

# MODEL PB Series



- 全系列單段背隙  $\leq 8$  弧分  
1-Stage Backlash  $\leq 8$  arcmin
- 全系列雙段背隙  $\leq 12$  弧分  
2-Stage Backlash  $\leq 12$  arcmin

## 機種型號表示 / INDICATION OF MODEL NUMBERS

| PB            | 90                           | 10                                                                                                        |                                                                                                             | MOTOR              |
|---------------|------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------|
| 減速機機型<br>Type | 型號<br>Model                  | 速 比<br>Ratio                                                                                              | 出力軸鍵槽<br>Output Shaft Keyway                                                                                | 馬達型號<br>Motor Type |
| PB            | 44<br>62<br>90<br>120<br>142 | 單段 1-Stage<br>3, 4, 5, 6, 7, 8, 9, 10<br>雙段 2-Stage<br>15, 20, 25, 30, 35, 40,<br>50, 60, 70, 80, 90, 100 | <input type="checkbox"/> 標準品, 有鍵槽<br>Standard (Keyway)<br>N : 實心軸, 無鍵槽<br>Solid Output Shaft<br>(No Keyway) |                    |

### 靜音

使用斜齒輪實現順暢安靜地運轉。

### Quiet operation

Helical gears contribute to reduce vibration and noise.

### 高扭矩

比一般正齒輪行星減速機扭矩高。

### High Torque

High output torque is in comparison with spur gear planetary gear reducers.

### 高效率

單段式在 97% 以上, 雙段式在 94% 以上。

### High Efficiency

Efficiency for 1-stage model exceeds 97%; 2-stage model exceeds 94%.

### 馬達連接板的模組化設計

獨特的馬達連接板模組化設計, 適用於任何廠牌法蘭型式的伺服馬達。

### Modular Design of Motor Connection Plate

The special modular design of motor connection plate is suitable for any flange mounting servomotors.

### 無潤滑脂洩漏、維護方便

使用高粘度、不易分離的潤滑脂, 有效防潤滑脂洩漏。在產品壽命期內無需更換潤滑脂, 安裝更便捷。

### No grease leakage & Maintenance-free

Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life. Convenient in stallation is the advantage.

# PB 系列產品特性

## Features of PB Series

PB



### 一體式行星臂架及雙懸臂設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。

### Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy.



### 滿針滾針軸承設計

行星齒輪的傳動介面採用不含保持器之滿針滾針軸承，增加接觸面積以提高結構剛性及使用壽命。

### Full Needle Roller Bearings Design

The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.



### 筒夾式連結機構

輸入端與馬達的連結採用筒夾式的鎖緊機構，並經動平衡分析，以確保在高輸入轉速下結合介面的同心度和平衡度，及零背隙的動力傳遞。

### Collet Locking Mechanism

The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.



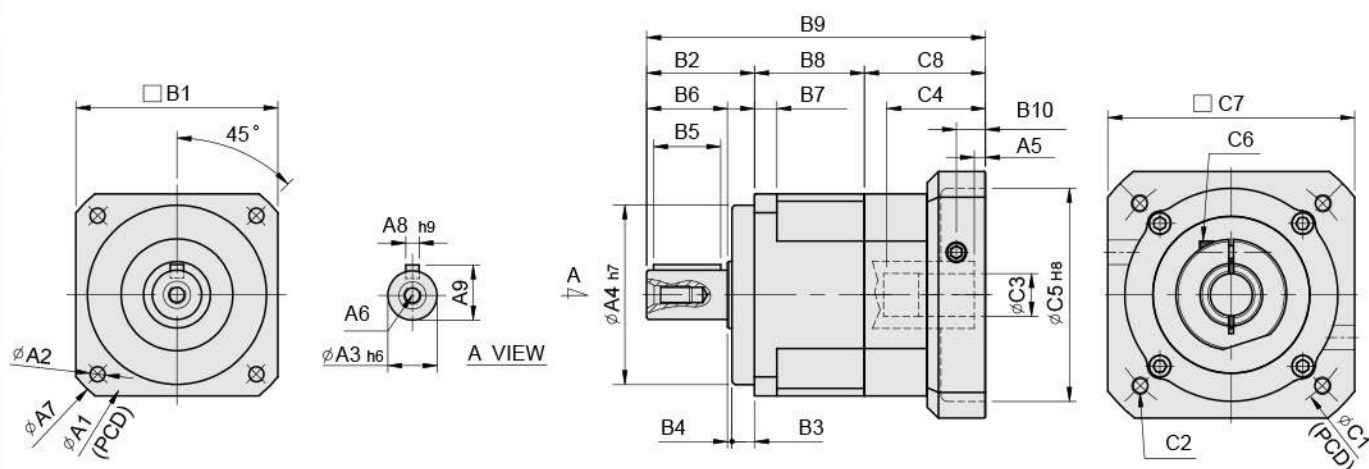
### 一體式螺旋內齒輪箱

齒輪箱和內環齒輪採一體式的設計，減速機構採用螺旋齒輪設計，齒形嚙合率為一般正齒輪的二倍以上，具有運轉平順、低噪音、高輸出扭矩和低背隙的特性。

### One-piece Helical Gear Box

The gear box and internal ring gear are one-piece constructed. The speed reduction mechanism employs helical gears, which provides two times meshing rate of teeth when comparing with regular spur gears. In addition, it also has features of extremely smooth running, low noise, high output torque and low backlash.

# MODEL PB Series



unit : mm

| Code | Model | 44        | 62        | 90             | 120         | 142         |
|------|-------|-----------|-----------|----------------|-------------|-------------|
| A    | A1    | 50        | 70        | 100            | 130         | 165         |
|      | A2    | 4.5       | 5.5       | 6.8            | 9           | 11          |
|      | A3    | 13        | 16        | 22             | 32          | 40          |
|      | A4    | 35        | 50        | 80             | 110         | 130         |
|      | A5    | 5         | 6         | 9、23.5         | 10、20       | 10          |
|      | A6    | M4 × P0.7 | M5 × P0.8 | M8 × P1.25     | M10 × P1.5  | M12 × P1.75 |
|      | A7    | 58        | 80        | 116            | 148         | 186         |
|      | A8    | 5         | 5         | 6              | 10          | 12          |
|      | A9    | 15        | 18        | 24.5           | 35          | 43          |
| B    | B1    | 44        | 62        | 90             | 120         | 142         |
|      | B2    | 26        | 36        | 48             | 65          | 92          |
|      | B3    | 5         | 7         | 10             | 12          | 15          |
|      | B4    | 1         | 1         | 2              | 3           | 3           |
|      | B5    | 15        | 20        | 30             | 40          | 65          |
|      | B6    | 20        | 28        | 36             | 50          | 74          |
|      | B7    | 5         | 8         | 10             | 12          | 15          |
|      | B8    | 31.5      | 38        | 49             | 61          | 70          |
|      | B9    | 95        | 115、123   | 164.5、179      | 205、215     | 260.5       |
|      | B10   | 9         | 11.5      | 16             | 19.5        | 20          |
| C    | C1    | 46、60、63  | 70、75、90  | 90、100、115、145 | 115、145、165 | 145、165、200 |
|      | C2    | M3、M4、M5  | M4、M5、M6  | M5、M6、M8       | M6、M8、M10   | M8、M10、M12  |
|      | C3    | 8、9、11    | 14、19     | 19、22、24       | 24、28、32    | 28、32、35    |
|      | C4    | 26        | 33.5、41.5 | 59、73.5        | 67、77       | 84.5        |
|      | C5    | 30、40、50  | 50、60、70  | 70、80、95、110   | 95、110、130  | 110、130、180 |
|      | C6    | M3 × P0.5 | M5 × P0.8 | M6 × P1.0      | M8 × P1.25  | M10 × P1.5  |
|      | C7    | 46、55     | 64、70、80  | 92、110、130     | 122、130、150 | 146、150、190 |
|      | C8    | 37.5      | 41、49     | 67.5、82        | 79、89       | 98.5        |

# MODEL PB Series



**RATIO :**  
**3.4.5.6.7.8.9.10 (單段 1-Stage)**

| 規格 Model No.                 | 單位 Unit   | 速比 Ratio | 44                                                                           | 62    | 90    | 120   | 142   |
|------------------------------|-----------|----------|------------------------------------------------------------------------------|-------|-------|-------|-------|
| 額定輸出扭矩 / Rated Output Torque | Nm        | 3        | 17                                                                           | 54    | 145   | 301   | 553   |
|                              |           | 4        | 15                                                                           | 48    | 128   | 269   | 491   |
|                              |           | 5        | 14                                                                           | 45    | 132   | 278   | 510   |
|                              |           | 6        | 13                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 7        | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 8        | 12                                                                           | 39    | 115   | 241   | 442   |
|                              |           | 9        | 11                                                                           | 40    | 120   | 227   | 412   |
|                              |           | 10       | 12                                                                           | 40    | 116   | 246   | 452   |
| 最大輸出扭矩 / Max. Output Torque  | Nm        | 3~10     | 3 倍額定輸出扭矩 3 Times of Rated Output Torque                                     |       |       |       |       |
| 額定輸入轉速 / Rated Input Speed   | rpm       | 3~10     | 3,000                                                                        | 3,000 | 3,000 | 3,000 | 3,000 |
| 最大輸入轉速 / Max. Input Speed    | rpm       | 3~10     | 6,000                                                                        | 6,000 | 6,000 | 5,000 | 5,000 |
| 扭轉剛性 / Torsional Rigidity    | Nm/arcmin | 3~10     | 3                                                                            | 6     | 14    | 27    | 60    |
| 容許徑向力 / Max. Radial Force    | N         | 3~10     | 360                                                                          | 1,120 | 3,040 | 6,460 | 8,830 |
| 容許軸向力 / Max. Axial Force     | N         | 3~10     | 180                                                                          | 560   | 1,520 | 3,230 | 4,410 |
| 使用壽命 / Service Life          | hr        | 3~10     | 20,000 (連續運轉壽命為 10,000 hrs)<br>20,000 (continuous operation life 10,000 hrs) |       |       |       |       |
| 效 率 / Efficiency             | %         | 3~10     | ≥ 97%                                                                        |       |       |       |       |
| 使用溫度 / Operating Temperature | °C        | 3~10     | -25° C ~ +90° C                                                              |       |       |       |       |
| 潤 滑 / Lubrication            |           | 3~10     | 全合成潤滑油脂 Synthetic Grease                                                     |       |       |       |       |
| 防護等級 / Protection Class      |           | 3~10     | IP65                                                                         |       |       |       |       |
| 安裝方向 / Mounting Position     |           | 3~10     | 任意方向 Any                                                                     |       |       |       |       |
| 噪 音 值 / Noise Level          | dB        | 3~10     | ≤ 56                                                                         | ≤ 58  | ≤ 60  | ≤ 63  | ≤ 65  |
| 重 量 / Weight ±3%             | Kg        | 3~10     | 0.58                                                                         | 1.35  | 3.69  | 8.63  | 14.55 |



# MODEL PB Series

PB



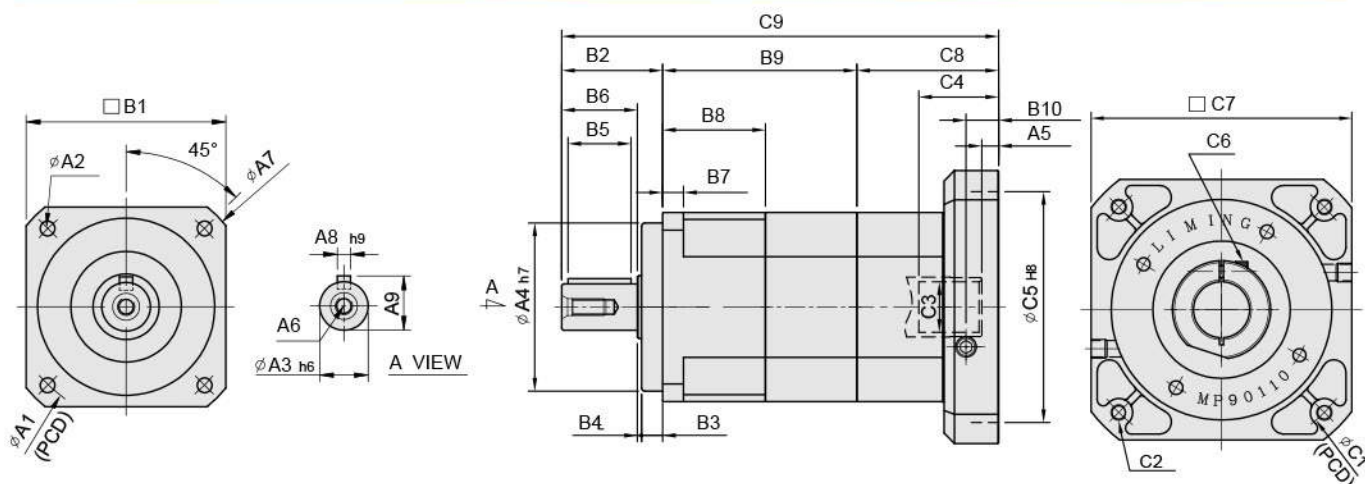
## RATIO :

15.20.25.30.35.40.50.60.70.  
80.90.100 (雙段 2-Stage)

| 規格 Model No.                 | 單位 Unit   | 速比 Ratio | 62                                                                           | 90    | 120   | 142   |
|------------------------------|-----------|----------|------------------------------------------------------------------------------|-------|-------|-------|
| 額定輸出扭矩 / Rated Output Torque | Nm        | 15       | 54                                                                           | 145   | 301   | 553   |
|                              |           | 20       | 48                                                                           | 128   | 269   | 491   |
|                              |           | 25       | 45                                                                           | 132   | 278   | 510   |
|                              |           | 30       | 41                                                                           | 125   | 252   | 466   |
|                              |           | 35       | 41                                                                           | 123   | 258   | 473   |
|                              |           | 40       | 39                                                                           | 115   | 241   | 442   |
|                              |           | 50       | 45                                                                           | 132   | 278   | 510   |
|                              |           | 60       | 41                                                                           | 125   | 252   | 466   |
|                              |           | 70       | 41                                                                           | 123   | 258   | 473   |
|                              |           | 80       | 40                                                                           | 115   | 241   | 442   |
|                              |           | 90       | 40                                                                           | 120   | 227   | 412   |
|                              |           | 100      | 40                                                                           | 116   | 246   | 452   |
| 最大輸出力矩 / Max. Output Torque  | Nm        | 15~100   | 3 倍額定輸出力矩 3 Times of Rated Output Torque                                     |       |       |       |
| 額定輸入轉速 / Rated Input Speed   | rpm       | 15~100   | 3,000                                                                        | 3,000 | 3,000 | 3,000 |
| 最大輸入轉速 / Max. Input Speed    | rpm       | 15~100   | 6,000                                                                        | 6,000 | 5,000 | 5,000 |
| 扭轉剛性 / Torsional Rigidity    | Nm/arcmin | 15~100   | 6                                                                            | 14    | 27    | 60    |
| 容許徑向力 / Max. Radial Force    | N         | 15~100   | 1,120                                                                        | 3,040 | 6,460 | 8,830 |
| 容許軸向力 / Max. Axial Force     | N         | 15~100   | 560                                                                          | 1,520 | 3,230 | 4,410 |
| 使用壽命 / Service Life          | hr        | 15~100   | 20,000 (連續運轉壽命為 10,000 hrs)<br>20,000 (continuous operation life 10,000 hrs) |       |       |       |
| 效 率 / Efficiency             | %         | 15~100   | ≥ 94%                                                                        |       |       |       |
| 使用溫度 / Operating Temperature | °C        | 15~100   | -25° C ~ +90° C                                                              |       |       |       |
| 潤 滑 / Lubrication            |           | 15~100   | 全合成潤滑油脂 Synthetic Grease                                                     |       |       |       |
| 防護等級 / Protection Class      |           | 15~100   | IP65                                                                         |       |       |       |
| 安裝方向 / Mounting Position     |           | 15~100   | 任意方向 Any                                                                     |       |       |       |
| 噪 音 值 / Noise Level          | dB        | 15~100   | ≤ 58                                                                         | ≤ 60  | ≤ 63  | ≤ 65  |
| 重 量 / Weight ±3%             | Kg        | 15~100   | 1.6                                                                          | 4.04  | 9.49  | 17    |

MODEL

## PB-A Series



unit : mm

| Code | Model | 44A       | 62A         | 90A            | 120A        | 142A        |
|------|-------|-----------|-------------|----------------|-------------|-------------|
| A    | A1    | 50        | 70          | 100            | 130         | 165         |
|      | A2    | 4.5       | 5.5         | 6.8            | 9           | 11          |
|      | A3    | 13        | 16          | 22             | 32          | 40          |
|      | A4    | 35        | 50          | 80             | 110         | 130         |
|      | A5    | 5         | 6           | 9、23.5         | 10、20       | 10          |
|      | A6    | M4 × P0.7 | M5 × P0.8   | M8 × P1.25     | M10 × P1.5  | M12 × P1.75 |
|      | A7    | 58        | 80          | 116            | 148         | 186         |
|      | A8    | 5         | 5           | 6              | 10          | 12          |
|      | A9    | 15        | 18          | 24.5           | 35          | 43          |
| B    | B1    | 44        | 62          | 90             | 120         | 142         |
|      | B2    | 26        | 36          | 48             | 65          | 92          |
|      | B3    | 5         | 7           | 10             | 12          | 15          |
|      | B4    | 1         | 1           | 2              | 3           | 3           |
|      | B5    | 15        | 20          | 30             | 40          | 65          |
|      | B6    | 20        | 28          | 36             | 50          | 74          |
|      | B7    | 5         | 8           | 10             | 12          | 15          |
|      | B8    | 31.5      | 38          | 49             | 61          | 70          |
|      | B9    | 57.5      | 71.8        | 92.5           | 117         | 136.5       |
|      | B10   | 9         | 11.5        | 16             | 19.5        | 20          |
| C    | C1    | 46、60、63  | 70、75、90    | 90、100、115、145 | 115、145、165 | 145、165、200 |
|      | C2    | M3、M4、M5  | M4、M5、M6    | M5、M6、M8       | M6、M8、M10   | M8、M10、M12  |
|      | C3    | 8、9、11    | 14、19       | 19、22、24       | 24、28、32    | 28、32、35    |
|      | C4    | 26        | 33.5、41.5   | 59、73.5        | 67、77       | 84.5        |
|      | C5    | 30、40、50  | 50、60、70    | 70、80、95、110   | 95、110、130  | 110、130、180 |
|      | C6    | M3 × P0.5 | M5 × P0.8   | M6 × P1.0      | M8 × P1.25  | M10 × P1.5  |
|      | C7    | 46、55     | 64、70、80    | 92、110、130     | 122、130、150 | 146、150、190 |
|      | C8    | 37.5      | 41、49       | 67.5、82        | 79、89       | 98.5        |
|      | C9    | 121       | 156.8、148.8 | 208、222.5      | 261、271     | 327         |

# MODEL PB-A Series



## RATIO :

15.20.25.30.35.40.50.60.70.  
80.90.100 (雙段 2-Stage)

PB-A

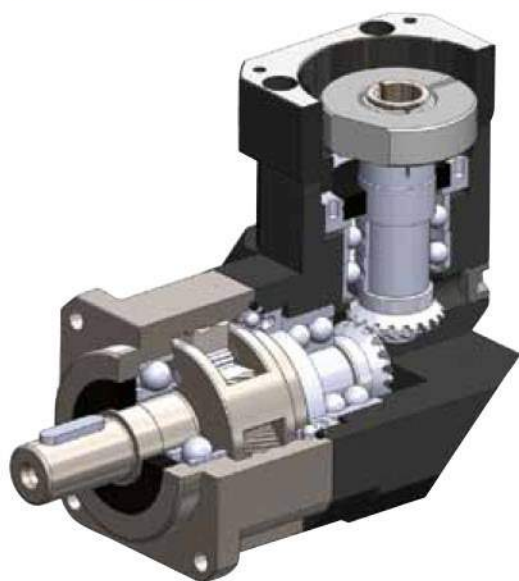
| 規格 Model No.                 | 單位 Unit   | 速比 Ratio | 44A                                                                          | 62A   | 90A   | 120A  | 142A  |
|------------------------------|-----------|----------|------------------------------------------------------------------------------|-------|-------|-------|-------|
| 額定輸出扭矩 / Rated Output Torque | Nm        | 15       | 17                                                                           | 54    | 145   | 301   | 553   |
|                              |           | 20       | 15                                                                           | 48    | 128   | 269   | 491   |
|                              |           | 25       | 14                                                                           | 45    | 132   | 278   | 510   |
|                              |           | 30       | 13                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 35       | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 40       | 12                                                                           | 39    | 115   | 241   | 442   |
|                              |           | 50       | 14                                                                           | 45    | 132   | 278   | 510   |
|                              |           | 60       | 13                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 70       | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 80       | 12                                                                           | 40    | 115   | 241   | 442   |
|                              |           | 90       | 11                                                                           | 40    | 120   | 227   | 412   |
|                              |           | 100      | 12                                                                           | 40    | 116   | 246   | 452   |
| 最大輸出力矩 / Max. Output Torque  | Nm        | 15~100   | 3 倍額定輸出力矩 3 Times of Rated Output Torque                                     |       |       |       |       |
| 額定輸入轉速 / Rated Input Speed   | rpm       | 15~100   | 3,000                                                                        | 3,000 | 3,000 | 3,000 | 3,000 |
| 最大輸入轉速 / Max. Input Speed    | rpm       | 15~100   | 6,000                                                                        | 6,000 | 6,000 | 5,000 | 5,000 |
| 扭轉剛性 / Torsional Rigidity    | Nm/arcmin | 15~100   | 3                                                                            | 6     | 14    | 27    | 60    |
| 容許徑向力 / Max. Radial Force    | N         | 15~100   | 360                                                                          | 1,120 | 3,040 | 6,460 | 8,830 |
| 容許軸向力 / Max. Axial Force     | N         | 15~100   | 180                                                                          | 560   | 1,520 | 3,230 | 4,410 |
| 使用壽命 / Service Life          | hr        | 15~100   | 20,000 (連續運轉壽命為 10,000 hrs)<br>20,000 (continuous operation life 10,000 hrs) |       |       |       |       |
| 效 率 / Efficiency             | %         | 15~100   | ≥ 94%                                                                        |       |       |       |       |
| 使用溫度 / Operating Temperature | °C        | 15~100   | -25° C ~ +90° C                                                              |       |       |       |       |
| 潤 滑 / Lubrication            |           | 15~100   | 全合成潤滑油脂 Synthetic Grease                                                     |       |       |       |       |
| 防護等級 / Protection Class      |           | 15~100   | IP65                                                                         |       |       |       |       |
| 安裝方向 / Mounting Position     |           | 15~100   | 任意方向 Any                                                                     |       |       |       |       |
| 噪 音 值 / Noise Level          | dB        | 15~100   | ≤ 56                                                                         | ≤ 58  | ≤ 60  | ≤ 63  | ≤ 65  |
| 重 量 / Weight ±3%             | Kg        | 15~100   | 0.86                                                                         | 2     | 5.48  | 10    | 21.4  |

MODEL

**PBL Series**

機種型號表示

Indication Of Model Numbers



■ 全系列單段背隙  $\leq 12$  弧分  
1-Stage Backlash  $\leq 12$  arcmin

■ 全系列雙段背隙  $\leq 15$  弧分  
2-Stage Backlash  $\leq 15$  arcmin

## 機種型號表示 / INDICATION OF MODEL NUMBERS

| PBL           | 90                           | 10                                                                                                                                                       |                                                                                      | MOTOR              |
|---------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------|
| 減速機機型<br>Type | 型號<br>Model                  | 速 比<br>Ratio                                                                                                                                             | 出力軸鍵槽<br>Output Shaft Keyway                                                         | 馬達型號<br>Motor Type |
| PBL           | 44<br>62<br>90<br>120<br>142 | 單段 1-Stage<br>3, 4, 5, 6, 7, 8, 9, 10,<br>12, 14, 16, 20<br>雙段 2-Stage<br>15, 20, 25, 30, 35, 40,<br>50, 60, 70, 80, 90, 100,<br>120, 140, 160, 180, 200 | □ 標準品, 有鍵槽<br>Standard (Keyway)<br>N : 實心軸, 無鍵槽<br>Solid Output Shaft<br>(No Keyway) |                    |

### 靜音

使用斜齒輪實現順暢安靜地運轉。

### Quiet operation

Helical gears contribute to reduce vibration and noise.

### 高扭矩

比一般正齒輪行星減速機扭矩高。

### High Torque

High output torque is in comparison with spur gear planetary gear reducers.

### 高效率

單段式在 95% 以上, 雙段式在 92% 以上。

### High Efficiency

Efficiency for 1-stage model exceeds 95%; 2-stage model exceeds 92%.

### 馬達連接板的模組化設計

獨特的馬達連接板模組化設計, 適用於任何廠牌法蘭型式的伺服馬達。

### Modular Design of Motor Connection Plate

The special modular design of motor connection plate is suitable for any flange mounting servomotors.

### 無潤滑脂洩漏、維護方便

使用高粘度、不易分離的潤滑脂, 有效防潤滑脂洩漏。在產品壽命期內無需更換潤滑脂, 安裝更便捷。

### No grease leakage & Maintenance-free

Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life. Convenient in stallation is the advantage.

# PBL 系列產品特性

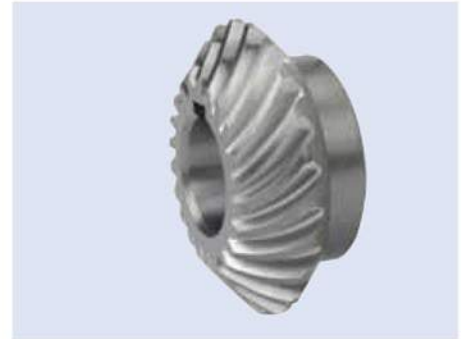
## Features of PBL Series

### 螺旋傘齒輪

螺旋傘齒輪傳動效率高，傳動比穩定，圓弧重疊係數大，承載能力高，傳動平穩平順，工作可靠，結構緊湊，耐磨損，壽命長。

### Spiral Bevel Gear

Spiral bevel gear is excellent in transmission efficiency, stability, durability, large arc overlapping factor, heavy loading, compact structure, wear-resisting and long service life.



### 一體式行星臂架及雙懸臂設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。

### Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy.



### 滿針滾針軸承設計

行星齒輪的傳動介面採用不含保持器之滿針滾針軸承，增加接觸面積以提高結構剛性及使用壽命。

### Full Needle Roller Bearings Design

The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.



### 筒夾式連結機構

輸入端與馬達的連結採用筒夾式的鎖緊機構，並經動平衡分析，以確保在高輸入轉速下結合介面的同心度和平衡度，及零背隙的動力傳遞。

### Collet Locking Mechanism

The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.



### 一體式螺旋內齒輪箱

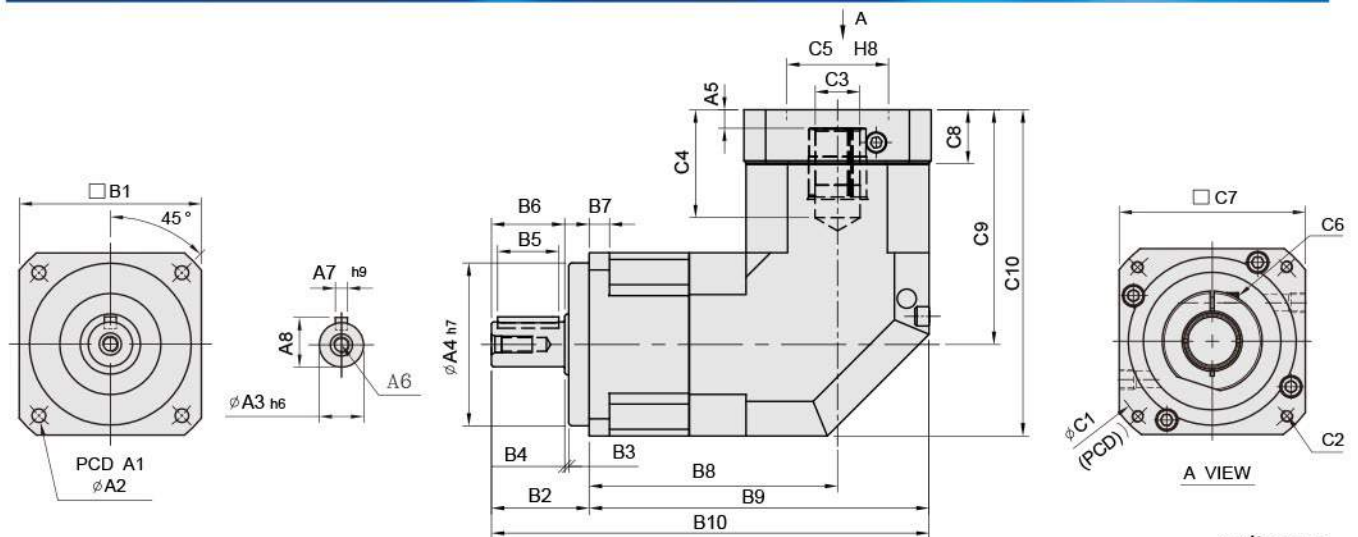
齒輪箱和內環齒輪採一體式的設計，減速機構採用螺旋齒輪設計，齒形嚙合率為一般正齒輪的二倍以上，具有運轉平順、低噪音、高輸出扭矩和低背隙的特性。

### One-piece Helical Gear Box

The gear box and internal ring gear are one-piece constructed. The speed reduction mechanism employs helical gears, which provides two times meshing rate of teeth when comparing with regular spur gears. In addition, it also has features of extremely smooth running, low noise, high output torque and low backlash.



# MODEL PBL Series



unit : mm

| Code | Model | 44        | 62        | 90             | 120         | 142         |
|------|-------|-----------|-----------|----------------|-------------|-------------|
| A    | A1    | 50        | 70        | 100            | 130         | 165         |
|      | A2    | 4.5       | 5.5       | 6.8            | 9           | 11          |
|      | A3    | 13        | 16        | 22             | 32          | 40          |
|      | A4    | 35        | 50        | 80             | 110         | 130         |
|      | A5    | 6         | 6         | 9、23.5         | 10、20       | 10          |
|      | A6    | M4 × P0.7 | M5 × P0.8 | M8 × P1.25     | M10 × P1.5  | M12 × P1.75 |
|      | A7    | 5         | 5         | 6              | 10          | 12          |
|      | A8    | 15        | 18        | 24.5           | 35          | 43          |
| B    | B1    | 44        | 62        | 90             | 120         | 142         |
|      | B2    | 26        | 36        | 48             | 65          | 92          |
|      | B3    | 5         | 7         | 10             | 12          | 15          |
|      | B4    | 1         | 1         | 2              | 3           | 3           |
|      | B5    | 15        | 20        | 30             | 40          | 65          |
|      | B6    | 20        | 28        | 36             | 50          | 74          |
|      | B7    | 5         | 8         | 10             | 12          | 15          |
|      | B8    | 76        | 84.5      | 122.1          | 148         | 165.5       |
|      | B9    | 98        | 115.5     | 167.1          | 208         | 236.5       |
|      | B10   | 124       | 151.5     | 215.1          | 273         | 328.5       |
| C    | C1    | 46、60、63  | 70、75、90  | 90、100、115、145 | 115、145、165 | 145、165、200 |
|      | C2    | M3、M4、M5  | M4、M5、M6  | M5、M6、M8       | M6、M8、M10   | M8、M10、M12  |
|      | C3    | 8、9、11    | 14、19     | 19、22、24       | 24、28、32    | 28、32、35    |
|      | C4    | 27        | 33.5、41.5 | 53、67.5        | 67、77       | 85          |
|      | C5    | 30、40、50  | 50、60、70  | 70、80、95、110   | 95、110、130  | 110、130、180 |
|      | C6    | M3 × P0.5 | M5 × P0.8 | M6 × P1.0      | M8 × P1.25  | M10 × P1.5  |
|      | C7    | 46、55     | 64、70、80  | 92、110、130     | 122、130、150 | 146、150、190 |
|      | C8    | 16        | 21.5      | 26.5、41        | 35.5、45.5   | 35.5        |
|      | C9    | 61        | 77        | 115.3、129.8    | 141、151     | 174         |
|      | C10   | 83        | 108       | 160.3、174.8    | 201、211     | 245         |

# MODEL PBL Series

## RATIO :

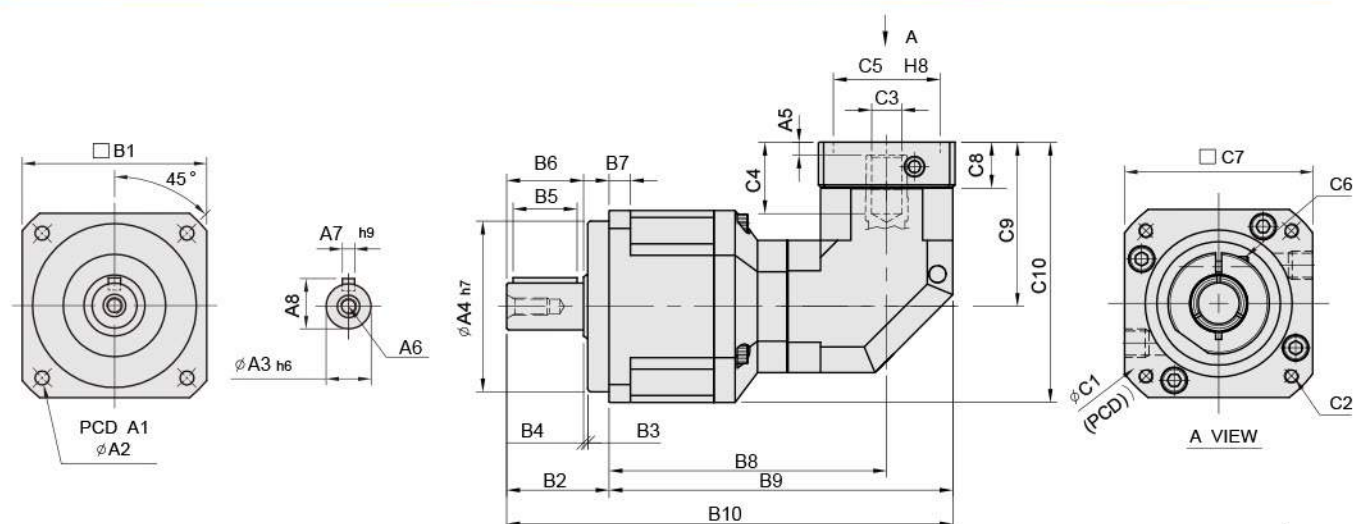
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(單段 1-Stage)



| 規格 Model No.                 | 單位 Unit   | 速比 Ratio | 44                                                                           | 62    | 90    | 120   | 142   |
|------------------------------|-----------|----------|------------------------------------------------------------------------------|-------|-------|-------|-------|
| 額定輸出扭矩 / Rated Output Torque | Nm        | 3        | 17                                                                           | 54    | 145   | 301   | 553   |
|                              |           | 4        | 15                                                                           | 48    | 128   | 269   | 491   |
|                              |           | 5        | 14                                                                           | 45    | 132   | 278   | 510   |
|                              |           | 6        | 13                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 7        | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 8        | 12                                                                           | 39    | 115   | 241   | 442   |
|                              |           | 9        | 11                                                                           | 40    | 120   | 227   | 412   |
|                              |           | 10       | 12                                                                           | 40    | 116   | 246   | 452   |
|                              |           | 12       | 13                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 14       | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 16       | 12                                                                           | 39    | 115   | 241   | 442   |
|                              |           | 18       | 11                                                                           | 40    | 120   | 227   | 412   |
|                              |           | 20       | 12                                                                           | 40    | 116   | 246   | 452   |
| 最大輸出扭矩 / Max. Output Torque  | Nm        | 3~20     | 3 倍額定輸出扭矩 3 Times of Rated Output Torque                                     |       |       |       |       |
| 額定輸入轉速 / Rated Input Speed   | rpm       | 3~20     | 3,000                                                                        | 3,000 | 3,000 | 3,000 | 3,000 |
| 最大輸入轉速 / Max. Input Speed    | rpm       | 3~20     | 6,000                                                                        | 6,000 | 6,000 | 5,000 | 5,000 |
| 扭轉剛性 / Torsional Rigidity    | Nm/arcmin | 3~20     | 3                                                                            | 6     | 14    | 27    | 60    |
| 容許徑向力 / Max. Radial Force    | N         | 3~20     | 360                                                                          | 1,120 | 3,040 | 6,460 | 8,830 |
| 容許軸向力 / Max. Axial Force     | N         | 3~20     | 180                                                                          | 560   | 1,520 | 3,230 | 4,410 |
| 使用壽命 / Service Life          | hr        | 3~20     | 20,000 (連續運轉壽命為 10,000 hrs)<br>20,000 (continuous operation life 10,000 hrs) |       |       |       |       |
| 效 率 / Efficiency             | %         | 3~20     | ≥ 95%                                                                        |       |       |       |       |
| 使用溫度 / Operating Temperature | °C        | 3~20     | -25° C ~ +90° C                                                              |       |       |       |       |
| 潤 滑 / Lubrication            |           | 3~20     | 全合成潤滑油脂 Synthetic Grease                                                     |       |       |       |       |
| 防護等級 / Protection Class      |           | 3~20     | IP65                                                                         |       |       |       |       |
| 安裝方向 / Mounting Position     |           | 3~20     | 任意方向 Any                                                                     |       |       |       |       |
| 噪 音 值 / Noise Level          | dB        | 3~20     | ≤ 70                                                                         | ≤ 72  | ≤ 74  | ≤ 76  | ≤ 78  |
| 重 量 / Weight ±3%             | Kg        | 3~20     | 0.99                                                                         | 2.1   | 6.88  | 12.5  | 23.16 |

# MODEL PBL Series



unit : mm

| Code | Model | 62        | 90         | 120            | 142           |
|------|-------|-----------|------------|----------------|---------------|
| A    | A1    | 70        | 100        | 130            | 165           |
|      | A2    | 5.5       | 6.8        | 9              | 11            |
|      | A3    | 16        | 22         | 32             | 40            |
|      | A4    | 50        | 80         | 110            | 130           |
|      | A5    | 6         | 6          | 9、23.5         | 10、20         |
|      | A6    | M5 × P0.8 | M8 × P1.25 | M10 × P1.5     | M12 × P1.75   |
|      | A7    | 5         | 6          | 10             | 12            |
|      | A8    | 18        | 24.5       | 35             | 43            |
| B    | B1    | 62        | 90         | 120            | 142           |
|      | B2    | 36        | 48         | 65             | 92            |
|      | B3    | 7         | 10         | 12             | 15            |
|      | B4    | 1         | 2          | 3              | 3             |
|      | B5    | 20        | 30         | 40             | 65            |
|      | B6    | 28        | 36         | 50             | 74            |
|      | B7    | 8         | 10         | 12             | 15            |
|      | B8    | 110.5     | 130        | 181.6          | 214.5         |
|      | B9    | 132.5     | 161        | 266.6          | 274.5         |
|      | B10   | 168.5     | 209        | 291.6          | 366.5         |
| C    | C1    | 46、60、63  | 70、75、90   | 90、110、115、145 | 115、145、165   |
|      | C2    | M3、M4、M5  | M4、M5、M6   | M5、M6、M8、M10   | M6、M8、M10     |
|      | C3    | 8、9、11    | 14、19      | 19、22、24       | 24、28、32      |
|      | C4    | 27        | 33.5、41.5  | 53、67.5        | 67、77         |
|      | C5    | 30、40、50  | 50、60、70   | 70、80、95、110   | 70、95、110、130 |
|      | C6    | M3 × P0.5 | M5 × P0.8  | M6 × P1.0      | M8 × P1.25    |
|      | C7    | 46、55     | 64、70、80   | 92、110、130     | 122、130、150   |
|      | C8    | 16        | 21.5       | 26.5、41        | 35.5、45.5     |
|      | C9    | 61        | 77         | 115.3、129.8    | 141、151       |
|      | C10   | 92        | 122        | 175.3、189.8    | 212、222       |

# MODEL PBL Series

## RATIO :

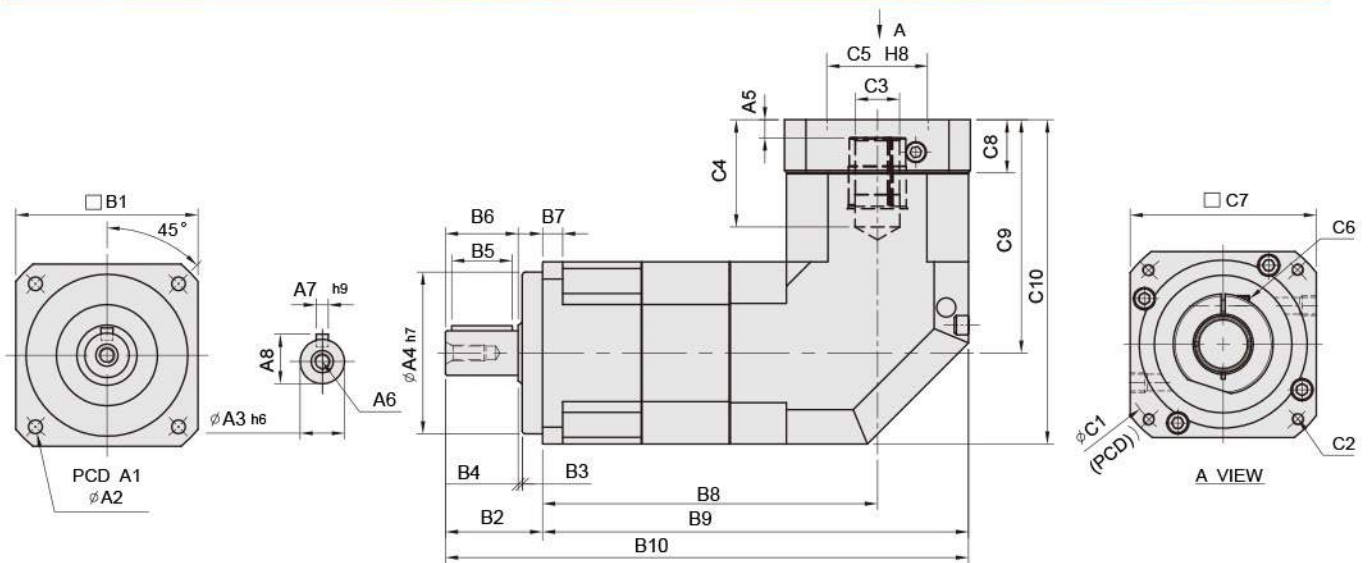
15.20.25.30.35.40.50.60.70.80.90.100.  
120.140.160.180.200 (雙段 2-Stage)



PBL

| 規格 Model No.                 | 單位 Unit   | 速比 Ratio | 62                                                                           | 90    | 120   | 142   |
|------------------------------|-----------|----------|------------------------------------------------------------------------------|-------|-------|-------|
| 額定輸出扭矩 / Rated Output Torque | Nm        | 15       | 54                                                                           | 145   | 301   | 553   |
|                              |           | 20       | 48                                                                           | 128   | 269   | 491   |
|                              |           | 25       | 45                                                                           | 132   | 278   | 510   |
|                              |           | 30       | 41                                                                           | 125   | 252   | 466   |
|                              |           | 35       | 41                                                                           | 123   | 258   | 473   |
|                              |           | 40       | 39                                                                           | 115   | 241   | 442   |
|                              |           | 50       | 45                                                                           | 132   | 278   | 510   |
|                              |           | 60       | 41                                                                           | 125   | 252   | 466   |
|                              |           | 70       | 41                                                                           | 123   | 258   | 473   |
|                              |           | 80       | 40                                                                           | 115   | 241   | 442   |
|                              |           | 90       | 40                                                                           | 120   | 227   | 412   |
|                              |           | 100      | 40                                                                           | 116   | 246   | 452   |
|                              |           | 120      | 41                                                                           | 125   | 252   | 466   |
|                              |           | 140      | 41                                                                           | 123   | 258   | 473   |
|                              |           | 160      | 40                                                                           | 115   | 241   | 442   |
|                              |           | 180      | 40                                                                           | 120   | 227   | 412   |
|                              |           | 200      | 40                                                                           | 116   | 246   | 452   |
| 最大輸出力矩 / Max. Output Torque  | Nm        | 15~200   | 3 倍額定輸出力矩 3 Times of Rated Output Torque                                     |       |       |       |
| 額定輸入轉速 / Rated Input Speed   | rpm       | 15~200   | 3,000                                                                        | 3,000 | 3,000 | 3,000 |
| 最大輸入轉速 / Max. Input Speed    | rpm       | 15~200   | 6,000                                                                        | 6,000 | 5,000 | 5,000 |
| 扭轉剛性 / Torsional Rigidity    | Nm/arcmin | 15~200   | 6                                                                            | 14    | 27    | 60    |
| 容許徑向力 / Max. Radial Force    | N         | 15~200   | 1,120                                                                        | 3,040 | 6,460 | 8,830 |
| 容許軸向力 / Max. Axial Force     | N         | 15~200   | 560                                                                          | 1,520 | 3,230 | 4,410 |
| 使用壽命 / Service Life          | hr        | 15~200   | 20,000 (連續運轉壽命為 10,000 hrs)<br>20,000 (continuous operation life 10,000 hrs) |       |       |       |
| 效 率 / Efficiency             | %         | 15~200   | ≥ 92%                                                                        |       |       |       |
| 使用溫度 / Operating Temperature | °C        | 15~200   | -25° C ~ +90° C                                                              |       |       |       |
| 潤 滑 / Lubrication            |           | 15~100   | 全合成潤滑油脂 Synthetic Grease                                                     |       |       |       |
| 防護等級 / Protection Class      |           | 15~100   | IP65                                                                         |       |       |       |
| 安裝方向 / Mounting Position     |           | 15~100   | 任意方向 Any                                                                     |       |       |       |
| 噪 音 值 / Noise Level          | dB        | 15~100   | ≤ 72                                                                         | ≤ 74  | ≤ 76  | ≤ 78  |
| 重 量 / Weight ±3%             | Kg        | 15~100   | 2                                                                            | 6.1   | 12.5  | 23.2  |

# MODEL PBL-A Series



unit : mm

| Code | Model | 44A       | 62A       | 90A            | 120A        | 142A        |
|------|-------|-----------|-----------|----------------|-------------|-------------|
| A    | A1    | 50        | 70        | 100            | 130         | 165         |
|      | A2    | 4.5       | 5.5       | 6.8            | 9           | 11          |
|      | A3    | 13        | 16        | 22             | 32          | 40          |
|      | A4    | 35        | 50        | 80             | 110         | 130         |
|      | A5    | 6         | 6         | 9、23.5         | 10、20       | 10          |
|      | A6    | M4 × P0.7 | M5 × P0.8 | M8 × P1.25     | M10 × P1.5  | M12 × P1.75 |
|      | A7    | 5         | 5         | 6              | 10          | 12          |
|      | A8    | 15        | 18        | 24.5           | 35          | 43          |
| B    | B1    | 44        | 62        | 90             | 120         | 142         |
|      | B2    | 26        | 36        | 48             | 65          | 92          |
|      | B3    | 5         | 7         | 10             | 12          | 15          |
|      | B4    | 1         | 1         | 2              | 3           | 3           |
|      | B5    | 15        | 20        | 30             | 40          | 65          |
|      | B6    | 20        | 28        | 36             | 50          | 74          |
|      | B7    | 5         | 8         | 10             | 12          | 15          |
|      | B8    | 102       | 118.3     | 165.6          | 204         | 232         |
|      | B9    | 124       | 149.3     | 210.6          | 264         | 303         |
|      | B10   | 150       | 185.3     | 258.6          | 329         | 395         |
| C    | C1    | 46、60、63  | 70、75、90  | 90、100、115、145 | 115、145、165 | 145、165、200 |
|      | C2    | M3、M4、M5  | M4、M5、M6  | M5、M6、M8       | M6、M8、M10   | M8、M10、M12  |
|      | C3    | 8、9、11    | 14、19     | 19、22、24       | 24、28、32    | 28、32、35    |
|      | C4    | 27        | 33.5、41.5 | 53、67.5        | 67、77       | 85          |
|      | C5    | 30、40、50  | 50、60、70  | 70、80、95、110   | 95、110、130  | 110、130、180 |
|      | C6    | M3 × P0.5 | M5 × P0.8 | M6 × P1.0      | M8 × P1.25  | M10 × P1.5  |
|      | C7    | 46、55     | 64、70、80  | 92、110、130     | 122、130、150 | 146、150、190 |
|      | C8    | 16        | 21.5      | 26.5、41        | 35.5、45.5   | 35.5        |
|      | C9    | 61        | 77        | 115.3、129.8    | 141、151     | 174         |
|      | C10   | 83        | 108       | 160.3、174.8    | 201、211     | 245         |

# MODEL PBL-A Series

## RATIO :

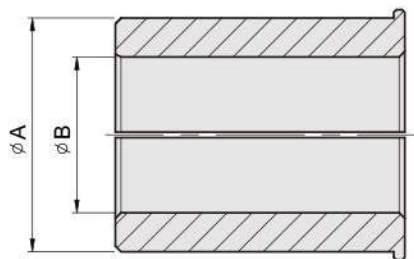
15.20.25.30.35.40.50.60.70.80.90.100.  
120.140.160.180.200 (雙段 2-Stage)



PBL-A

| 規格 Model No.                 | 單位 Unit   | 速比 Ratio | 44A                                                                          | 62A   | 90A   | 120A  | 142A  |
|------------------------------|-----------|----------|------------------------------------------------------------------------------|-------|-------|-------|-------|
| 額定輸出扭矩 / Rated Output Torque | Nm        | 15       | 17                                                                           | 54    | 145   | 301   | 553   |
|                              |           | 20       | 15                                                                           | 48    | 128   | 269   | 491   |
|                              |           | 25       | 14                                                                           | 45    | 132   | 278   | 510   |
|                              |           | 30       | 13                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 35       | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 40       | 12                                                                           | 39    | 115   | 241   | 442   |
|                              |           | 50       | 11                                                                           | 45    | 132   | 278   | 510   |
|                              |           | 60       | 12                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 70       | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 80       | 13                                                                           | 40    | 115   | 241   | 442   |
|                              |           | 90       | 12                                                                           | 40    | 120   | 227   | 412   |
|                              |           | 100      | 11                                                                           | 40    | 116   | 246   | 452   |
|                              |           | 120      | 12                                                                           | 41    | 125   | 252   | 466   |
|                              |           | 140      | 13                                                                           | 41    | 123   | 258   | 473   |
|                              |           | 160      | 13                                                                           | 39    | 115   | 241   | 442   |
|                              |           | 180      | 12                                                                           | 40    | 120   | 227   | 412   |
|                              |           | 200      | 11                                                                           | 40    | 116   | 246   | 452   |
| 最大輸出扭矩 / Max. Output Torque  | Nm        | 15~200   | 3 倍額定輸出扭矩 3 Times of Rated Output Torque                                     |       |       |       |       |
| 額定輸入轉速 / Rated Input Speed   | rpm       | 15~200   |                                                                              | 3,000 | 3,000 | 3,000 | 3,000 |
| 最大輸入轉速 / Max. Input Speed    | rpm       | 15~200   |                                                                              | 6,000 | 6,000 | 5,000 | 5,000 |
| 扭轉剛性 / Torsional Rigidity    | Nm/arcmin | 15~200   |                                                                              | 6     | 14    | 27    | 60    |
| 容許徑向力 / Max. Radial Force    | N         | 15~200   |                                                                              | 1,120 | 3,040 | 6,460 | 8,830 |
| 容許軸向力 / Max. Axial Force     | N         | 15~200   |                                                                              | 560   | 1,520 | 3,230 | 4,410 |
| 使用壽命 / Service Life          | hr        | 15~200   | 20,000 (連續運轉壽命為 10,000 hrs)<br>20,000 (continuous operation life 10,000 hrs) |       |       |       |       |
| 效 率 / Efficiency             | %         | 15~200   | ≥ 92%                                                                        |       |       |       |       |
| 使用溫度 / Operating Temperature | °C        | 15~200   | -25° C ~ +90° C                                                              |       |       |       |       |
| 潤 滑 / Lubrication            |           | 15~200   | 全合成潤滑油脂 Synthetic Grease                                                     |       |       |       |       |
| 防護等級 / Protection Class      |           | 15~200   | IP65                                                                         |       |       |       |       |
| 安裝方向 / Mounting Position     |           | 15~200   | 任意方向 Any                                                                     |       |       |       |       |
| 噪 音 值 / Noise Level          | dB        | 15~200   | ≤ 70                                                                         | ≤ 72  | ≤ 74  | ≤ 76  | ≤ 78  |
| 重 量 / Weight ±3%             | Kg        | 15~200   | 1.5                                                                          | 3     | 8.15  | 13.9  | 29.4  |

# 軸套 BUSHING



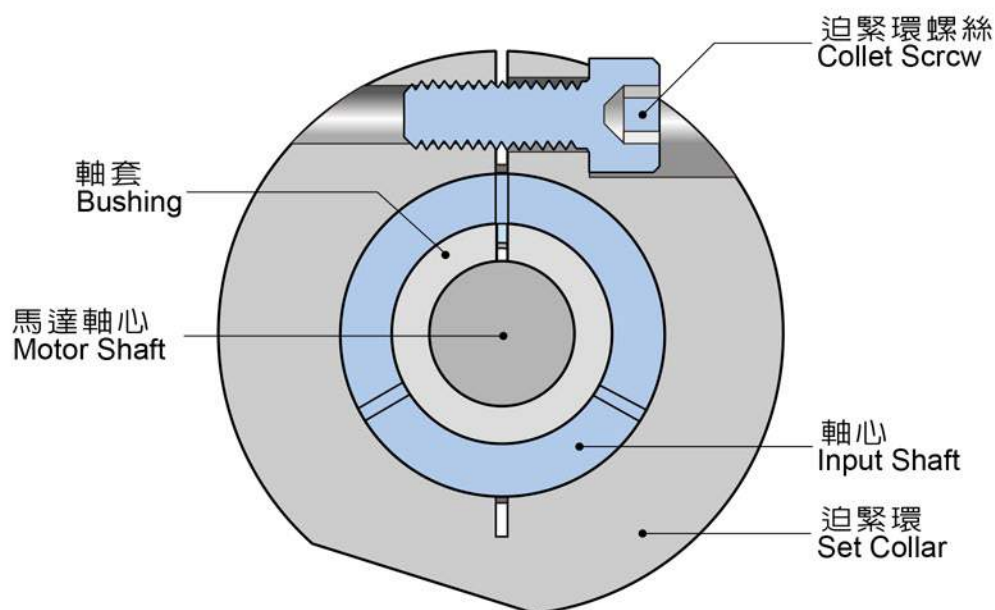
內徑為所使用伺服馬達的輸出軸軸徑。

下表中沒有的情況下需要插入軸套，在您所使用的輸出軸軸徑的近似值中選擇大值。

| 連接軸 _ 孔徑<br>ØB<br>軸套 _ 孔徑 | 8 | 11 | 14 | 19 | 22 | 24 | 28 | 35 | 38 | 42 | 48 |
|---------------------------|---|----|----|----|----|----|----|----|----|----|----|
| 6                         | ● |    | ●  |    |    |    |    |    |    |    |    |
| 6.35                      | ● |    | ●  |    |    |    |    |    |    |    |    |
| 8                         |   | ●  | ●  |    |    |    |    |    |    |    |    |
| 9                         |   | ●  | ●  |    |    |    |    |    |    |    |    |
| 10                        |   |    | ●  | ●  |    |    |    |    |    |    |    |
| 11                        |   |    | ●  |    |    |    |    |    |    |    |    |
| 12                        |   |    | ●  |    |    |    |    |    |    |    |    |
| 12.7                      |   |    |    | ●  |    |    |    |    |    |    |    |
| 14                        |   |    |    | ●  |    | ●  |    |    |    |    |    |
| 16                        |   |    |    | ●  |    | ●  |    |    |    |    |    |
| 19                        |   |    |    |    | ●  | ●  | ●  |    |    |    |    |
| 22                        |   |    |    |    |    | ●  | ●  | ●  |    |    |    |
| 24                        |   |    |    |    |    |    | ●  | ●  |    |    |    |
| 25                        |   |    |    |    |    |    | ●  |    |    |    |    |
| 25.4                      |   |    |    |    |    |    |    | ●  |    |    |    |
| 28                        |   |    |    |    |    |    |    | ●  |    |    |    |
| 32                        |   |    |    |    |    |    |    | ●  |    |    |    |
| 35                        |   |    |    |    |    |    |    |    |    |    |    |
| 38                        |   |    |    |    |    |    |    |    |    |    |    |
| 42                        |   |    |    |    |    |    |    |    |    |    |    |

# 迫緊螺絲及迫緊環扭矩表

## Collet Screw & Set Collar Torque Table



\* 馬達扭矩超過迫緊扭矩時，可能導致打滑。

\* It will cause slip when motor torque exceeds clench torque.

| MODEL | 迫緊螺絲規格<br>Spec. of Collet Screw | 螺絲強度等級<br>Screw Grade | 螺絲鎖緊扭矩<br>Tighten Torque(Nm) | 迫緊扭矩<br>Clench Torque(Nm) |
|-------|---------------------------------|-----------------------|------------------------------|---------------------------|
| 44    | M3 × P 0.5                      | 12.9                  | 2.2                          | 58                        |
| 62    | M5 × P 0.8                      | 12.9                  | 10                           | 164                       |
| 90    | M6 × P 1.0                      | 12.9                  | 16.63                        | 233                       |
| 120   | M8 × P 1.25                     | 12.9                  | 41                           | 423                       |
| 142   | M10 × P 1.5                     | 12.9                  | 81                           | 678                       |