                              | 195                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 10                                                                                                 | 11                                           | 35                                             | 95                                              | 210                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 12                                                                                                 | 10                                           | 32                                             | 80                                              | -                      |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 14                                                                                                 | 10                                           | 28                                             | 85                                              | 200                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 15                                                                                                 | 11                                           | 35                                             | 95                                              | -                      |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 16                                                                                                 | 8                                            | 23                                             | 75                                              | 195                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  | Stage                | Ratio                                                                                              | PANR-17                                      | PANR-23/<br>PANR-23T                           | PANR-34/<br>PANR-34T                            | PANR-42T/<br>PANR-56T  |
|                                                                                                                                                                                                                                                                                                                                                                        |                  | 2                    | 20                                                                                                 | 11                                           | 35/31                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 25                                                                                                 | 11                                           | 35/30                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 30                                                                                                 | 11                                           | 35/30                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 35                                                                                                 | 11                                           | 35/28                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 40                                                                                                 | 11                                           | 35/31                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 50                                                                                                 | 11                                           | 35/30                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 60                                                                                                 | 11                                           | 35/30                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 70                                                                                                 | 10                                           | 35/28                                          | 95/95                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 80                                                                                                 | 11                                           | 35/27                                          | 95/92                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 100                                                                                                | 8                                            | 35/27                                          | 95/82                                           | 205                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 120                                                                                                | 11                                           | 35/27                                          | 95/92                                           | 215                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 160                                                                                                | -                                            | 23/23                                          | 75/75                                           | 195                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 200                                                                                                | 8                                            | 21/21                                          | 65/65                                           | 180                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 243                                                                                                | 8                                            | 23/23                                          | 75/75                                           | 195                    |
|                                                                                                                                                                                                                                                                                                                                                                        |                  |                      | 300                                                                                                | 8                                            | 21/21                                          | 65/65                                           | 180                    |
| Emergency Stop Torque $T_{2NOT}$                                                                                                                                                                                                                                                                                                                                       | N • m            |                      | (2.5 times of Nominal Output Torque)<br>Max. Output Torque $T_{2B}$ =60% of Emergency Stop Torque) |                                              |                                                |                                                 |                        |
| Nominal Input Speed $n_{1N}$                                                                                                                                                                                                                                                                                                                                           | rpm              | 1,2                  | 3-300                                                                                              | 4500                                         | 4000                                           | 3000                                            | 2500                   |
| Max. Input Speed $n_{1max}$                                                                                                                                                                                                                                                                                                                                            | rpm              | 1,2                  | 3-300                                                                                              | 7500                                         | 7000                                           | 6000                                            | 5000                   |
| Standard Backlash P2                                                                                                                                                                                                                                                                                                                                                   | arcmin           | 1<br>2               | 3-16<br>20-300                                                                                     | $\leq 18$<br>$\leq 20$                       | $\leq 15$<br>$\leq 17$                         | $\leq 13$<br>$\leq 15$                          | $\leq 11$<br>$\leq 13$ |
| Torsional Rigidity                                                                                                                                                                                                                                                                                                                                                     | N • m<br>/arcmin | 1,2                  | 3-300                                                                                              | 1.2                                          | 3.5                                            | 8.5                                             | 17                     |
| Max. Radial Load $F_{2rB}^1$                                                                                                                                                                                                                                                                                                                                           | N                | 1,2                  | 3-300                                                                                              | 580                                          | 890                                            | 2050                                            | 4370                   |
| Max. Axial Load $F_{2aB}^1$                                                                                                                                                                                                                                                                                                                                            | N                | 1,2                  | 3-300                                                                                              | 410                                          | 430                                            | 1100                                            | 2630                   |
| Operating Temp.                                                                                                                                                                                                                                                                                                                                                        | °C               | 1,2                  | 3-300                                                                                              | -10°C ~ +90°C                                |                                                |                                                 |                        |
| Service Life                                                                                                                                                                                                                                                                                                                                                           | hr               | 1,2                  | 3-300                                                                                              | 20,000 (10,000 Continuous operation)         |                                                |                                                 |                        |
| Efficiency                                                                                                                                                                                                                                                                                                                                                             | %                | 1<br>2               | 3-16<br>20-300                                                                                     | $\geq 95\%$<br>$\geq 90\%$                   |                                                |                                                 |                        |
| Weight                                                                                                                                                                                                                                                                                                                                                                 | kg               | 1<br>2               | 3-16<br>20-300                                                                                     | 1.0<br>1.2                                   | 2.4<br>2.9/2.7                                 | 6.1<br>8.1/6.5                                  | 12.2/12.5<br>13.8/14.1 |
| Mounting Position                                                                                                                                                                                                                                                                                                                                                      | -                | 1,2                  | 3-300                                                                                              | Any direction                                |                                                |                                                 |                        |
| Noise Level <sup>2</sup>                                                                                                                                                                                                                                                                                                                                               | dBA/1m           | 1,2                  | 3-300                                                                                              | 66                                           | 68                                             | 70                                              | 73                     |
| Protection Class                                                                                                                                                                                                                                                                                                                                                       | -                | 1,2                  | 3-300                                                                                              | IP 65                                        |                                                |                                                 |                        |
| Lubrication                                                                                                                                                                                                                                                                                                                                                            | -                | 1,2                  | 3-300                                                                                              | Synthetic Lubricant                          |                                                |                                                 |                        |
| Inertia (J1)                                                                                                                                                                                                                                                                                                                                                           |                  |                      |                                                                                                    |                                              |                                                |                                                 |                        |
| Stage                                                                                                                                                                                                                                                                                                                                                                  | Ratio            | unit                 | PANR-17 ( $\phi$ 8)                                                                                | PANR-23 ( $\phi$ 14)                         | PANR-34 ( $\phi$ 19)                           | PANR-42 ( $\phi$ 24)/<br>PANR-56 ( $\phi$ 24)   |                        |
| 1                                                                                                                                                                                                                                                                                                                                                                      | 3, 4, 5, 7       | Kg • cm <sup>2</sup> | 0.07                                                                                               | 0.40                                         | 2.00                                           | 6.80                                            |                        |
|                                                                                                                                                                                                                                                                                                                                                                        | Other ratios     |                      | 0.05                                                                                               | 0.30                                         | 1.50                                           | 4.70                                            |                        |
| Stage                                                                                                                                                                                                                                                                                                                                                                  | Ratio            |                      | PANR-17 ( $\phi$ 8)                                                                                | PANR-23 ( $\phi$ 14)<br>PANR-23T ( $\phi$ 8) | PANR-34 ( $\phi$ 19)/<br>PANR-34T ( $\phi$ 14) | PANR-42T ( $\phi$ 19)/<br>PANR-56T ( $\phi$ 19) |                        |
| 2                                                                                                                                                                                                                                                                                                                                                                      | 20, 25, 35       |                      | 0.07                                                                                               | 0.40/0.07                                    | 2.30/0.40                                      | 2.30                                            |                        |
|                                                                                                                                                                                                                                                                                                                                                                        | Other ratios     |                      | 0.05                                                                                               | 0.30/0.05                                    | 1.50/0.30                                      | 1.50                                            |                        |
| * 1. Applied to the output shaft center @100rpm.<br>* 2. Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load.<br>※The above figures/specifications are subject to change without prior notice. |                  |                      |                                                                                                    |                                              |                                                |                                                 |                        |

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.