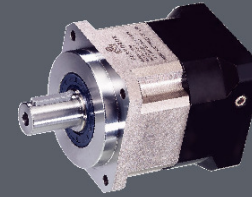


High Accuracy &amp; Efficiency Profit



利明牌



精密行星減速機

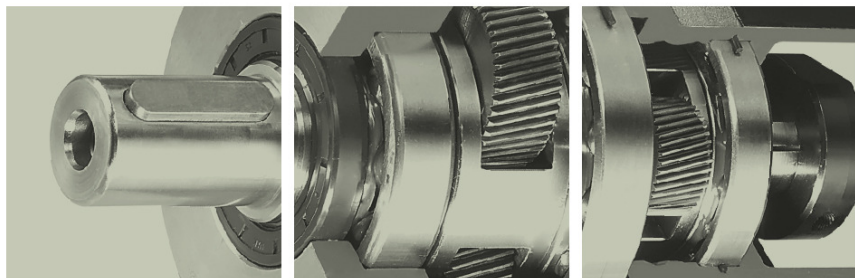
## Planetary Reducers

精密行星減速機



**利茗機械股份有限公司**  
 LI MING MACHINERY CO., LTD.

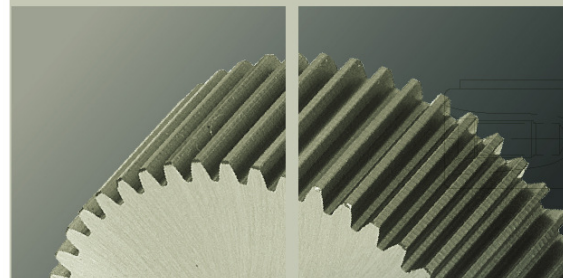
- 地址：台中縣潭子鄉潭富路一段150號
- Address: No. 150, Sec. 1, Tan Fu Rd., Tan Tzu, Taichung, Taiwan
- Tel: 886-4-25314888 · Fax: 886-4-25338982
- Http: /www.li-ming.com · Http: /www.reducer.com
- E-mail: using@li-ming.com



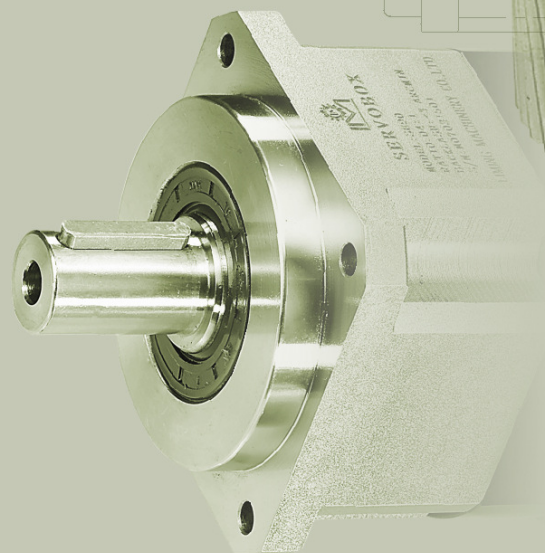
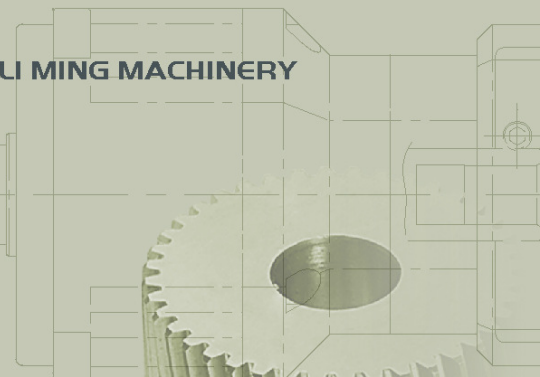
Quality First & Customer's Satisfaction

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LI MING MACHINERY



High Accuracy & Efficiency Profit



# High Tech

High Precision

## Quality First & Customer's Satisfaction

Li Ming Machinery Co., Ltd. is specialist in design, R&D and manufacturing of a wide range of high-tech gear motor and helical gear reducers, worm gear reducers, planetary gear reducers. In recent years, to meet customers' requirements of quality and price, we have been dedicated to constantly upgrade the performance of gear reducer, maximize efficiency, and provide the most comprehensive technical supports. Under the company's policy of [Quality First; Customer Satisfaction and Intelligence; Sincerity; Honesty], we have invited many highly experienced talents.

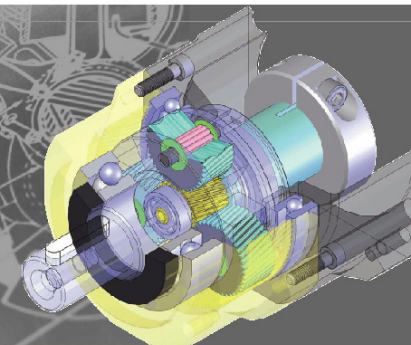
At Li Ming, we have a team with outstanding background in high-tech field. Li Ming's outstanding enterprise culture results from its practicality, constantly learning the advanced management system and a commitment to excellence.

傳動裝置的解決方案 / 減速機的領導品牌

### 品質第一、顧客滿意

利茗機械股份有限公司專業從事高科技的各種減速馬達及螺旋齒輪減速機，蝸桿蝸輪減速機，行星式減速機的設計、研發、生產。近年來肩負著顧客們對產品質量與價格的追求，不斷地在提高減速機的高性能、實現效率的最大化和提供廣泛的技術資源等方面做著不懈的努力。

公司奉行『品質第一、顧客滿意』及『勤、誠、信』的經營理念，不斷吸納專業人才，使得公司始終擁有一批掌握業界高端技術的科技人才。公司以積極務實的作風，借鑒各種先進的管理經驗，不斷實現自我完善，建立起良好企業文化。在減速機家族中，行星減速機以其體積小，承受扭力大，傳動效率高，減速範圍寬，精度高，而被廣泛應用於伺服、步進、直流等傳動系統中。在保證精密傳動的前提下，主要被用來降低轉速，增大扭矩和降低負載電機的轉動慣量比。高扭矩，低背隙及運轉安靜是LIMING減速機三大設計特點。也是LIMING減速機一直成為應用中，位居市場領導地位的原因。



### High Accuracy & Efficiency Profit

Among the wide range of speed reducers, the planetary gear reducer features compact construction, high-torque resistance, high transmission efficiency, wide range of speed reduction and high accuracy.

The planetary gear reducers are widely applied in servo, stepping and DC transmission system. With its outstanding feature of high precision transmission, the planetary gear reducer is excellent for reducing speed, increasing torque and reducing torsional inertia ratio. High torque, low backlash and low noise are three key features of Li Ming's gear reducers, and these are the reasons why Li Ming gear reducers are in the leading position on the market.



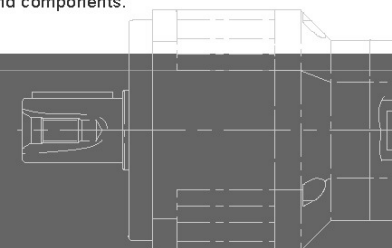


# Integration / Automation Machining Equipment

Based on our acknowledgement of the unique processing characteristics of speed reducers on all parts, we have developed and designed a series of high-efficiency automatic machining equipment, to work with high-performance processing machines. Our well-experienced technicians take good control of precision in our parts, and stringent quality control to ensure the best precision and performance of all parts and components. A series of automatic processing equipment provides the most solid foundation for the consistency of precision in the machining of parts and components.

## 自動化加工設備

秉持對減速機各部份零件的獨特加工特性的認知，我們自行開發設計一系列高效率自動化的加工設備，以配合系列高性能加工機械。  
本公司經驗豐富的技术員，掌握零件加工特性精度控制，嚴格品質管制以確保所有零組件的精度及性能。一系列自動化加工設備為零件加工精度穩定性提供最穩固的基礎。



# Integrated

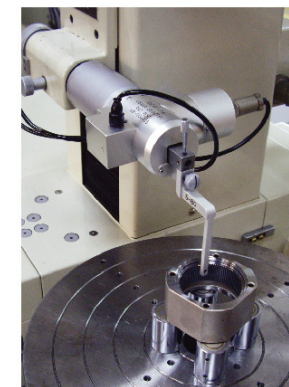
Manufacturing with  
Full Range of  
Automatic Equipment



# Automatic processing equipment

## Automatic Processing Equipment

To enhance technical improvement, Li Ming Machinery Company has placed a huge investment in the purchase of a whole set of the latest generation of Computer Numerically-Controlled (CNC) machines and equipments, in combination with distinguished engineering personnel, to upgrade the precision of parts and ensure stable quality.



### 一貫作業的加工設備

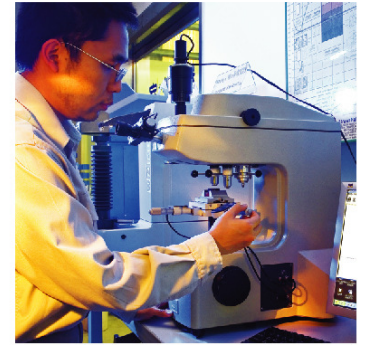
利茗機械公司為增進技術精良，斥資購置整套最新CNC電腦加工機械設備，以精密零件加工，配合優秀工程人員，提升零件精度，確保穩定的品質。



### High Precision Planetary Reducer

# Comprehensive Quality Control is not a Mere Slogan

[Comprehensive Quality Control] is never a mere slogan of Li Ming Company. We adhere to our quality policy. To each quality requirement, we have to set up rigorous quality standards for prompt and accurate quality control every single part is subjected to comprehensive inspection and tests, from initial receipt of material to assembly of finished products and regular operation, to completely satisfy your requirement. Our quality control department has the most advanced inspection equipment conducting precision measurement. A good tool is the master of all good works, our precision inspection equipments are the best assurance of our reliable quality.

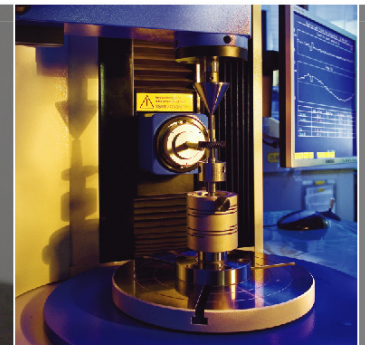
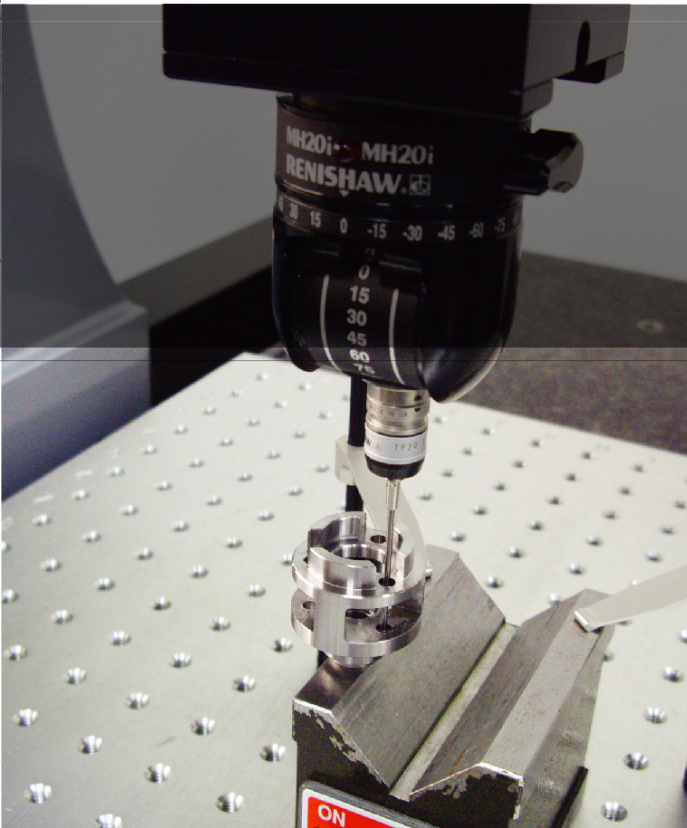


# Comprehensive Quality Control System



## 「全面品管」不只是口號

「全面品管」在利茗公司絕不是一句口號。我們對品質政策的執著，對每一個品質要求都訂有嚴格的品質標準書，迅速而確實的品質管制。每一個零件從最初的進料製程，裝配完成品的運轉等檢驗測試，鉅細靡遺，以完全符合您的要求及利茗的品質標準。品管部門有先進的檢驗設備，作精密的量測。「工欲善其事，必先利其器」，我們精密的檢驗儀器，是品質信賴的保證。



# SERVOBOX Planetary Reducers

利明牌精密行星減速機SERVOBOX系列，以螺旋齒輪設計，採用精密CNC滾齒機加工，咬合精準、運轉順暢，低噪音。一體式的齒輪箱本體，與同規格型減速機相比，體積小(省1/4以上體積與重量)輸出扭力大、傳動效率高。

SERVOBOX series high precision planetary gear reducer employs helical gears. All gears are high precision machined by CNC gear hobbing machine, providing high accuracy gear engagement, smooth running and minimum noise.

One-piece fabricated gear box. When comparing with the competitive gear reducer, LI MING gear reducer features smaller construction (saves over 1/4 of size and weight), higher torque output and higher transmission efficiency.

## Features of SERVOBOX Series

### SERVOBOX系列產品特性

#### 低 噪 音

低於 65db。

#### 低 背 隙

單段低於7弧分(arcmin)，可選擇1弧分規格。雙段減速在9弧分以內。

#### 高 效 率

單段式在97%以上，雙段式在94%以上。

#### 高輸入轉速

可達 5,000 RPM。

#### 高 扭 矩

比一般標準行星減速機扭矩高。

#### 高穩定性

採用高強度合金鋼材，整顆齒輪經硬化處理，非只有表面硬化，確保使用壽命及長期使用仍保持最初的精密度。

#### 高減速比

採模組化設計，行星齒箱可相互連結，速比可達1/10000以上。

#### Low Noise

Under 65dB

#### Low Backlash

Backlash is under 7 arcmin. Available to select specification with 1 arcmin of backlash. Backlash for 2-stage speed reduction is within 9 arcmin.

#### High Efficiency

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

#### High Input Speed

Input speed allows for up to 5000 RPM.

#### High Torque

Higher torque output than that of conventional planetary gear reducers.

#### High Stability

Employs high tensile strength alloy steel. Gear hardening is made for the entire gear instead of only surface hardening, which extends gear service life and maintain high accuracy as new after a long period of operation.

#### High Speed Reduction Ratio

The gear reducer is a modular design. The planetary gear box can be connected. Speed reduction ratio is over 1/10000.

## Indication of Model Numbers

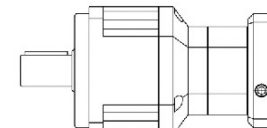
### 機種型號表示

SE	90	10		P0	MOTOR
減速機型 Type	型號 Model	速比 Ratio 單段 1-Stage 3.4.5.6.7.8.9.10 雙段 2-Stage 15~100 三段 3-Stage 125~1000	出力軸鍵槽 Output Shaft Keyway <input type="checkbox"/> 標準品，有鍵槽 Standard (Keyway) <input checked="" type="checkbox"/> N:實心軸，無鍵槽 Solid Output Shaft (No Keyway)	背隙等級 Backlash Class 單段 1-Stage Ps ≤ 1弧分(arcmin) P0 ≤ 3弧分(arcmin) P1 ≤ 5弧分(arcmin) P2 ≤ 7弧分(arcmin) 雙段 2-Stage Ps ≤ 3弧分(arcmin) P0 ≤ 5弧分(arcmin) P1 ≤ 7弧分(arcmin) P2 ≤ 9弧分(arcmin)	馬達型號 Motor Type 馬達製造商及型號 Motor Brand & Model No.
SB	44				
SE	62				
SB-A	90				
SE-A	120				
SBL	142				
SEL	180				
	220				

### 標準型及A-Type說明

在2段或3段減速時，減速比高，輸出扭矩大，標準型的2段或3段齒箱為大齒箱接小齒箱，可限制入力馬力，以符合額定輸出扭矩。

A-Type為二個相同框號齒箱的連結。



Standard

例如：使用伺服馬達，功率0.5kw，額定輸出扭矩2.39Nm，馬達軸心為Ø24mm

1. 假設減速比為1/50時:

輸出扭矩為2.39Nm x 50 x 94%(效率) = 112Nm

可選擇SB-120-50

額定輸出扭矩294Nm S.F.=2.6(安全係數)

亦可選擇SB-90A-50

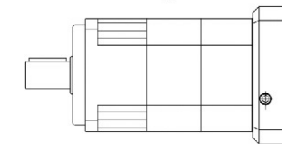
額定輸出扭矩141Nm S.F.=1.25(降框號使用)

2. 假設減速比為1/100時

輸出扭矩為2.39 x 100 x 94%(效率) = 224Nm

可選用SB-120-100 S.F.=1.3

選用SB-90A-100時 S.F.=0.62 安全係數不足，不建議使用



A-Type

#### Example:

Servo motor 0.5 kw, rated output torque 2.39 Nm, motor shaft Ø24 mm.

1. Suppose the speed reduction ratio is 1/50:

Output torque is 2.39 Nm x 50 x 94% (efficiency) = 112 Nm.

● You can select SB-120-50 with rated output torque of 294 Nm and S.F. = 2.6

● You can select SB-90A-50 with rated output torque of 141 Nm and S.F. = 1.25

2. Suppose the speed reduction ratio is 1/100:

Output torque is 2.39 x 100 x 94% (efficiency) = 224 Nm.

You can select SB-120-100 and S.F. = 1.3. You are not suggested to choose SB-90A-100 because of low S.F. = 0.62.

## Concept of Planetary Reducer

### 行星減速機概念

衡量行星減速機性能的幾個關鍵技術參數是：減速比，平均壽命，額定輸出扭矩，回程間隙，滿載效率，噪音，軸向/徑向受力和工作溫度。

Some critical technical parameters are normally applied for evaluating the performance of a planetary gear reducer are speed reduction ratio, average service life, rated output torque, backlash, full load efficiency, noise, axial and radial loading capacity and working temperature.

- 減速比：輸出轉速與輸入轉速的比值。

GEAR RATIO : A ratio of output speed to input speed.

- 平均壽命：指減速機在額定負載下，額定轉速時的工作時間。連續運轉使用時降低使用壽命1/2。

AVERAGE SERVICE LIFE : Under the rated loading condition, the continuous working time for a gear reducer running at the rated input speed. It will reduce 1/2 service life for continue running.

- 滿載效率：指在最大負載情況下，減速機的傳輸效率。它是衡量減速機的一關鍵指標，滿載效率高的減速機發熱少，整體性能好。

FULL LOAD EFFICIENCY : The transmission efficiency of a gear reducer under the maximum loading condition. It is an important evaluation factor for a gear reducer.

- 噪音：此數值是在輸入轉速為3000轉/分鐘時，不帶負載，距離減速機一米距離時測量的。

NOISE: The noise is measured under the conditions of input speed 3000 RPM, no-load and one meter distance from the gear reducer.



- 工作溫度：是指減速機在連續工作和周期工作狀態下，所能允許的溫度。

目前，SERVOBOX系列的減速機能在-25~+90度環境下工作。

WORKING TEMPERATURE: The allowable temperature for a gear reducer under the conditions of continuous and frequer can work at -25 ~ +90 degree working environment.

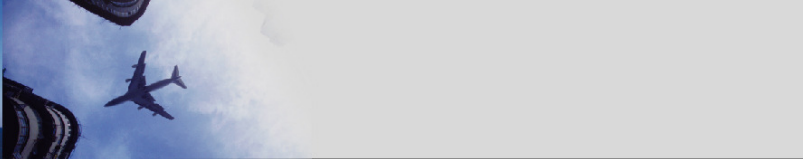
- 容許徑向力：當輸出轉速為100RPM，徑向作用力在出力軸1/2處時所容許之最大力，轉速增加時遞減。

PERMITTED RADIAL FORCE: The maximum allowed force in the 1/2 output shaft under the condition of 100 RPM output speed. This value is decreasing when speed increases.

- 容許軸向力：當輸出轉速為100RPM時，最大容許之軸向作用力。

PERMITTED AXIAL FORCE: The maximum allowed axial force under the condition of 100 RPM output speed.



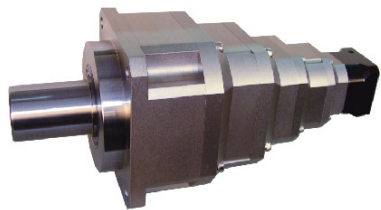


# Concept of Planetary Reducer

## 行星減速機概念

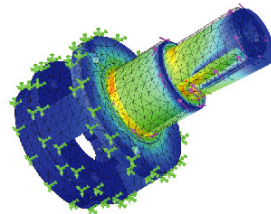
●段數(級數)：太陽輪及其周圍的行星輪構成獨立的減速輪系，如減速機內只此一個輪系，我們稱為“一段(級)”。為得到較大減速比，需多段(級)傳動，LIMING公司標準品減速機分為1段式及2段式，減速比從3到100。透過模組化的組裝，可結合成多段，減速比可達100~100000以上。

STAGE : The sun gear and planetary gear forms an independent speed reduction gear train. If there is only one gear train in the gear reducer, it is defined as one stage transmission. In order to achieve higher speed reduction ratio, multiple stages transmission is required. Li Ming's standard gear reducers are classified into one stage and two-stage transmission. Speed reduction ratio range is from 3 to 100. The modular construction combined with multiple stages transmission allow speed reduction ratio from 100 to over 100,000.

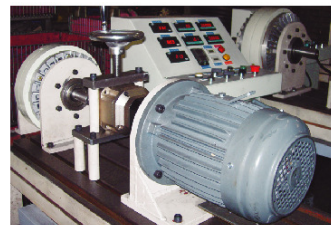


●額定輸出扭矩：指在額定負載下長期工作時允許輸出扭矩。最大輸出扭矩是該值的3倍。

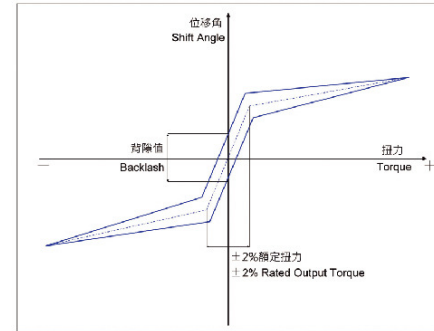
RATED OUTPUT TORQUE : Under the rated loading and long time running conditions, the allowable output torque for a gear reducer. The maximum output is the triple of this value.



CAE分析



扭力負載測試 Loading Test



●回程間隙(背隙)：將輸入端固定，輸出端順時針和逆時針方向旋轉，輸出端產生額定扭矩的±2%扭矩時，減速機輸出端有一個微小的角位移，此角位移即為回程間隙。單位是“弧分”(即1度的1/60)。

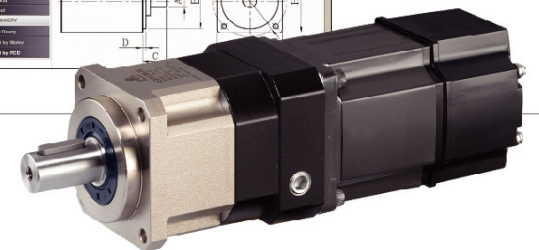
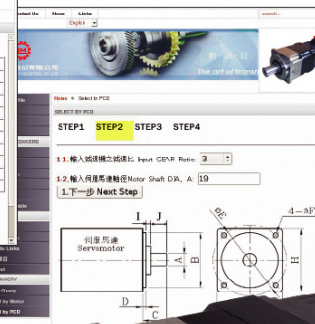
BACKLASH : When the input end is fixed, the output end runs clockwise and counterclockwise to create a ± 2% of the rated torque at the output end. This will result in a slight angular displacement at the output end, which is called as backlash. Unit in arcmin. ie., one sixtieth of a degree.

●連接版設計，適合各種廠牌伺服馬達及其它馬達安裝，安裝最容易。本型錄只列出一般尺寸，需要其它尺寸時，請上本公司網站查詢。

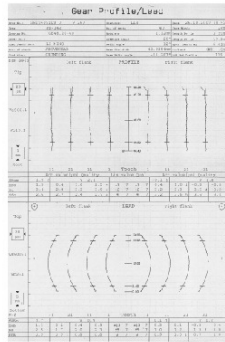
Design of connecting plate is suitable for various servo motors or others, and also easy for installation. General dimension is shown on the catalogue. Please find other dimensions from our website

<http://servobox.li-ming.com>

參數名稱	數值 Value	單位 Unit
輸出功率 Output Power	1.5	kw
額定力矩 Rated Torque	1.50	NM
最大力矩 Max. Torque	4.77	NM
額定轉速 Rated Speed	3000	rpm
最大轉速 Max. Speed	3000	rpm
傳動直徑 Pitch dia	5.0	mm/cm <sup>2</sup>
軸徑 Shaft Dia	24	mm
外殼直徑 Case Dia	130	mm
凸緣 Flange	110	mm
接合口 PCD	145	mm



## High Precision Gear Machining 高精度齒輪加工



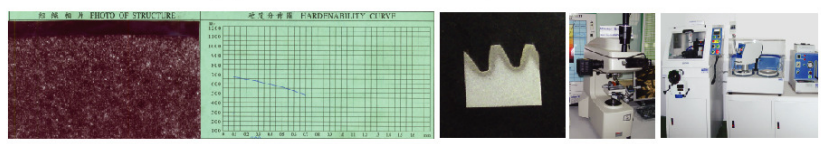
●行星齒輪及太陽齒齒輪材料採用高級之鎳鉻鉬合金鋼(SNCM220)，切削加工後，經滲碳熱處理至硬度57~60HRC，再進行齒面研磨，確保齒輪精度在DIN6級以內，比只有表面的氮化處理，獲得最佳的耐磨耗和耐衝擊韌性，壽命更長。

The planetary gear and sun gear are manufactured from high quality Ni-Cr-Mo alloy steel (SNCM220), precision machined and carburized to hardness 57-60 HRC. Precision teeth grinding assures gear accuracy reaches DIN6 class. It provides better wear resistance, impact resistance and longer service life than gears with only surface nitrided.

Gear Profile/Lead 齒形及導程

## Heat Treatment 熱處理

●金相組織相片 Metallograph ● 硬度分布圖 Hardenability curve



●獨特真空滲碳齒輪兼具表面硬度與內部韌性，不但耐磨耗，且能在承受重載的情況下，保持高嚙合精度。  
Unique vacuum carburization treatment has the features of high surface hardness and interior toughness. It is hard-wearing and hard-tearing. It will keep good engagement under heavy loading.

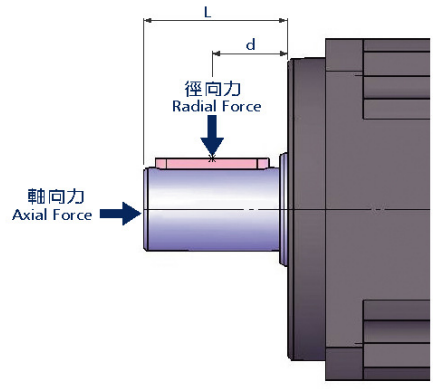
## Lubrication 潤滑方式



●金屬工業研究發展中心 IP65測試報告  
IP65 Test Report by Metal Industries & Development centre.

- 潤滑方式：行星減速機在整個使用期間無需更換潤滑油。密封式全油封設計，確保潤滑油不洩漏(IP65)。
- LUBRICATION : It's no essential to replace lubricant during the service life of our planetary gear reducer.

## Permitted Radial Force on Output Shaft of the Gearbox 減速機出力軸容許徑向力



從減速機出力軸連接鏈條齒輪等傳動機構時，會承受徑向力，徑向力OHL的計算公式如下：

$$OHL = (T \times s \times f \times p) / R$$

T=機構端扭力  
s=負荷系數  
f=驅動方式的載重系數  
p=位置系數：負載點小於等於d時,p=1  
負載點大於d時,p=1.5  
R=皮帶輪或鏈輪半徑

The gearbox will bear radial force while its output shaft connected with transmission machinery, such as chain wheel. The O.H.L. formula of radial force is as below:

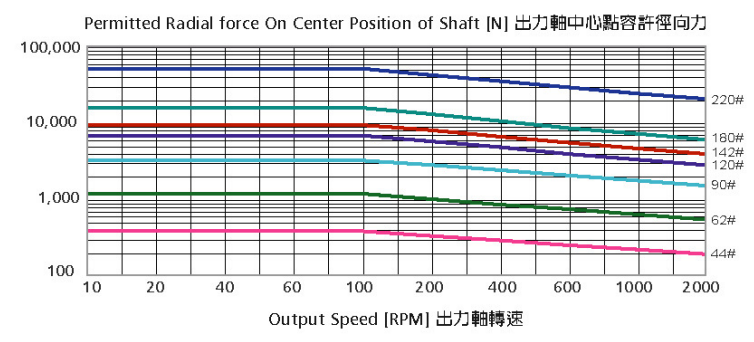
- OHL = (T x s x f x p) / R
- T = Torque of transmission machinery
- s = Service factor
- f = Driven Coefficient
- p = Position position less than d, p=1  
position larger than d, p=1.5
- R = Radius of pulley or chain wheel

負荷系數表 (s) Service factor table				
傳動機負荷等級 Loading classification	每日使用時間 Running per Day			
	0.50 hr	2 hr	8~10 hr	10~24hr
均勻負荷 Uniform	0.80	0.90	1.00	1.25
中等衝擊 Medium shock	0.90	1.00	1.25	1.50
嚴重衝擊 Heavy shock	1.00	1.25	1.50	1.75

驅動方式載重系數 Driven Coefficient (f)	
驅動方式 Driving mode	(f)
鏈條, 齒型皮帶 Chain pulley	1.00
齒輪 Gear	1.25
V型皮帶 V-belt	1.50
平皮帶 Flat-belt	2.50

●正轉、逆轉或起動、停止，1小時內達10次以上者，請將右表的值乘以1.2。  
CW/CCW operation or start-up/stop reaches 10 times or more within 1 hour, please multiply by 1.2.

●出力軸轉速愈快時，其容許徑向力之值下降  
The permitted radial force is reduced when output RPM increased.





## SERVOBOX系列產品特點



### 螺旋齒輪設計

減速機構採用螺旋齒輪設計，齒形適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。

### Helical Gear Design

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 features extremely smooth running, low noise, high torque output and low backlash.



### 全合成潤滑油

使用全合成潤滑油，比潤滑脂提供更好的潤滑效果，並採IP65防護等級的密封設計，潤滑油不洩漏免保養。

### Synthetic Lubrication Oil

Employs synthetic oil, the lubrication effect is better than grease. The class IP65 protective sealing design fully avoids leaking problem without maintenance.

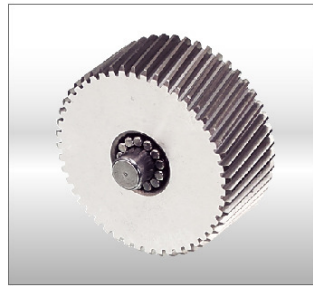


### 筒夾式連結機構

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 Chuck Locking Mechanism

The input-end and the motor are coupled through a collet chuck locking mechanism. It is dynamically balanced to assure concentricity and balance on the connection when running at high speed. No backlash for power transmission.



### 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輸出扭矩。

### 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 output torque.



### 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，以確保高扭轉剛性及精確度。並使用一次加工完成，控制精度在公差之內。

### Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy. The entire structure is one-time machined for controlling accuracy in the specified tolerance.

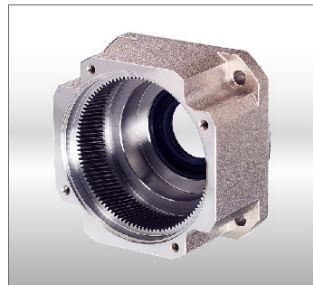


### 高精度齒輪加工

行星齒輪及太陽齒輪材料採用高級之鏤銼合金鋼(SNCM220)，切削加工後，經參碳熱處理至硬度57~60HRC，再進行齒面研磨，確保齒輪精度在DIN6級以內，比只有表面的氮化處理，獲得最佳的耐磨耗和耐衝擊韌性，壽命更長。

### High Precision Gear Machining

The planetary gear and sun gear are manufactured from high quality Ni-Cr-Mo alloy steel (SNCM220), precision machined and carburized to hardness 57-60 HRC. Precision teeth grinding assures gear accuracy reaches DIN6 class. It provides better wear resistance, impact resistance and longer service life than gears with only surface nitrided.

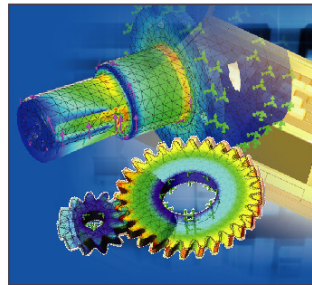


### 一體式齒輪箱本體

齒輪箱和內環齒輪採一體式的設計，材質為鉻鉬合金鋼SCM435，經調質後加工，輸出扭矩大，齒輪精度達DIN6級，精密度高，表面防銹處理，提高環境的耐受性和抗腐蝕能力。

### One-piece Gear Box & Advanced Surface Treatment

The gear box and internal gear ring are one-piece constructed, which is manufactured from Cr-Mo alloy steel (SCM435), and tempered for high torque output. High gear accuracy meets DIN6 class standard. Gearbox surface is anti-corrosive treated for upgrading environmental-resistant and corrosion-resistant capability.

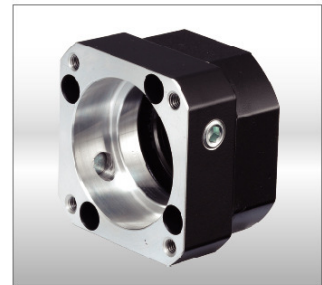


### CAE設計分析技術

利用3D-CAE軟體的設計分析技術，對減速機整體強度進行分析及螺旋齒面作齒形及導程修整，以降低齒輪對嚙入及嚙出的衝擊和噪音，增加齒輪系及減速機的使用壽命。

### CAE Design and Analysis

Employs 3D-CAE software for analysis and design, the software allows for analyzing the strength of the entire gear reducer and modifying the helical teeth profile and lead. This reduces the impact and noise during teeth engage and disengage, while increasing the service life of gears and the gear reducer.



### 模組化馬達連接板設計

獨特的馬達連接板模組化設計，適用於任何廠牌和型式的伺服馬達，材質採用鋁合金，表面經防氧化處理，提高環境的耐受性和抗腐蝕能力。

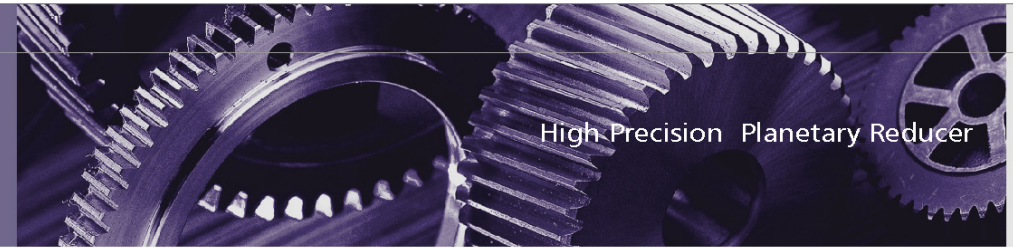
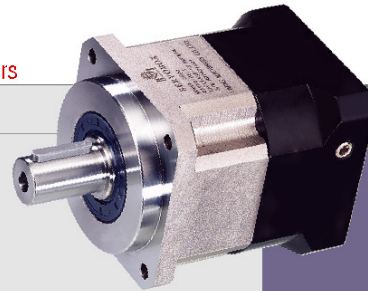
### Modular Design of Motor Connection Plate

The special modular design of motor connection plate is suitable for any brand and any type of servomotor. Manufactured from aluminum alloy, its surface is anti-oxidant treated for upgrading environmental-resistant and corrosion-resistant capability.

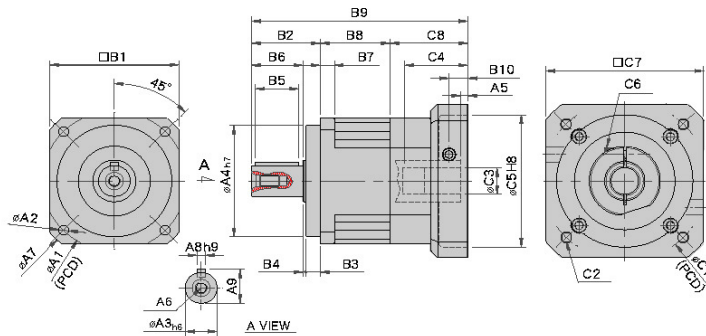
## MODEL : SB

單段 1- Stage

RATIO : 3.4.5.6.7.8.9.10



High Precision Planetary Reducer



unit:mm

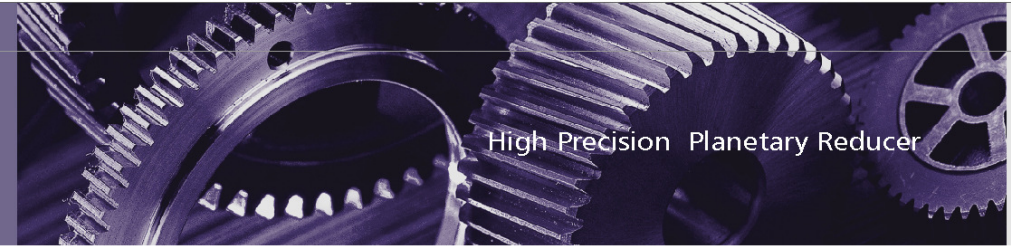
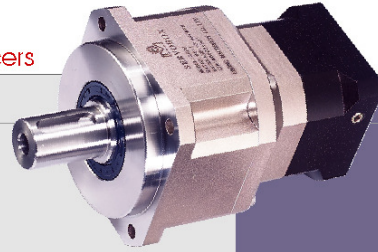
Model Code	unit:mm						
	44	62	90	120	142	180	220
<b>A</b>							
A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	13	16	22	32	40	55	75
A4	35	50	80	110	130	160	180
A5	5	6	9	10	10	11.5	12.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
<b>B</b>							
B1	44	62	90	120	142	180	220
B2	26	36	48	65	92	106	139
B3	5	7	10	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
B8	31.5	38	49	61	70	85	93
B9	95	115	164.5	205	260.5	323.5	367.5
B10	9	11.5	16	19.5	20	23.5	23.5
<b>C</b>							
C1	46,63,60,90	70,75,90	90,100,115 145,165	145	145,200,215	200,215,235 265,300	235,265,300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0	M12 x P1.75 M16 x P2.0
C3	5.65, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28 32, 35, 38	38, 42, 48, 55	42, 48, 55
C4	26	33.5	59	67	84.5	114.5	117.5
C5	30,40,50,70	50,60,70	70,80,95,110,130	110,130	110,114,3,180	114,3,180,200 230,250	200,230,250
C6	M3 x P0.5	M4 x P0.7 M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46,55,60,76	64,70,80	92,110,130,142	130,150	146,180,190	182,200,220 250,265	220,250,265
C8	37.5	41	67.5	79	98.5	132.5	135.5

規格 Model No.	單位 Unit	速比 Ratio	#44	#62	#90	#120	#142	#180	#220		
額定輸出扭矩 Rated Output Torque	Nm	3	19	59	165	335	625	1206	2030		
		4	16	51	146	300	555	1069	1804		
		5	16	48	160	333	618	1189	2010		
		6	15	45	151	311	583	1118	1911		
		7	15	45	149	309	573	1108	1870		
		8	14	43	143	298	553	1070	1824		
		9	13	44	145	278	516	993	1694		
		10	14	43	141	294	549	1059	1779		
		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	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	3~10	10,000	10,000	8,000	8,000	6,000	6,000	4,000		
背隙 Backlash P <sub>s</sub>	arcmin	3~10	-	-	≤1	≤1	≤1	≤1	≤1		
背隙 Backlash P <sub>0</sub>	arcmin	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3		
背隙 Backlash P <sub>1</sub>	arcmin	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5		
背隙 Backlash P <sub>2</sub>	arcmin	3~10	≤7	≤7	≤7	≤7	≤7	≤7	≤7		
扭轉剛性 Torsional Rigidity	Nm/arcmin	3~10	3	6	14	27	60	140	240		
容許徑向力 Max. Radial Force	N	3~10	380	1,180	3,200	6,800	9,300	15,600	51,000		
容許軸向力 Max. Axial Force	N	3~10	190	590	1,600	3,400	4,650	7,800	25,500		
使用壽命 Service Life	hr	3~10	30,000								
效率 η 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 Synthetic oil								
防護等級 Degree of Gearbox Protection		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	≤67	≤70		
重量 Weight ±3%	Kg	3~10	0.6	1.28	3.6	8	15.5	29.3	39.2		

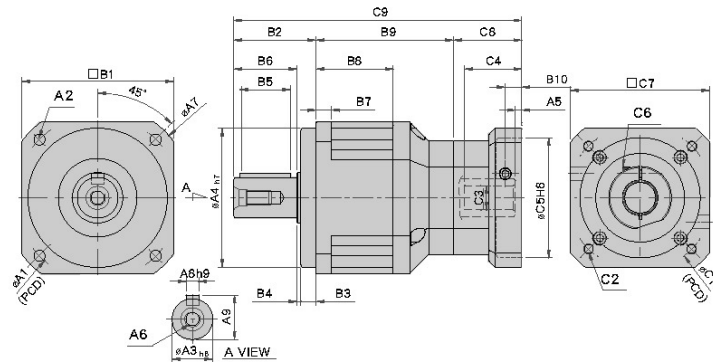
## MODEL : SB

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



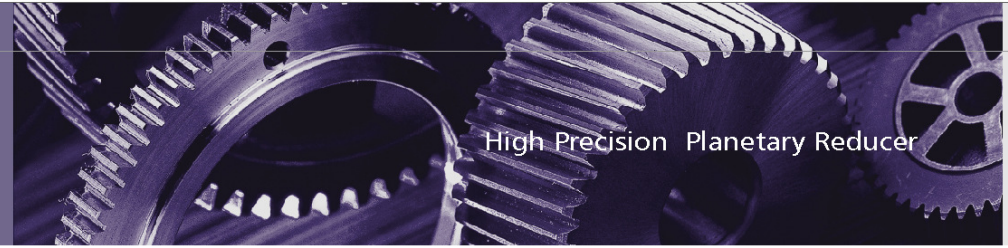
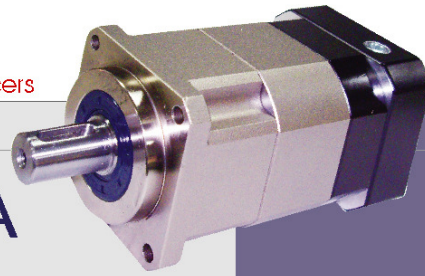
High Precision Planetary Reducer



unit:mm

Model Code	unit:mm					
	62	90	120	142	180	220
A1	70	100	130	165	215	250
A2	5.5	6.8	9	11	13	17
A3	16	22	32	40	55	75
A4	50	80	110	130	160	180
A5	5	6	9	10	10	11.5
A6	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	80	116	148	186	238	288
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B1	62	90	120	142	180	220
B2	36	48	65	92	106	139
B3	7	10	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	8	10	12	15	16	20
B8	38	49	61	70	85	93
B9	66	83.5	108.5	127.5	154	175
B10	9	11.5	16	19.5	20	23.5
C1	46,63,60,90	70,75,90	90,100,115,145,165	145,165	145,200,215	200,215,235,265,300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P1.5
C3	5.65,6,8,11	6.35,8,10,11 12,14,16,19 33.5	14,16,19,22,24	19,22,24,28,32	22,24,28,32 35,38	38,42,48,55
C4	26	33.5	59	67	84.5	114.5
C5	30,40,50,70	50,60,70	70,80,95,110,130	110,130	110,114.3,180	114.3,180,200,230,250
C6	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46,55,60	64,70,80	92,110,130,142	130,150	146,180,190	182,200,220,250,265
C8	37.5	41,49	67.5	79	98.5	132.5
C9	139.5	172.5	241	298.5	358.5	446.5

規格 Model No.	單位 Unit	速比 Ratio	#62	#90	#120	#142	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	15	59	165	335	625	1206	2030
		20	51	146	300	555	1069	1804
		25	48	160	333	618	1189	2010
		30	45	151	311	583	1118	1911
		35	45	149	309	573	1108	1870
		40	43	143	298	553	1070	1824
		50	48	160	333	618	1189	2010
		60	45	151	311	583	1118	1911
		70	45	149	309	573	1108	1870
		80	43	143	298	553	1070	1824
		90	44	145	278	516	993	1694
100	43	141	294	549	1059	1779		
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	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	15~100	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash Ps	arcmin	15~100	-	-	≤3	≤3	≤3	≤3
背隙 Backlash P0	arcmin	15~100	≤5	≤5	≤5	≤5	≤5	≤5
背隙 Backlash P1	arcmin	15~100	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P2	arcmin	15~100	≤9	≤9	≤9	≤9	≤9	≤9
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~100	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	15~100	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	15~100	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	15~100	30,000					
效率 η 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 Synthetic oil					
防護等級 Degree of Gearbox Protection		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	≤67	≤70
重量 Weight ±3%	Kg	15~100	1.73	4.6	9.42	20.5	39.14	54.2

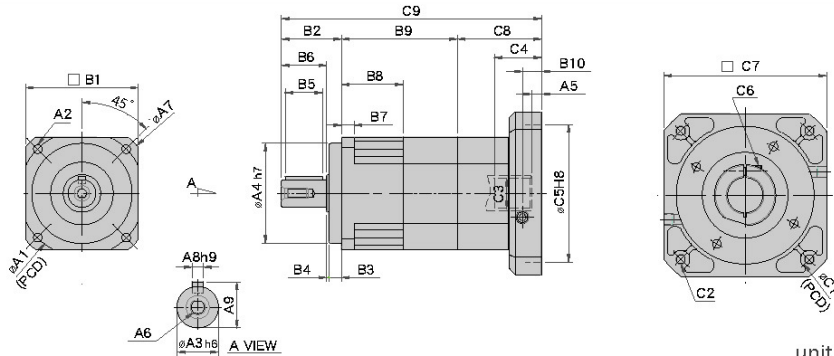


High Precision Planetary Reducer

# MODEL : SB-A

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit:mm

Model Code	44A	62A	90A	120A	142A	180A	220A
	A1	50	70	100	130	165	215
A2	4.5	5.5	6.8	9	11	13	17
A3	13	16	22	32	40	55	75
A4	35	50	80	110	130	160	180
A5	5	6	9	10	10	11.5	12.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
A10	44	62	90	120	142	180	220
B1	44	62	90	120	142	180	220
B2	26	36	48	65	92	106	139
B3	5	7	10	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
B8	31.5	38	49	61	70	85	93
B9	57.5	71.8	92.5	117	136.5	166	186
B10	9	11.5	16	19.5	20	23.5	23.5
C1	46,63,60,90	70,75,90	90,100,115,145,165	145,165	145,200,215	200,215,235,265,300	235,265,300
C2	M4 x P0.7 M5 x P0.8	M4 x P1.0 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0	M12 x P1.75 M16 x P2.0
C3	5.65, 6.8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28 32, 35, 38	38, 42, 48, 55	42, 48, 55
C4	26	33.5, 41.5	59	67	84.5	114.5	117.5
C5	30,40,50,70	50,60,70	70,80,95,110,130	110,130	110,114,3,180	114,3,180,200,230,250	200,230,250
C6	M3 x P0.5	M4 x P0.7	M4 x P1.0	M8 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46,55,60,76	64,70,80	92,110,130,142	130,150	146,180,190	182,200,220,250,265	220,250,265
C8	37.5	41,49	67.5	79	98.5	132.5	135.5
C9	121	156.8	208	261	327	404.5	460.5

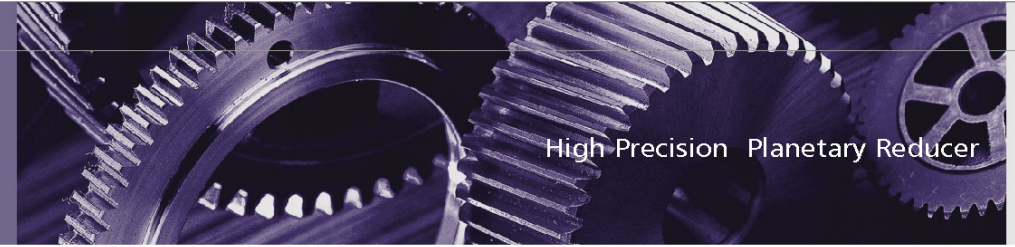
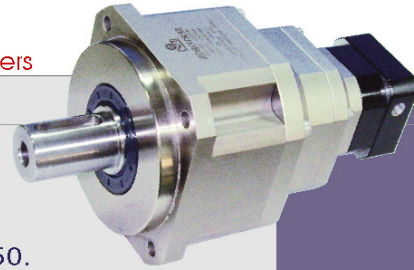
規格 Model No.	單位 Unit	速比 Ratio	#44A	#62A	#90A	#120A	#142A	#180A	#220A
額定輸出扭矩 Rated Output Torque	Nm	15	19	59	165	335	625	1206	2030
		20	16	51	146	300	555	1069	1804
		25	16	48	160	333	618	1189	2010
		30	15	45	151	311	583	1118	1911
		35	15	45	149	309	573	1108	1870
		40	14	43	143	298	553	1070	1824
		50	16	48	160	333	618	1189	2010
		60	15	45	151	311	583	1118	1911
		70	15	45	149	309	573	1108	1870
		80	14	43	143	298	553	1070	1824
		90	13	44	145	278	516	993	1694
100	14	43	141	294	549	1059	1779		
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	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	15~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash Ps	arcmin	15~100	-	-	-	≤3	≤3	≤3	≤3
背隙 Backlash P0	arcmin	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
背隙 Backlash P1	arcmin	15~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P2	arcmin	15~100	≤9	≤9	≤9	≤9	≤9	≤9	≤9
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~100	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	15~100	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	15~100	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	15~100	30,000						
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 Synthetic oil						
防護等級 Degree of Gearbox Protection		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	≤67	≤70
重量 Weight ±3%	Kg	15~100							

# MODEL : SB

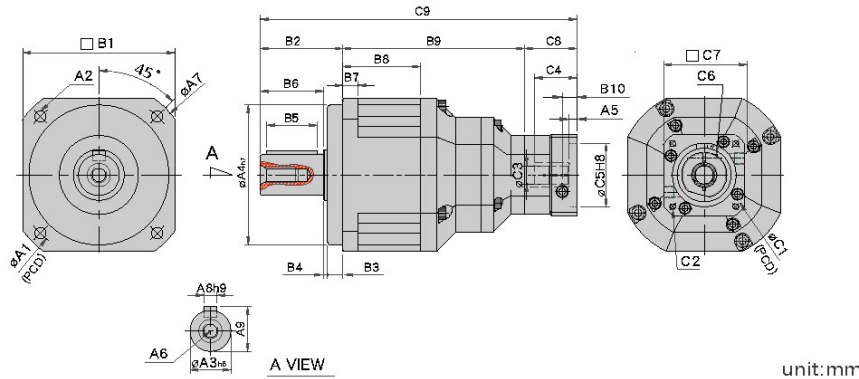
三段 3-Stage

RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



High-Precision Planetary Reducer



unit:mm

Model Code	unit:mm				
	90	120	142	180	220
<b>A</b>					
A1	100	130	165	215	250
A2	6.8	9	11	13	17
A3	22	32	40	55	75
A4	80	110	130	160	180
A5	5	6	9	10	10
A6	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	116	148	186	238	288
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
<b>B</b>					
B1	90	120	142	180	220
B2	48	65	92	106	139
B3	10	12	15	20	30
B4	2	3	3	4	5
B5	30	40	65	70	90
B6	36	50	74	82	104
B7	10	12	15	16	20
B8	49	61	70	85	93
B9	111.5	143	175	211.5	244
B10	9	11.5	16	19.5	20
<b>C</b>					
C1	46,63,60,90	70,75,90	90,100,115,145,165	145,165	145,200,215
C2	M4 x P0.7	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25	M8 x P1.25 M12 x P1.75
C3	5.65, 6, 8, 11	6.35,8,10,11,12,14,16,19	14,16,19,22,24	19,22,24,28,32	22,24,28,32,35,38
C4	26	33.5	59	67	84.5
C5	30,40,50,70	50,60,70	70,80,95,110,130	110,130	110,114.3,180
C6	M4 x P0.7	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5
C7	46,55,60,76	64,70,80	92,110,130,142	130,150	146,180,190
C8	37.5	41.49	67.5	79	98.5
C9	197	249	334.5	396.5	481.5

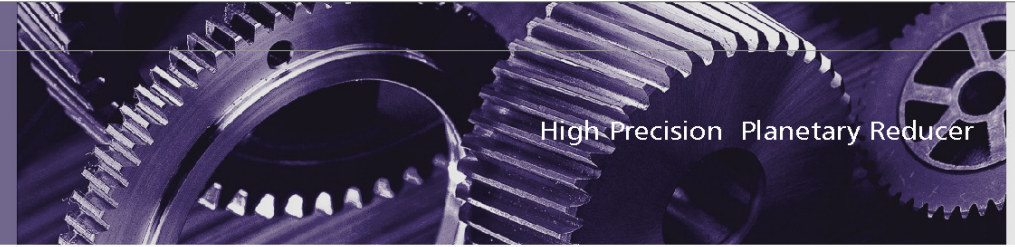
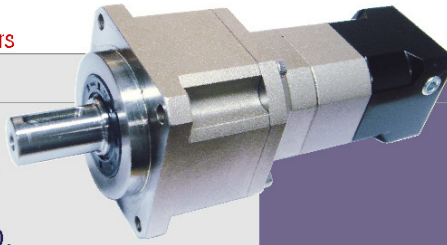
規格 Model No.	單位 Unit	速比 Ratio	#44	#62	#90	#120	#142	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	125	16	48	160	333	618	1189	2010
		150	19	59	165	335	625	1206	2030
		175	15	45	149	309	573	1108	1870
		200	16	51	146	300	555	1069	1804
		250	16	48	160	333	618	1189	2010
		300	15	45	151	311	583	1118	1911
		350	15	45	149	309	573	1108	1870
		400	14	43	143	298	553	1070	1824
		450	13	44	145	278	516	993	1694
		500	16	48	160	333	618	1189	2010
		600	15	45	151	311	583	1118	1911
		700	15	45	149	309	573	1108	1870
		800	14	43	143	298	553	1070	1824
900	13	44	145	278	516	993	1694		
1000	14	43	141	294	549	1059	1779		
最大輸出力矩 Max. Output Torque	Nm	125~1000	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	125~1000	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	125~1000	10,000	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash Ps	arcmin	125~1000	-	-	-	≤5	≤5	≤5	≤5
背隙 Backlash P0	arcmin	125~1000	≤7	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P1	arcmin	125~1000	≤9	≤9	≤9	≤9	≤9	≤9	≤9
背隙 Backlash P2	arcmin	125~1000	≤11	≤11	≤11	≤11	≤11	≤11	≤11
扭轉剛性 Torsional Rigidity	Nm/arcmin	125~1000	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	125~1000	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	125~1000	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	125~1000	30,000						
效率 η Efficiency	%	125~1000	≥90%						
使用溫度 Operating Temperature	°C	125~1000	-25°C ~ +90°C						
潤滑 Lubrication		125~1000	全合成潤滑油 Synthetic oil						
防護等級 Degree of Gearbox Protection		125~1000	IP65						
安裝方向 Mounting Position		125~1000	任意方向 Any						
噪音值 Noise Level	dB	125~1000	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 Weight ±3%	Kg	125~1000							

# MODEL : SB-A

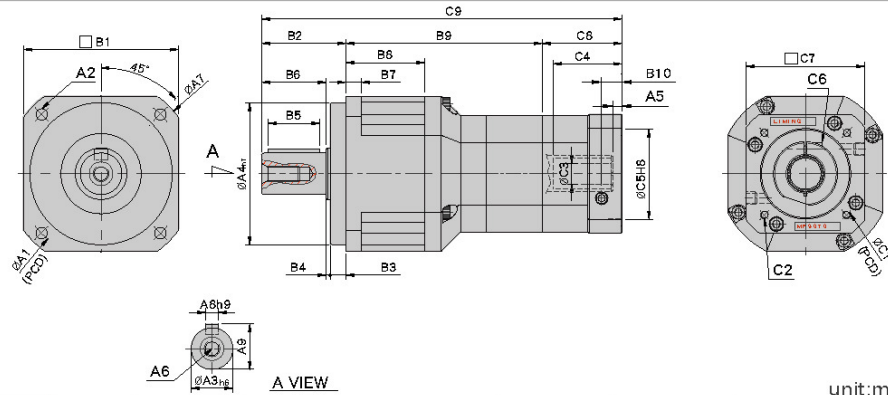
三段 3-Stage

RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



High Precision Planetary Reducer



unit:mm

Model Code	unit:mm						
	62A	90A	120A	142A	180A	220A	
<b>A</b>	A1	70	100	130	165	215	250
	A2	5.5	6.8	9	11	13	17
	A3	16	22	32	40	55	75
	A4	50	80	110	130	160	180
	A5	5	6	9	10	10	11.5
	A6	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
	A7	80	116	148	186	238	288
	A8	5	6	10	12	16	20
	A9	18	24.5	35	43	59	79.5
<b>B</b>	B1	62	90	120	142	180	220
	B2	36	48	65	92	106	139
	B3	7	10	12	15	20	30
	B4	1	2	3	3	4	5
	B5	20	30	40	65	70	90
	B6	28	36	50	74	82	104
	B7	8	10	12	15	16	20
	B8	38	49	61	70	85	93
	B9	92	117.5	152	183.5	220.5	256
	B10	9	11.5	16	19.5	20	23.5
<b>C</b>	C1	46, 63, 60, 90	70, 75, 90	90, 100, 115, 145, 165	145	145, 200, 215	200, 215, 235, 265, 300
	C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0
	C3	5.65, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35, 38	38, 42, 48, 55
	C4	26	33.5	59	67	84.5	114.5
	C5	30, 40, 50, 70	50, 60, 70	70, 80, 95, 110, 130	110, 130	110, 114.3, 180	114.3, 180, 200, 230, 250
	C6	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190	182, 200, 220, 250, 265
	C8	37.5	41	67.5	79	98.5	132.5
	C9	165.5	206.3	284.5	354.5	425	527.5

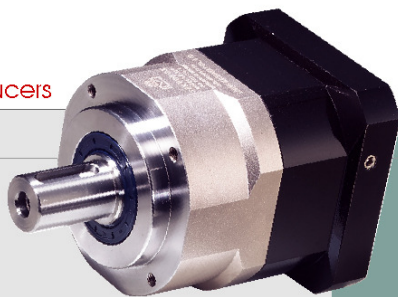
規格 Model No.	單位 Unit	速比 Ratio	#44A	#62A	#90A	#120A	#142A	#180A	#220A
額定輸出扭矩 Rated Output Torque	Nm	125	16	48	160	333	618	1189	2010
		150	19	59	165	335	625	1206	2030
		175	15	45	149	309	573	1108	1870
		200	16	51	146	300	555	1069	1804
		250	16	48	160	333	618	1189	2010
		300	15	45	151	311	583	1118	1911
		350	15	45	149	309	573	1108	1870
		400	14	43	143	298	553	1070	1824
		450	13	44	145	278	516	993	1694
		500	16	48	160	333	618	1189	2010
		600	15	45	151	311	583	1118	1911
		700	15	45	149	309	573	1108	1870
		800	14	43	143	298	553	1070	1824
900	13	44	145	278	516	993	1694		
1000	14	43	141	294	549	1059	1779		
最大輸出力矩 Max. Output Torque	Nm	125~1000	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	125~1000	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	125~1000	10,000	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash Ps	arcmin	125~1000	-	-	-	≤5	≤5	≤5	≤5
背隙 Backlash P0	arcmin	125~1000	≤7	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P1	arcmin	125~1000	≤9	≤9	≤9	≤9	≤9	≤9	≤9
背隙 Backlash P2	arcmin	125~1000	≤11	≤11	≤11	≤11	≤11	≤11	≤11
扭轉剛性 Torsional Rigidity	Nm/arcmin	125~1000	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	125~1000	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	125~1000	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	125~1000	30,000						
效率 Efficiency	%	125~1000	≥90%						
使用溫度 Operating Temperature	°C	125~1000	-25°C ~ +90°C						
潤滑 Lubrication		125~1000	全合成潤滑油 Synthetic oil						
防護等級 Degree of Gearbox Protection		125~1000	IP65						
安裝方向 Mounting Position		125~1000	任意方向 Any						
噪音值 Noise Level	dB	125~1000	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 Weight ±3%	Kg	125~1000							



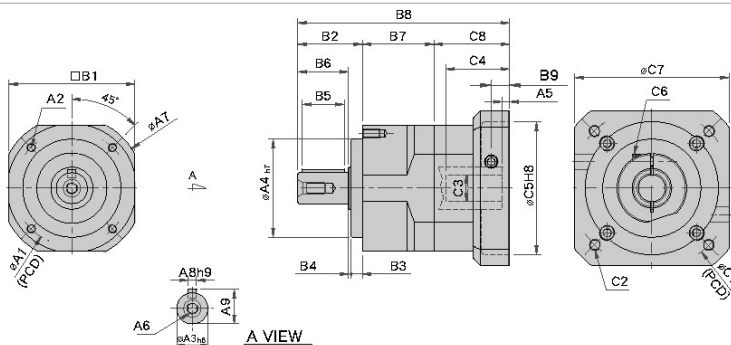
# MODEL : SE

單段 1-Stage

RATIO : 3.4.5.6.7.8.9.10



High Precision Planetary Reducer



unit:mm

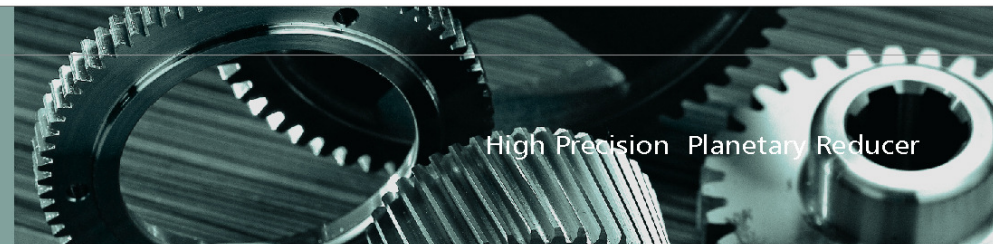
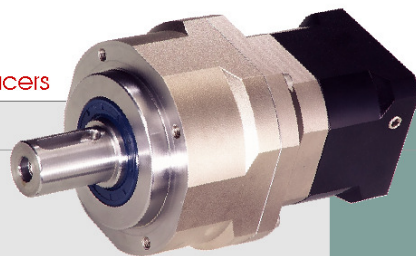
Model Code	44	62	90	120	142	180	220
	A1	44	62	92	110	140	184
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	13	16	22	32	40	55	75
A4	35	50	70	90	120	160	180
A5	5	6	9	10	10	11.5	12.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	50	70	102	134	166	215	252
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B1	44	62	90	120	142	180	220
B2	26	36	46	65	92	106	139
B3	5	7	8	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	31.5	38	49	61	70	85	93
B8	95	115	164.5	205	260.5	323.5	367.5
B9	9	11.5	16	19.5	20	23.5	23.5
C1	46,63,60,90	70,75,90	90,100,115 145,165	145,165	145,200,215	200,215,235 265,300	235,265,300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0	M12 x P1.75 M16 x P2.0
C3	5.65, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32 35, 38	38, 42, 48, 55	42, 48, 55
C4	26	33.5	59	67	84.5	114.5	117.5
C5	30, 40, 50, 70	50, 60, 70	70, 80, 95 110, 130	110, 130	110, 114, 3, 180	114, 3, 180, 200 230, 250	200, 230, 250
C6	M3 x P0.5	M4 x P0.7 M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46, 55, 60, 76	62, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190	182, 200, 220 250, 265	220, 250, 260
C8	37.5	41	67.5	79	98.5	132.5	135.5

規格 Model No.	單位 Unit	速比 Ratio	#44	#62	#90	#120	#142	#180	#220		
額定輸出扭矩 Rated Output Torque	Nm	3	19	59	165	335	625	1206	2030		
		4	16	51	146	300	555	1069	1804		
		5	16	48	160	333	618	1189	2010		
		6	15	45	151	311	583	1118	1911		
		7	15	45	149	309	573	1108	1870		
		8	14	43	143	298	553	1070	1824		
		9	13	44	145	278	516	993	1694		
		10	14	43	141	294	549	1059	1779		
		最大輸出力矩 Max. Output Torque	Nm	3~10	3倍額定輸出力矩 3 Times of Rated Output Torque						
		額定輸入轉速 Rated Input Speed	rpm	3~10	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	3~10	10,000	10,000	8,000	8,000	6,000	6,000	4,000		
背隙 Backlash Ps	arcmin	3~10	-	-	≤1	≤1	≤1	≤1	≤1		
背隙 Backlash P0	arcmin	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3		
背隙 Backlash P1	arcmin	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5		
背隙 Backlash P2	arcmin	3~10	≤7	≤7	≤7	≤7	≤7	≤7	≤7		
扭轉剛性 Torsional Rigidity	Nm/arcmin	3~10	3	6	14	27	60	140	240		
容許徑向力 Max. Radial Force	N	3~10	380	1,180	3,200	6,800	9,300	15,600	51,000		
容許軸向力 Max. Axial Force	N	3~10	190	590	1,600	3,400	4,650	7,800	25,500		
使用壽命 Service Life	hr	3~10	30,000								
效率 η 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 Synthetic oil								
防護等級 Degree of Gearbox Protection		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	≤67	≤70		
重量 Weight ±3%	Kg	3~10	0.58	1.23	3.4	7.88	15.05	29.16	39		

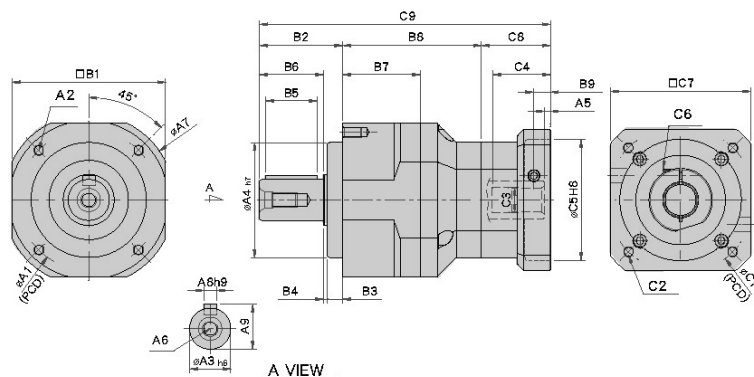
# MODEL : SE

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



High Precision Planetary Reducer



unit:mm

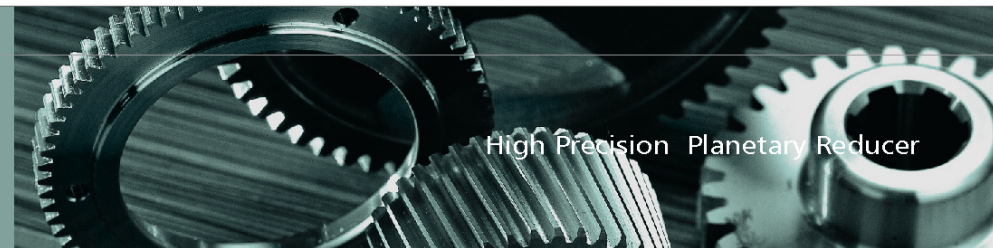
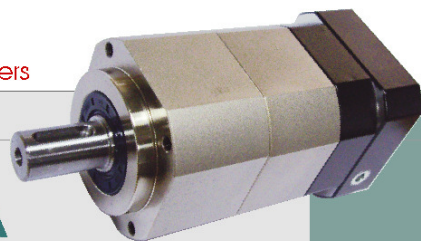
Model Code	unit:mm						
	62	90	120	142	180	220	
A1	62	82	110	140	184	218	
A2	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	
A3	16	22	32	40	55	75	
A4	50	70	90	120	160	180	
A5	5	6	9	10	10	11.5	
A6	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x 2.5	M20 x P2.5	
A7	70	102	134	166	215	252	
A8	5	6	8	12	16	20	
A9	18	24.5	35	43	59	79.5	
B1	62	90	120	142	180	220	
B2	36	46	65	92	106	139	
B3	7	8	12	15	20	30	
B4	1	2	3	3	4	5	
B5	20	30	40	65	70	90	
B6	28	36	50	74	82	104	
B7	38	51	61	70	85	93	
B8	66	83.5	108.5	127.5	154	175	
B9	9	11.5	16	19.5	20	23.5	
C1	46,63,60,90	70,75,90	90,100,115,145,165	145,165	145,200,215	200,215,235,265,300	
C2	M4 x P0.7 M5 x P0.8 M5 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0	
C3	5,65,6,8,11	6,35,8,10,11,12,14,16,19	14,16,19,22,24	19,22,24,28,32	22,24,28,32,35,38	38,42,48,55	
C4	26	33.5	59	67	84.5	114.5	
C5	30,40,50,70	50,60,70	70,80,95,110,130	110,130	110,114,3,180	114,3,180,200,230,250	
C6	M3 x P0.5	M4 x P0.7	M6 x 1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	
C7	46,55,60,76	64,70,80	92,110,130,142	130,150	146,180,190	182,200,220,250,265	
C8	37.5	41	67.5	79	98.5	132.5	
C9	139.5	172.5	241	298.5	358.5	446.5	

規格 Model No.	單位 Unit	速比 Ratio	#62	#90	#120	#142	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	15	59	165	335	625	1206	2030
		20	51	146	300	555	1069	1804
		25	48	160	333	618	1189	2010
		30	45	151	311	583	1118	1911
		35	45	149	309	573	1108	1870
		40	43	143	298	553	1070	1824
		50	48	160	333	618	1189	2010
		60	45	151	311	583	1118	1911
		70	45	149	309	573	1108	1870
		80	43	143	298	553	1070	1824
		90	44	145	278	516	993	1694
100	43	141	294	549	1059	1779		
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	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	15~100	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash Ps	arcmin	15~100	-	-	≤3	≤3	≤3	≤3
背隙 Backlash P0	arcmin	15~100	≤5	≤5	≤5	≤5	≤5	≤5
背隙 Backlash P1	arcmin	15~100	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P2	arcmin	15~100	≤9	≤9	≤9	≤9	≤9	≤9
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~100	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	15~100	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	15~100	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	15~100	30,000					
效率 η 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 Synthetic oil					
防護等級 Degree of Gearbox Protection		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	≤67	≤70
重量 Weight ±3%	Kg	15~100	1.68	4.4	9.3	20.05	39	54

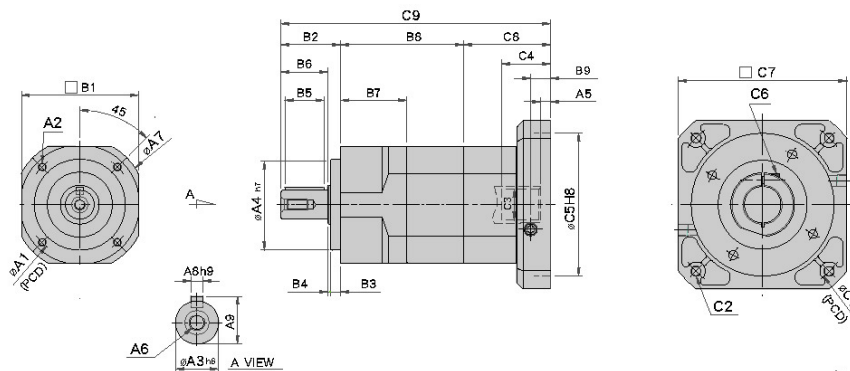
## MODEL : SE-A

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



High Precision Planetary Reducer



unit:mm

Model Code	unit:mm						
	44A	62A	90A	120A	142A	180A	220A
A1	44	62	82	110	140	184	218
A2	M4 x P0.7	M5 P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	13	16	22	32	40	55	75
A4	35	50	70	90	120	160	180
A5	5	6	9	10	10	11.5	12.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	50	70	102	134	166	215	252
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B1	44	62	90	120	142	180	220
B2	26	36	46	65	92	106	139
B3	5	7	8	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	31.5	38	51	61	70	85	93
B8	57.5	71.8	92.5	117	136.5	166	186
B9	9	11.5	16	19.5	20	23.5	23.5
C1	46,63,60,90	70,75,90	90,100,115,145,165	145,165	145,200,215	200,215,235,265,300	235,265,300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0	M12 x P1.75 M16 x P2.0
C3	5.63,6,8,11	6.35,8,10,11 12,14,16,19	14,16,19,22,24	19,22,24,28,32	22,24,28,32,35,38	38,42,48,55	42,48,55
C4	26	33.5	59	67	84.5	114.5	117.5
C5	30,40,50,70	50,60,70	70,80,95,110,130	110,130	110,114,3,180	114.3,180,200,230,250	200,230,250
C6	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46,55,60,76	64,70,80	92,110,130,142	130,150	146,180,190	182,200,220,250,265	220,250,265
C8	37.5	41	67.5	79	98.5	132.5	135.5
C9	121	148.8	208	261	327	404.5	460.5

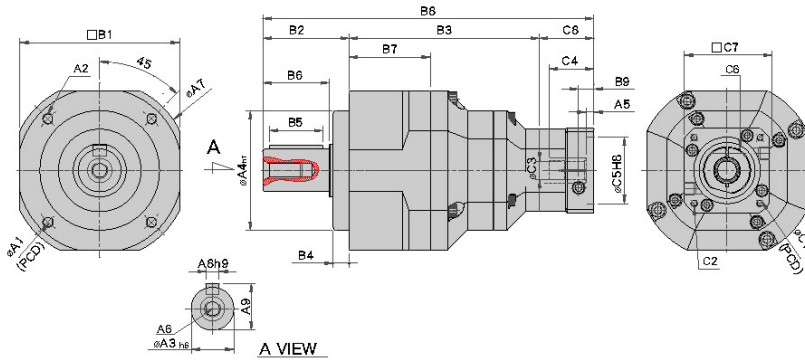
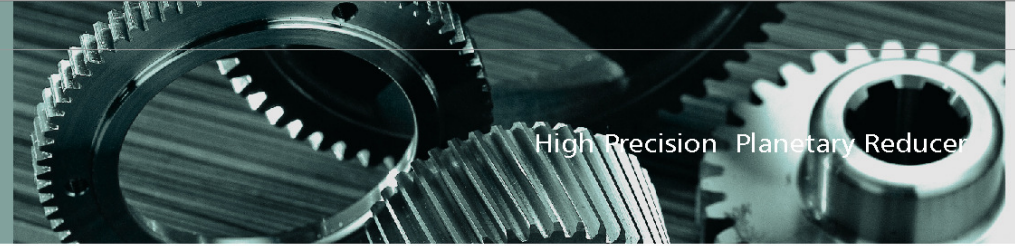
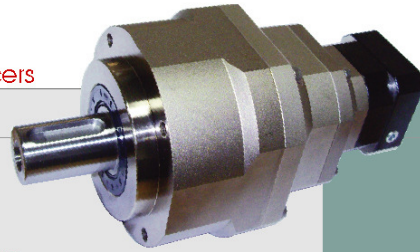
規格 Model No.	單位 Unit	速比 Ratio	#44A	#62A	#90A	#120A	#142A	#180A	#220A
額定輸出扭矩 Rated Output Torque	Nm	15	19	59	165	335	625	1206	2030
		20	16	51	146	300	555	1069	1804
		25	16	48	160	333	618	1189	2010
		30	15	45	151	311	583	1118	1911
		35	15	45	149	309	573	1108	1870
		40	14	43	143	298	553	1070	1824
		50	16	48	160	333	618	1189	2010
		60	15	45	151	311	583	1118	1911
		70	15	45	149	309	573	1108	1870
		80	14	43	143	298	553	1070	1824
90	13	44	145	278	516	993	1694		
100	14	43	141	294	549	1059	1779		
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	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	15~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash P0	arcmin	15~100	≤4	≤4	≤4	≤4	≤4	≤4	≤4
背隙 Backlash P1	arcmin	15~100	≤8	≤8	≤8	≤8	≤8	≤8	≤8
背隙 Backlash P2	arcmin	15~100	≤12	≤12	≤12	≤12	≤12	≤12	≤12
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~100	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	15~100	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	15~100	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	15~100	30,000						
效率 η 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 Synthetic oil						
防護等級 Degree of Gearbox Protection		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	≤67	≤70
重量 Weight ±3%	Kg	15~100							

# MODEL : SE

三段 3-Stage

RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



unit:mm

Model Code	90	120	142	180	220
<b>A</b>					
A1	82	110	140	184	218
A2	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	22	32	40	55	75
A4	70	90	120	160	180
A5	5	6	9	10	10
A6	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	102	134	166	215	252
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
<b>B</b>					
B1	90	120	142	180	220
B2	46	65	92	106	139
B3	111.5	143	175	211.5	244
B4	5	7	8	12	15
B5	30	40	65	70	90
B6	36	50	74	82	104
B7	51	61	70	85	93
B8	195	249	334.5	396.5	481.5
B9	9	11.5	16	19.5, 27.5	20
<b>C</b>					
C1	46, 63, 60, 90	70, 75, 90	90, 100, 115, 145, 165	145, 165	145, 200, 215
C2	M4 x P0.7	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25	M8 x P1.75 M12 x P1.75
C3	5.65, 6, 8, 11	6.35, 8, 10, 11, 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35, 38
C4	26	33	59	67	84.5
C5	30, 40, 50, 70	50, 60, 70	70, 80, 95, 110, 130	110, 130	110, 114.3, 180
C6	M4 x P0.7	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5
C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190
C8	37.5	41	67.5	79	98.5

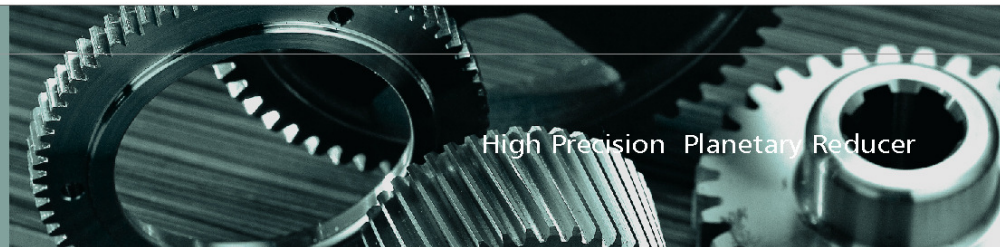
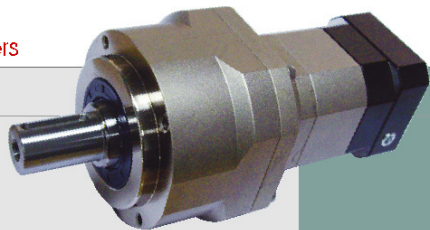
規格 Model No.	單位 Unit	速比 Ratio	#44	#62	#90	#120	#142	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	125	16	48	160	333	618	1189	2010
		150	19	59	165	335	625	1206	2030
		175	15	45	149	309	573	1108	1870
		200	16	51	146	300	555	1069	1804
		250	16	48	160	333	618	1189	2010
		300	15	45	151	311	583	1118	1911
		350	15	45	149	309	573	1108	1870
		400	14	43	143	298	553	1070	1824
		450	13	44	145	278	516	993	1694
		500	16	48	160	333	618	1189	2010
600	15	45	151	311	583	1118	1911		
700	15	45	149	309	573	1108	1870		
800	14	43	143	298	553	1070	1824		
900	13	44	145	278	516	993	1694		
1000	14	43	141	294	549	1059	1779		
最大輸出力矩 Max. Output Torque	Nm	125~1000	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	125~1000	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	125~1000	10,000	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash P <sub>s</sub>	arcmin	125~1000	-	-	-	≤5	≤5	≤5	≤5
背隙 Backlash P <sub>0</sub>	arcmin	125~1000	≤7	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P <sub>1</sub>	arcmin	125~1000	≤9	≤9	≤9	≤9	≤9	≤9	≤9
背隙 Backlash P <sub>2</sub>	arcmin	125~1000	≤11	≤11	≤11	≤11	≤11	≤11	≤11
扭轉剛性 Torsional Rigidity	Nm/arcmin	125~1000	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	125~1000	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	125~1000	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	125~1000	30,000						
效率 η Efficiency	%	125~1000	≥90%						
使用溫度 Operating Temperature	°C	125~1000	-25°C ~ +90°C						
潤滑 Lubrication		125~1000	全合成潤滑油 Synthetic oil						
防護等級 Degree of Gearbox Protection		125~1000	IP65						
安裝方向 Mounting Position		125~1000	任意方向 Any						
噪音值 Noise Level	dB	125~1000	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 Weight ±3%	Kg	125~1000							

## MODEL : SE-A

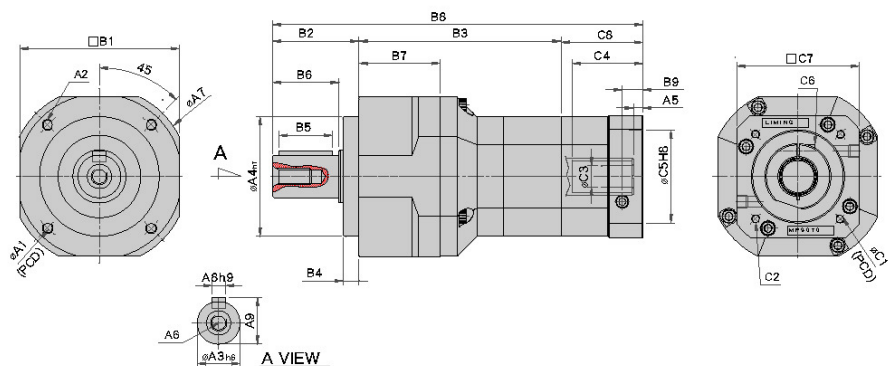
三段 3-Stage

RATIO : 125.150.175.200.250.300.350.

400.450.500.600.700.800.900.1000



High Precision Planetary Reducer



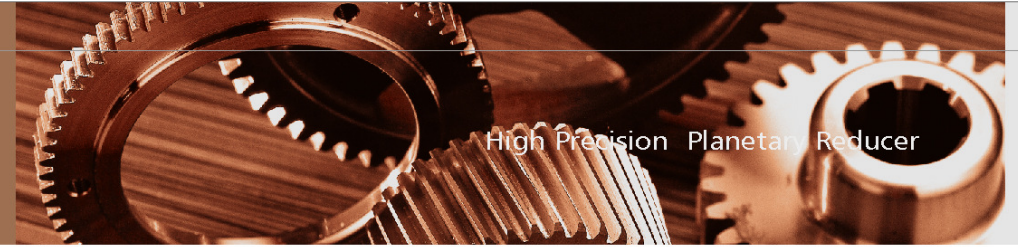
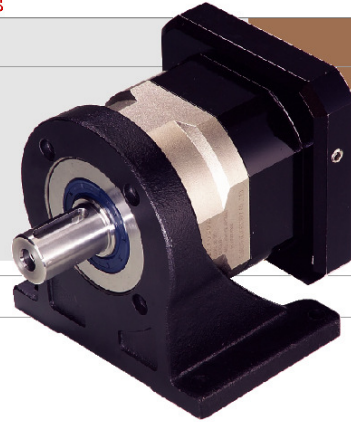
unit:mm

Model Code	unit:mm					
	62A	90A	120A	142A	180A	220A
A1	62	82	110	140	184	218
A2	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	16	22	32	40	55	75
A4	50	70	90	120	160	180
A5	6.5	6	9	10	10	11.5
A6	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5
A7	70	102	134	166	215	252
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B1	62	90	120	142	180	220
B2	36	46	65	92	106	139
B3	92	117.5	152	183.5	220.5	256
B4	5	7	8	12	15	20
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	38	51	61	70	85	93
B8	165.5	204.5	284.5	354.5	425	527.5
B9	9	11.5	16	19.5	20	23.5
C1	46, 63, 60, 90	70, 75, 90	90, 100, 115, 145, 165	145, 165	145, 200, 215	200, 215, 235, 265, 300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25	M8 x P1.25 M12 x P1.75	M12 x P1.75 M16 x P2.0
C3	5.65, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35, 38	38, 42, 48, 55
C4	26	33.5	59	67	84.5	114.5
C5	30, 40, 50, 70	50, 60, 70	70, 80, 95, 110, 130	110, 130	110, 114.3, 180	114.3, 180, 200, 230, 250
C6	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190	182, 200, 220, 250, 265
C8	37.5	41	67.5	79	98.5	132.5

規格 Model No.	單位 Unit	速比 Ratio	#44A	#62A	#90A	#120A	#142A	#180A	#220A
額定輸出扭矩 Rated Output Torque	Nm	125	16	48	160	333	618	1189	2010
		150	19	59	165	335	625	1206	2030
		175	15	45	149	309	573	1108	1870
		200	16	51	146	300	555	1069	1804
		250	16	48	160	333	618	1189	2010
		300	15	45	151	311	583	1118	1911
		350	15	45	149	309	573	1108	1870
		400	14	43	143	298	553	1070	1824
		450	13	44	145	278	516	993	1694
		500	16	48	160	333	618	1189	2010
		600	15	45	151	311	583	1118	1911
700	15	45	149	309	573	1108	1870		
800	14	43	143	298	553	1070	1824		
900	13	44	145	278	516	993	1694		
1000	14	43	141	294	549	1059	1779		
最大輸出力矩 Max. Output Torque	Nm	125~1000	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	125~1000	5,000	5,000	4,000	4,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	125~1000	10,000	10,000	8,000	8,000	6,000	6,000	4,000
背隙 Backlash P <sub>s</sub>	arcmin	125~1000	-	-	-	≤5	≤5	≤5	≤5
背隙 Backlash P <sub>0</sub>	arcmin	125~1000	≤7	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P <sub>1</sub>	arcmin	125~1000	≤9	≤9	≤9	≤9	≤9	≤9	≤9
背隙 Backlash P <sub>2</sub>	arcmin	125~1000	≤11	≤11	≤11	≤11	≤11	≤11	≤11
扭轉剛性 Torsional Rigidity	Nm/arcmin	125~1000	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	N	125~1000	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	N	125~1000	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	hr	125~1000	30,000						
效率 η Efficiency	%	125~1000	≥90%						
使用溫度 Operating Temperature	°C	125~1000	-25°C ~ +90°C						
潤滑 Lubrication		125~1000	全合成潤滑油 Synthetic oil						
防護等級 Degree of Gearbox Protection		125~1000	IP65						
安裝方向 Mounting Position		125~1000	任意方向 Any						
噪音值 Noise Level	dB	125~1000	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 Weight ±3%	Kg	125~1000							

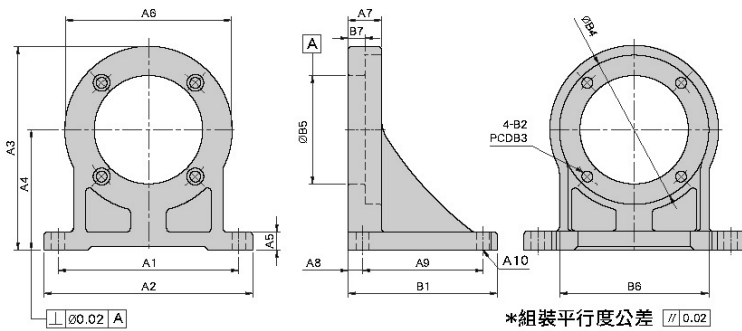
# ACCESSORIES

## 選配件



## L Type Base Kits

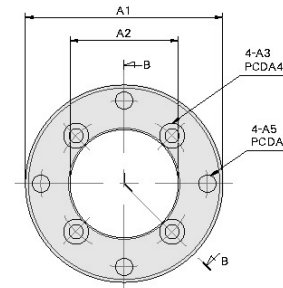
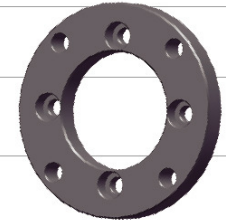
### L型腳座



unit:mm

Model Code	44	62	90	120	142	180	220
A1	70	90	110	150	190	240	280
A2	88	108	130	176	220	276	330
A3	75.5	95.5	127	170	207.5	274	334
A4	45	55	75	100	120	160	200
A5	8	9	11	16	19	24	30
A6	60	81	104	140	175	228	268
A7	13	16	21	28	35	45	60
A8	10	10	11	14	16	19	26
A9	40	50	75	100	120	160	200
A10	4-Ø7	4-Ø7	4-Ø9	4-Ø11	4-Ø13	4-Ø17	4-Ø21
B1	60	70	97	128	152	198	252
B2	Ø4.5	Ø5.5	Ø6.8	Ø9	Ø11	Ø13	Ø17
B3	44	62	82	110	140	184	218
B4	50	70	92	124	155	205	242
B5	35	50	70	90	120	160	180
B6	50	70	90	125	156	200	230
B7	6	8	9	14	16	21	30
Kg		0.71	1.57	3.86	6.41	13.44	27.73

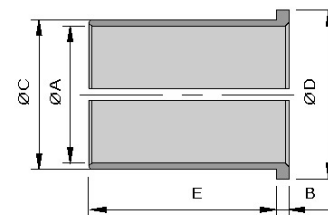
## Connecting Plate 連接板



B-B 剖視圖

Model Code	44	62	90	120	142	180	220
A1	64	88	123	158	188	238	298
A2	35	50	70	90	120	160	180
A3	4.5	5.5	6.8	9	11	13	17
A4	44	62	82	110	140	184	218
A5	5.5	6.8	9	11	13	15	17
A6	54	75	106	140	165	210	260
A7	8	9	11	14	17	22	30

## Bushing 軸套

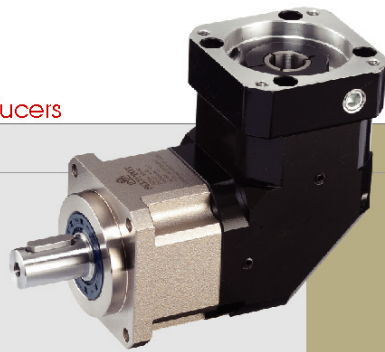


Model/Code	44	62	90	120	142
A	5.65, 6, 8	8, 11	14, 16, 19, 22	19, 22, 24	22, 24, 28
B	1	1	1	1	2
C	8, 11	14	19, 24, 24, 24	28	35
D	9, 12	16	21, 27	29.5	37.5
E	13.5	15	20, 25, 30	30	40

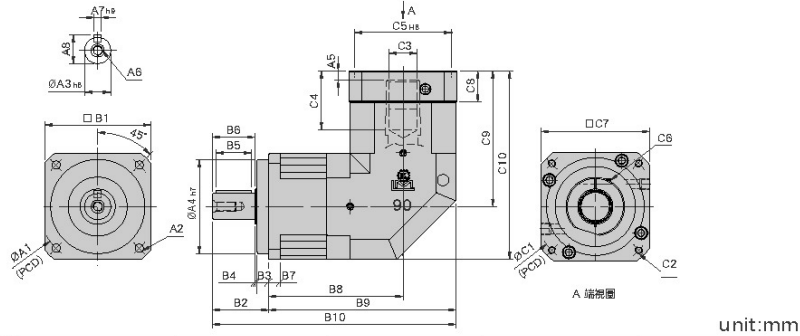
## MODEL : SBL

單段 1-Stage

RATIO : 3~20



High Precision Planetary Reducer



unit:mm

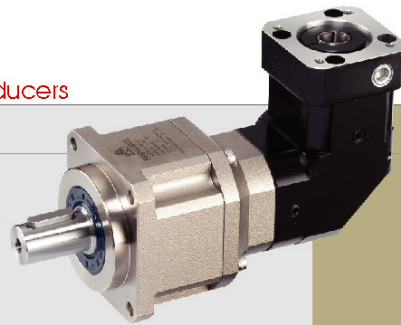
Model Code	44	62	90	120	142
	A1	50	70	100	130
A2	4.5	5.5	6.8	9	11
A3	13	16	22	32	40
A4	35	50	80	110	130
A5	5	6	9	10	10
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0
A7	5	5	6	10	12
A8	15	18	24.5	35	43
B1	44	62	90	120	142
B2	26	36	48	65	92
B3	5	7	10	12	15
B4	1	1	2	3	3
B5	15	20	30	40	65
B6	20	28	36	50	74
B7	5	8	10	12	15
B8	76	80.5	114	137	163.5
B9	98	111.5	159	197	234.5
B10	124	147.5	207	262	326.5
C1	46,63,60,90	70,75,90	90,100,115,145,165	145, 165	145, 200, 215
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5
C3	5,65, 6, 8, 11	6,35,8,10,11,12,14,16,19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35, 38
C4	26	33.5	53	66	84.5
C5	30,40,50,70	50, 60, 70	70,80,95,110,130	110, 130	110, 114,3, 180
C6	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5
C7	46,55,60,76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190
C8	16	21.5	26.5	33.5	35.5
C9	60	75	115.3	141	174
C10	82	106	160.3	201	245

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	19	59	165	335	625
		4	16	51	146	300	555
		5	16	48	160	333	618
		6	15	45	151	311	583
		7	15	45	149	309	573
		8	14	43	143	298	553
		9	13	44	145	278	516
		10	14	43	141	294	549
		12	15	45	151	311	583
		14	15	45	149	309	573
		16	14	43	143	298	553
		18	13	44	145	278	516
		20	14	43	141	294	549
最大輸出力矩 Max. Output Torque	Nm	3~20	3倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	rpm	3~20	5,000	5,000	4,000	4,000	3,000
最大輸入轉速 Max. Input Speed	rpm	3~20	10,000	10,000	8,000	8,000	6,000
背隙 Backlash Ps	arcmin	3~20	-	-	≤2	≤2	≤2
背隙 Backlash P0	arcmin	3~20	≤4	≤4	≤4	≤4	≤4
背隙 Backlash P1	arcmin	3~20	≤6	≤6	≤6	≤6	≤6
背隙 Backlash P2	arcmin	3~20	≤8	≤8	≤8	≤8	≤8
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	380	1,180	3,200	6,800	9,300
容許軸向力 Max. Axial Force	N	3~20	190	590	1,600	3,400	4,650
使用壽命 Service Life	hr	3~20	20,000				
效率 η 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 Synthetic oil				
防護等級 Degree of Gearbox Protection		3~20	IP65				
安裝方向 Mounting Position		3~20	任意方向 Any				
噪音值 Noise Level	dB	3~20	≤65	≤68	≤70	≤72	≤74
重量 Weight ±3%	Kg	3~20					

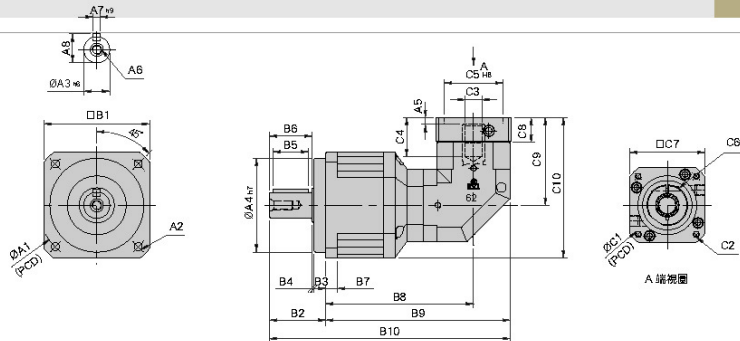
## MODEL : SBL

雙段 2-Stage

RATIO : 15~200



High Precision Planetary Reducer



unit:mm

	Model Code	Model						
		44	62	90	120	142	180	
A	A1	50	70	100	130	165	215	
	A2	4.5	5.5	6.8	9	11	13	
	A3	13	16	22	32	40	55	
	A4	35	50	80	110	130	160	
	A5	5	5	6	9	10	10	
	A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5	
	A7	5	5	6	10	12	16	
	A8	15	18	24.5	35	43	59	
	B	B1	44	62	90	120	142	180
		B2	26	36	48	65	92	106
B3		5	7	10	12	15	20	
B4		1	1	2	3	3	4	
B5		15	20	30	40	65	70	
B6		20	28	36	50	74	82	
B7		5	8	10	12	15	16	
B8		102	110.5	126	173.5	203.5	247.5	
B9		124	132.5	157	218.5	263.5	318.5	
B10		150	168.5	205	283.5	355.5	424.5	
C	C1	46,63,60,90	46,63,60,90	70,75,90	90,100,115,145,165	145, 165	145, 200, 215	
	C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M12 x P1.75	
	C3	5.65, 6, 8, 11	5, 6.5, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28 32, 35, 38	
	C4	26	26	33.5	53	66	84.5	
	C5	30,40,50,70	30,40,50,70	50, 60, 70	70,80,95,110,130	110, 130	110,114.3,180	
	C6	M3 x P0.5	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5	
	C7	46,55,60,76	46,55,60,76	64, 70, 80	92,110,130,142	130, 150	146, 180, 190	
	C8	16	16	21.5	26.5	35.5	35.5	
	C9	60	60	75	115.3	141	174	
	C10	82	91	120	175.3	212	264	

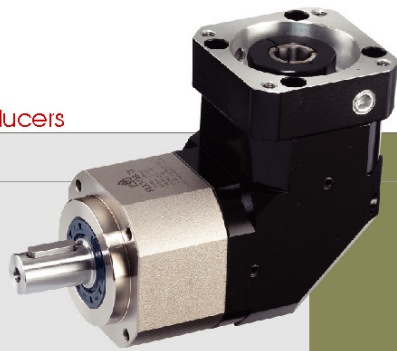
規格 Model No.	單位 Unit	速比 Ratio	#44	#62	#90	#120	#142	#180
額定輸出扭矩 Rated Output Torque	Nm	15	19	59	165	335	625	1206
		20	16	51	146	300	555	1069
		25	16	48	160	333	618	1189
		30	15	45	151	311	583	1118
		35	15	45	149	309	573	1108
		40	14	43	143	298	553	1070
		50	16	48	160	333	618	1189
		60	15	45	151	311	583	1118
		70	15	45	149	309	573	1108
		80	14	43	143	298	553	1070
		90	13	44	145	278	516	993
		100	14	43	141	294	549	1059
		120	15	45	151	311	583	1118
		140	15	45	149	309	573	1108
		160	14	43	143	298	553	1070
		180	13	44	145	278	516	993
		200	14	43	141	294	549	1059
		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	5,000	5,000	4,000	4,000	3,000	3,000
最大輸入轉速 Max. Input Speed	rpm	15~200	10,000	10,000	8,000	8,000	6,000	6,000
背隙 Backlash Ps	arcmin	15~200	-	-	≤4	≤4	≤4	≤4
背隙 Backlash P0	arcmin	15~200	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P1	arcmin	15~200	≤9	≤9	≤9	≤9	≤9	≤9
背隙 Backlash P2	arcmin	15~200	≤12	≤12	≤12	≤12	≤12	≤12
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~200	3	6	14	27	60	140
容許徑向力 Max. Radial Force	N	15~200	380	1,180	3,200	6,800	9,300	15,600
容許軸向力 Max. Axial Force	N	15~200	190	590	1,600	3,400	4,650	7,800
使用壽命 Service Life	hr	15~200	20,000					
效率 η Efficiency	%	15~200	≥94%					
使用溫度 Operating Temperature	°C	15~200	-25°C ~ +90°C					
潤滑 Lubrication		15~200	全合成潤滑油 Synthetic oil					
防護等級 Degree of Gearbox Protection		15~200	IP65					
安裝方向 Mounting Position		15~200	任意方向 Any					
噪音值 Noise Level	dB	15~200	≤65	≤68	≤70	≤72	≤74	≤76
重量 Weight ±3%	Kg	15~200						



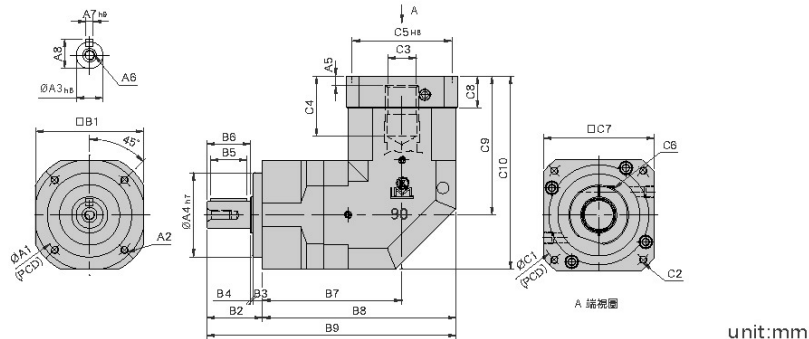
## MODEL : SEL

單段 1-Stage

RATIO : 3~20



High Precision Planetary Reducer



unit:mm

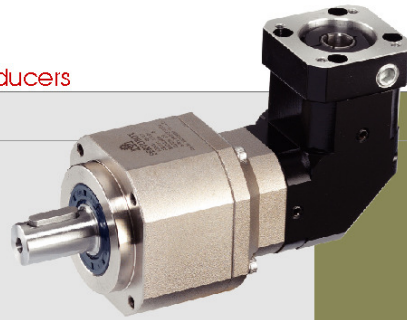
Model Code	44	62	90	120	142
	A1	44	62	82	110
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
A3	13	16	22	32	40
A4	35	50	70	90	120
A5	5	6	9	10	10
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0
A7	5	5	6	10	12
A8	15	18	24.5	35	43
B1	44	62	90	120	142
B2	26	36	46	65	92
B3	5	7	8	12	15
B4	1	1	2	3	3
B5	15	20	30	40	65
B6	20	28	36	50	74
B7	76	80.5	114	137	163.5
B8	98	111.5	159	197	234.5
B9	124	147.5	205	262	326.5
C1	46, 63, 60, 90	70, 75, 90	90, 100, 115, 145, 165	145, 165	145, 200, 215
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5 M12 x P1.75
C3	5.65, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35, 38
C4	26	33.5	53	66	84.5
C5	30,40,50,70	50, 60, 70	70, 80, 95, 110, 130	110, 130	110, 114.3, 180
C6	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5
C7	46,55,60,76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190
C8	16	21.5	26.5	35.5	35.5
C9	60	75	115.3	141	174
C10	82	106	160.3	201	245

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	19	59	165	335	625
		4	16	51	146	300	555
		5	16	48	160	333	618
		6	15	45	151	311	583
		7	15	45	149	309	573
		8	14	43	143	298	553
		9	13	44	145	278	516
		10	14	43	141	294	549
		12	15	45	151	311	583
		14	15	45	149	309	573
		16	14	43	143	298	553
		18	13	44	145	278	516
20	14	43	141	294	549		
最大輸出力矩 Max. Output Torque	Nm	3~20	3倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	rpm	3~20	5,000	5,000	4,000	4,000	3,000
最大輸入轉速 Max. Input Speed	rpm	3~20	10,000	10,000	8,000	8,000	6,000
背隙 Backlash P <sub>s</sub>	arcmin	3~20	-	-	≤2	≤2	≤2
背隙 Backlash P <sub>0</sub>	arcmin	3~20	≤4	≤4	≤4	≤4	≤4
背隙 Backlash P <sub>1</sub>	arcmin	3~20	≤6	≤6	≤6	≤6	≤6
背隙 Backlash P <sub>2</sub>	arcmin	3~20	≤8	≤8	≤8	≤8	≤8
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	380	1,180	3,200	6,800	9,300
容許軸向力 Max. Axial Force	N	3~20	190	590	1,600	3,400	4,650
使用壽命 Service Life	hr	3~20	20,000				
效率 η 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 Synthetic oil				
防護等級 Degree of Gearbox Protection		3~20	IP65				
安裝方向 Mounting Position		3~20	任意方向 Any				
噪音值 Noise Level	dB	3~20	≤65	≤68	≤70	≤72	≤74
重量 Weight ±3%	Kg	3~20					

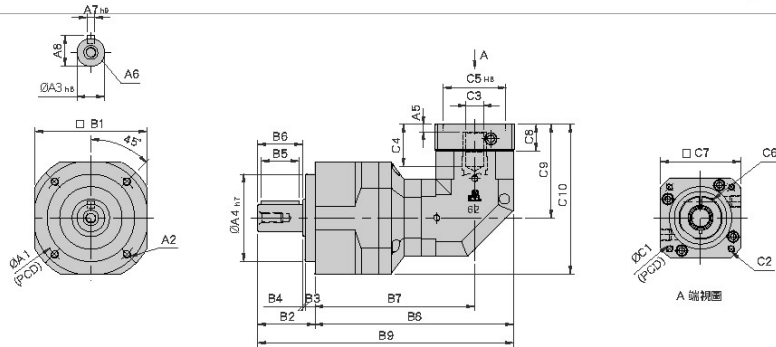
## MODEL : SEL

雙段 2-Stage

RATIO : 15~200



High Precision Planetary Reducer



unit:mm

Model Code	44	62	90	120	142	180
	A1	44	62	82	110	140
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75
A3	13	16	22	32	40	55
A4	35	50	70	90	120	160
A5	5	5	6	9	10	10
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M12 x P1.75	M16 x P2.0	M20 x P2.5
A7	5	5	6	10	12	16
A8	15	18	24.5	35	43	59
B1	44	62	90	120	142	180
B2	26	36	46	65	92	106
B3	5	7	8	12	15	20
B4	1	1	2	3	3	4
B5	15	20	30	40	65	70
B6	20	28	36	50	74	82
B7	102	110.5	126	173.5	203.5	247.5
B8	124	132.5	157	218.5	263.5	318.5
B9	150	168.5	203	283.5	355.5	424.5
C1	46, 63, 60, 90	46, 63, 60, 90	70, 75, 90	90, 100, 115, 145, 165	145, 165	145, 200, 215
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5
C3	5.65, 6, 8, 11	5, 6.5, 6, 8, 11	6.35, 8, 10, 11 12, 14, 16, 19	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35, 38
C4	26	26	33.5	53	66	84.5
C5	30, 40, 50, 70	30, 40, 50, 70	50, 60, 70	70, 80, 95, 110, 130	110, 130	110, 114.3, 180
C6	M3 x P0.5	M3 x P0.5	M4 x P0.7	M6 x P1.0	M8 x P1.25	M10 x P1.5
C7	46, 55, 60, 76	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190
C8	16	16	21.5	26.5	35.5	35.5
C9	60	60	75	115.3	141	174
C10	82	91	120	175.3	212	264

規格 Model No.	單位 Unit	速比 Ratio	#44	#62	#90	#120	#142	#180
額定輸出扭矩 Rated Output Torque	Nm	15	19	59	165	335	625	1206
		20	16	51	146	300	555	1069
		25	16	48	160	333	618	1189
		30	15	45	151	311	583	1118
		35	15	45	149	309	573	1108
		40	14	43	143	298	553	1070
		50	16	48	160	333	618	1189
		60	15	45	151	311	583	1118
		70	15	45	149	309	573	1108
		80	14	43	143	298	553	1070
		90	13	44	145	278	516	993
		100	14	43	141	294	549	1059
		120	15	45	151	311	583	1118
		140	15	45	149	309	573	1108
		160	14	43	143	298	553	1070
		180	13	44	145	278	516	993
200	14	43	141	294	549	1059		
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	5,000	5,000	4,000	4,000	3,000	3,000
最大輸入轉速 Max. Input Speed	rpm	15~200	10,000	10,000	8,000	8,000	6,000	6,000
背隙 Backlash Ps	arcmin	15~200	-	-	≤4	≤4	≤4	≤4
背隙 Backlash P0	arcmin	15~200	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P1	arcmin	15~200	≤9	≤9	≤9	≤9	≤9	≤9
背隙 Backlash P2	arcmin	15~200	≤12	≤12	≤12	≤12	≤12	≤12
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~200	3	6	14	27	60	140
容許徑向力 Max. Radial Force	N	15~200	380	1,180	3,200	6,800	9,300	15,600
容許軸向力 Max. Axial Force	N	15~200	190	590	1,600	3,400	4,650	7,800
使用壽命 Service Life	hr	15~200	20,000					
效率 η Efficiency	%	15~200	≥95%					
使用溫度 Operating Temperature	°C	15~200	-25°C ~ +90°C					
潤滑 Lubrication		15~200	全合成潤滑油 Synthetic oil					
防護等級 Degree of Gearbox Protection		15~200	IP65					
安裝方向 Mounting Position		15~200	任意方向 Any					
噪音值 Noise Level	dB	15~200	≤65	≤68	≤70	≤72	≤74	≤76
重量 Weight ±3%	Kg	15~200						



# FABGEAR 系列

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

## Indication of Model Numbers

機種型號表示

<b>FB</b>	<b>- 90</b>	<b>- 10</b>		<b>-</b>	<b>MOTOR</b>
減速機型 Type	型號 Model	速比 Ratio	出力軸鍵槽 Output Shaft Keyway		馬達型號 Motor Type
FB	50	單段 1-Stage 3, 4, 5, 7, 10	<input type="checkbox"/> 標準品, 有鍵槽 Standard (Keyway)		
FE	70	雙段 2-Stage 15, 20, 25, 30	<input type="checkbox"/> N: 實心軸, 無鍵槽 Solid Output Shaft (No Keyway)		
	90	35, 40, 50, 70,			
	120	100			
	145				

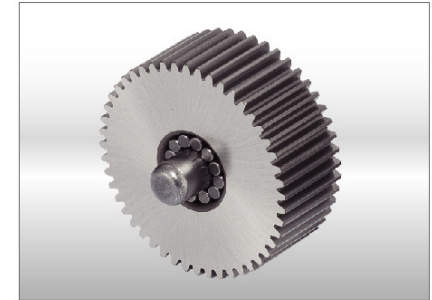


### 一體式的行星臂架及雙軸承加大跨距設計

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。並採用滾珠軸承大跨距配置設計，增加輸出軸之徑向負載。

### Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy. The entire structure is one-time machined for controlling accuracy in the specified tolerance.



### 滿針的滾針軸承設計

行星齒輪的傳動介面採用不啮保持器之滿針滾針軸承，增加接觸面積以提高結構剛性及輸出扭矩。

### Full Needle Bearings Design

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



### 高精度齒輪加工

行星齒輪及太陽齒輪材料採用高級之鉻鉬合金鋼 (SNCM415)，切削加工後，經滲碳熱處理至硬度 57-62HRC，再進行2次加工 (Skiving)，或經研磨加工，確保齒輪精度在DIN6級以內。

### High Precision Gear Machining

The planetary gear and sun gear are manufactured from high quality Ni-Cr-Mo alloy steel (SNCM415), precision machined and carburized to hardness 57-60 HRC. Precision teeth grinding or skiving assures gear accuracy reaches DIN6 class.



### 一體式的齒輪箱本體

齒輪箱和內環齒輪採一體式的設計，經調質後加工，輸出扭矩大，齒輪精度達DIN6級，精密度高。

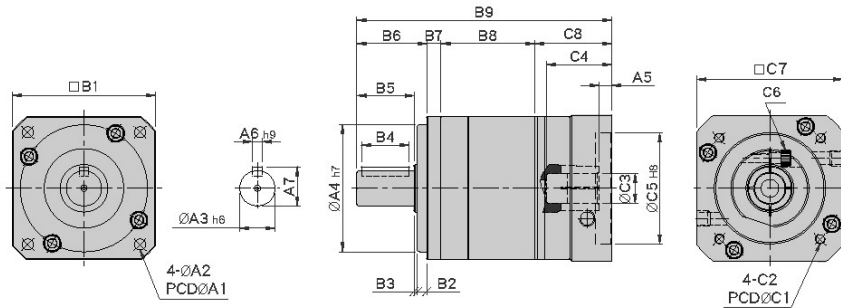
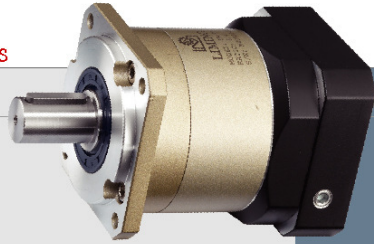
### One-piece Gearbox body

The gearbox and internal gear ring are one-piece constructed. High gear accuracy meets DIN6 class standard.

# MODEL : FB

單段 1-Stage

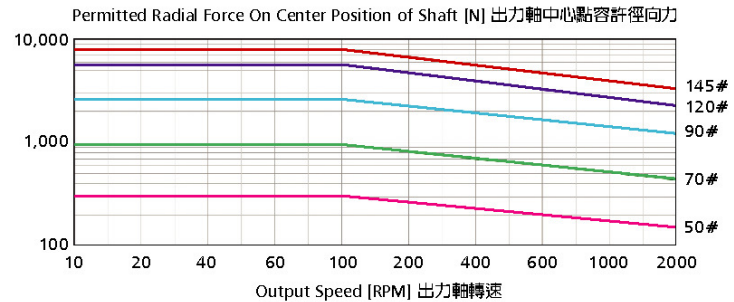
速比 RATIO : 3.4.5.7.10



單位 unit:mm

A	Model Code	50	70	90	120	145	180	220
	A1	Ø50	Ø70	Ø100	Ø130	Ø165	Ø215	Ø250
A2	Ø4.5	Ø6	Ø6.8	Ø9	Ø11	Ø13	Ø17	
A3	Ø13	Ø16	Ø22	Ø32	Ø40	Ø55	Ø75	
A4	Ø35	Ø50	Ø80	Ø110	Ø130	Ø160	Ø180	
A5	5	6	9, 23.5	10	10	13	13	
A6	5	5	6	10	12	16	20	
A7	15	18	24.5	35	43	59	79.5	
B1	50	70	90	120	145	180	220	
B2	4	5	6	8	10	20	20	
B3	1	1	2	2	3	4	5	
B4	15	20	30	40	65	70	90	
B5	20	28	36	50	74	82	104	
B6	25	34	44	60	87	106	129	
B7	6	8	9	12	15	16	24	
B8	37.5	49.5	59	86	95	66	81	
B9	100.5	132.5	170.5, 185	227.5	291	319.5	365	
C	C1	46, 60, 63, 90	70, 75, 90	90, 100, 115, 165	145, 165	145, 200, 215	200, 215, 235, 265	200, 235, 265, 300
	C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5 M12 x P1.75	M12 x P1.75	M12 x P1.75 M16 x P2.0
	C3	5.65, 6, 8	6.35, 8, 10, 11, 12, 14	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35	38, 42, 48	42, 48, 55
	C4	26	33.5	51, 65.5	63, 73	81.5	113	116
	C5	30, 40, 50, 70	50, 60, 70	70, 80, 110, 130	110, 130	110, 114.3, 180	114.3, 180, 200, 230	114.3, 200, 230, 265
	C6	M3 x P0.5	M4 x P0.7 M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
	C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190	182, 200, 220, 250	220, 222, 250, 265
	C8	32	41	58.5, 73	69.5	94	131.5	131

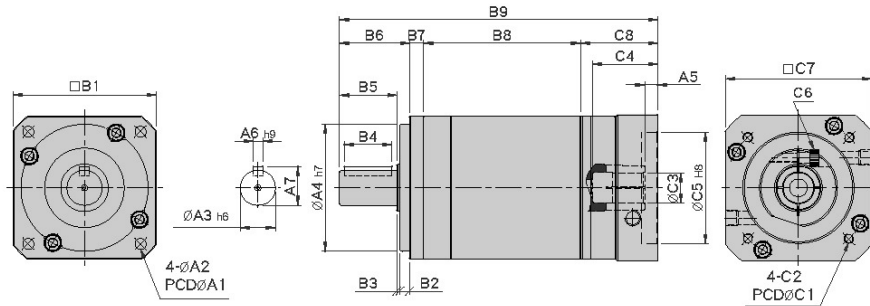
規格 Model No.	單位 Unit	速比 Ratio	#50	#70	#90	#120	#145	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	3	17	50	125	268	482	940	1420
		4	15	45	111	238	426	860	1300
		5	14	42	104	223	401	835	1270
		7	13	39	98	208	373	790	1180
		10	12	37	92	198	356	760	1140
最大輸出扭矩 Max. Output Torque	Nm	3~10	3倍額定輸出扭矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	3~10	5,000	4,800	4,000	3,600	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	rpm	3~10	8,000	6,000	6,000	4,800	3,600	3,600	3,600
背隙 Backlash	arcmin	3~10	≤8	≤8	≤8	≤8	≤8	≤8	≤8
扭轉剛性 Torsional Rigidity	Nm/arcmin	3~10	2.3	5	15	45	69	140	220
容許徑向力 Max. Radial Force	N	3~10	750	1,180	3,000	6,500	9,100	11,150	35,000
容許軸向力 Max. Axial Force	N	3~10	325	590	1,500	3,250	4,550	5,575	17,500
使用壽命 Service Life	hr	3~10	20,000						
效率 η 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 Synthetic oil						
防護等級 Degree of Gearbox Protection		3~10	IP65						
安裝方向 Mounting Position		3~10	任意方向 Any						
噪音值 Noise Level	dB	3~10	≤62	≤62	≤65	≤68	≤70	≤70	≤70
重量 Weight ±3%	Kg	3~10	0.63	1.57	3.22	8	16		



# MODEL : FB

雙段 2-Stage

速比 RATIO : 15.20.25.30.35.40.50.70.100



單位 unit:mm

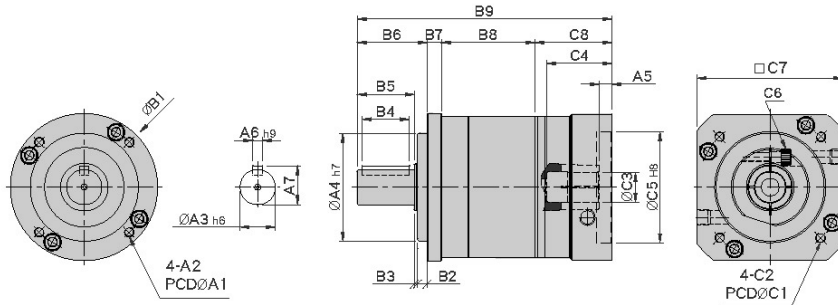
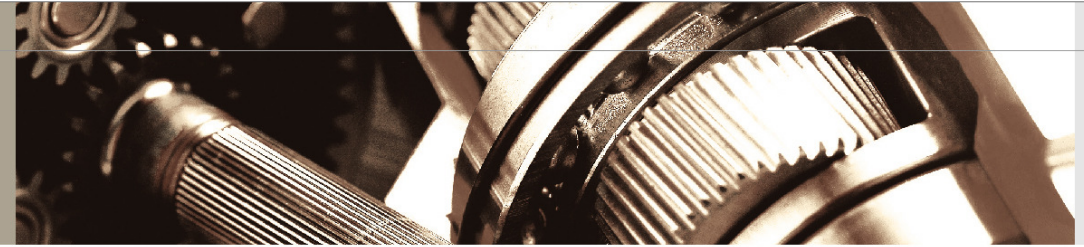
Model Code	單位 unit:mm						
	50	70	90	120	145	180	220
A1	Ø50	Ø70	Ø100	Ø130	Ø165	Ø215	Ø250
A2	Ø4.5	Ø6	Ø6.8	Ø9	Ø11	Ø13	Ø17
A3	Ø13	Ø16	Ø22	Ø32	Ø40	Ø55	Ø75
A4	Ø35	Ø50	Ø80	Ø110	Ø130	Ø160	Ø180
A5	5	6	9, 23.5	10	10	13	13
A6	5	5	6	10	12	16	20
A7	15	18	24.5	35	43	59	79.5
B1	50	70	90	120	145	180	220
B2	4	5	6	8	10	20	20
B3	1	1	2	2	3	4	5
B4	15	20	30	40	65	70	90
B5	20	28	36	50	74	82	104
B6	25	34	44	60	87	106	129
B7	6	8	9	12	15	16	24
B8	63.7	83.5	98.7	140	158.7	144	178
B9	126..7	166.5	210.2, 224.7	281.5	354.7	397.5	462
C1	46, 60, 63, 90	70,75,90	90,100,115,165	145, 165	145, 200, 215	200,215,235,265	200,235,265,300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5 M12 x P1.75	M12 x P1.75	M12 x P1.75 M16 x P2.0
C3	5.65, 6, 8	6.35,8,10,11,12,14	14,16,19,22,24	19, 22, 24, 28, 32	22,24,28,32,35	38, 42, 48	42, 48, 55
C4	26	33.5	51, 65.5	63, 73	81.5	113	116
C5	30, 40, 50, 70	50, 60, 70	70,80,110,130	110, 130	110,114.3,180	114.3,180,200,230	114.3,200,230,250
C6	M3 x P0.5 M5 x P0.8	M4 x P0.7 M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46,55,60,76	64, 70, 80	92,110,130,142	130, 150	146, 180, 190	182,200,220,250	220,222,250,265
C8	32	41	58.5, 73	69.5	94	131.5	131

規格 Model No.	單位 Unit	速比 Ratio	#50	#70	#90	#120	#145	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	15	17	50	125	268	482	940	1420
		20	15	45	111	238	426	860	1300
		25	14	42	104	223	401	835	1270
		30	17	50	125	268	482	940	1420
		35	13	39	98	208	373	790	1180
		40	15	45	111	238	427	860	1300
		50	14	42	104	223	402	835	1270
		70	13	40	98	208	373	790	1180
		100	12	37	92	198	357	760	1100
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	5,000	4,800	4,000	3,600	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	rpm	15~100	8,000	6,000	6,000	4,800	3,600	3,600	3,600
背隙 Backlash	arcmin	15~100	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~100	2.3	5	15	45	69	140	220
容許徑向力 Max. Radial Force	N	15~100	750	1,180	3,000	6,500	9,100	11,150	35,000
容許軸向力 Max. Axial Force	N	15~100	325	590	1,500	3,250	4,550	5,575	17,500
使用壽命 Service Life	hr	15~100	20,000						
效率 η 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 Synthetic oil						
防護等級 Degree of Gearbox Protection		15~100	IP65						
安裝方向 Mounting Position		15~100	任意方向 Any						
噪音值 Noise Level	dB	15~100	≤ 65	≤ 65	≤ 68	≤ 70	≤ 72	≤ 72	≤ 72
重量 Weight ±3%	Kg	15~100	0.9	2.24	4.59	11.22	22.5		

# MODEL : FE

單段 1-Stage

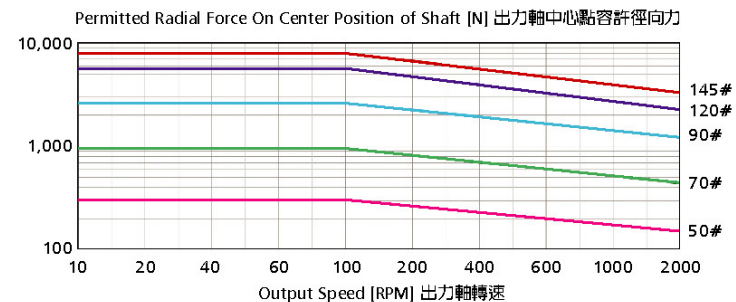
速比 RATIO : 3.4.5.7.10



單位 unit:mm

Model Code	50	70	90	120	145	180	220
<b>A</b>							
A1	Ø42	Ø60	Ø80	Ø105	Ø130	Ø184	Ø218
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	Ø13	Ø16	Ø22	Ø32	Ø40	Ø55	Ø75
A4	Ø35	Ø50	Ø70	Ø90	Ø110	Ø160	Ø180
A5	5	6	9, 23.5	10	10	13	13
A6	5	5	6	10	12	16	20
A7	15	18	24.5	35	43	59	79.5
<b>B</b>							
B1	Ø50	Ø70	Ø93	Ø122	Ø148	Ø205	Ø242
B2	4	5	6	8	10	20	20
B3	1	1	2	2	3	4	5
B4	15	20	30	40	65	70	90
B5	20	28	36	50	74	82	104
B6	25	34	44	60	87	106	129
B7	6	8	9	12	15	20	27
B8	37.5	49.5	59	86	95	62	78
B9	100.5	132.5	170.5, 185	227.5	291	319.5	365
<b>C</b>							
C1	46, 60, 63, 90	70, 75, 90	90, 100, 115, 165	145, 165	145, 200, 215	200, 215, 235, 265	200, 235, 265, 300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5 M12 x P1.75	M12 x P1.75	M12 x P1.75 M16 x P2.0
C3	5.65, 6, 8	6.35, 8, 10, 11, 12, 14	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35	38, 42, 48	42, 48, 55
C4	26	33.5	51, 65.5	63, 73	81.5	113	116
C5	30, 40, 50, 70	50, 60, 70	70, 80, 110, 130	110, 130	110, 114.3, 180	114.3, 180, 200, 230	114.3, 200, 230, 250
C6	M3 x P0.5	M4 x P0.7 M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190	182, 200, 220, 250	200, 222, 250, 265
C8	32	41	58.5, 73	69.5	94	131.5	131

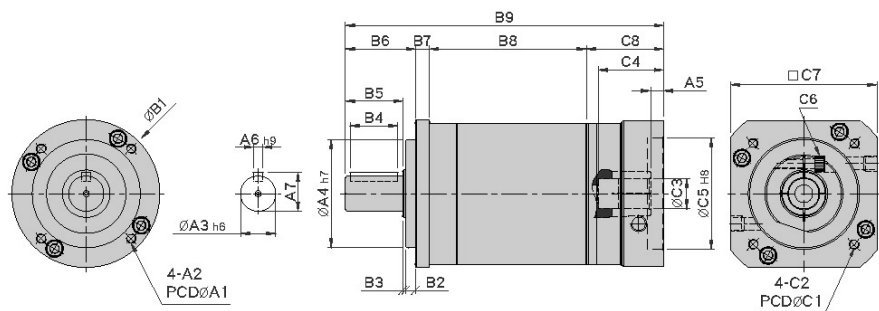
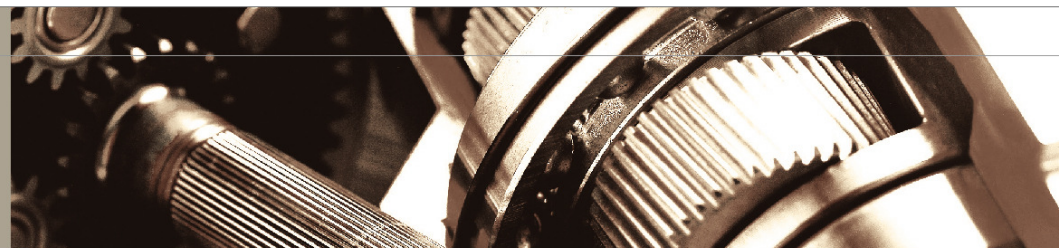
規格 Model No.	單位 Unit	速比 Ratio	#50	#70	#90	#120	#145	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	3	17	50	125	268	482	940	1420
		4	15	45	111	238	426	860	1300
		5	14	42	104	223	401	835	1270
		7	13	39	98	208	373	790	1180
		10	12	37	92	198	356	760	1140
最大輸出力矩 Max. Output Torque	Nm	3~10	3倍額定輸出力矩		3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	rpm	3~10	5,000	4,800	4,000	3,600	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	rpm	3~10	8,000	6,000	6,000	4,800	3,600	3,600	3,600
背隙 Backlash	arcmin	3~10	≤8	≤8	≤8	≤8	≤8	≤8	≤8
扭轉剛性 Torsional Rigidity	Nm/arcmin	3~10	2.3	5	15	45	69	140	220
容許徑向力 Max. Radial Force	N	3~10	750	1,180	3,000	6,500	9,100	11,150	35,000
容許軸向力 Max. Axial Force	N	3~10	325	590	1,500	3,250	4,550	5,575	17,500
使用壽命 Service Life	hr	3~10	20,000						
效率 η 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 Synthetic oil						
防護等級 Degree of Gearbox Protection		3~10	IP65						
安裝方向 Mounting Position		3~10	任意方向 Any						
噪音值 Noise Level	dB	3~10	≤62	≤62	≤65	≤68	≤70	≤70	≤70
重量 Weight ±3%	Kg	3~10	0.63	1.57	3.22	8	16		



## MODEL : FE

雙段 2-Stage

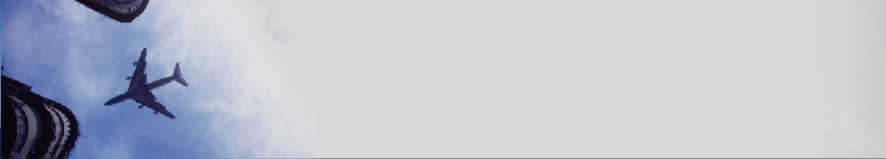
速比 RATIO : 15.20.25.30.35.40.50.70.100



單位 unit:mm

Model Code	50	70	90	120	145	180	220
<b>A</b>							
A1	Ø42	Ø60	Ø80	Ø105	Ø130	Ø184	Ø218
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	Ø13	Ø16	Ø22	Ø32	Ø40	Ø55	Ø75
A4	Ø35	Ø50	Ø70	Ø90	Ø110	Ø160	Ø180
A5	5	6	9, 23.5	10	10	13	13
A6	5	5	6	10	12	16	20
A7	15	18	24.5	35	43	59	79.5
<b>B</b>							
B1	Ø50	Ø70	Ø93	Ø122	Ø148	Ø205	Ø242
B2	4	5	6	8	10	20	20
B3	1	1	2	2	3	4	5
B4	15	20	30	40	65	70	90
B5	20	28	36	50	74	82	104
B6	25	34	44	60	87	106	129
B7	6	8	9	12	15	20	27
B8	63.7	83.5	98.7	140	158.7	140	175
B9	126.7	166.5	210.2, 224.7	281.5	354.7	397.5	462
<b>C</b>							
C1	46, 60, 63, 90	70, 75, 90	90, 100, 115, 165	145, 165	145, 200, 215	200, 215, 235, 265	200, 235, 265, 300
C2	M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M6 x P1.0 M8 x P1.25 M10 x P1.5	M6 x P1.0 M8 x P1.25 M10 x P1.5	M8 x P1.25 M10 x P1.5 M12 x P1.75	M12 x P1.75	M12 x P1.75 M16 x P2.0
C3	5.65, 6, 8	6.35, 8, 10, 11, 12, 14	14, 16, 19, 22, 24	19, 22, 24, 28, 32	22, 24, 28, 32, 35	38, 42, 48	42, 48, 55
C4	26	33.5	51, 65.5	63, 73	81.5	113	116
C5	30, 40, 50, 70	50, 60, 70	70, 80, 110, 130	110, 130	110, 114.3, 180	114.3, 200, 230	114.3, 200, 230, 250
C6	M3 x P0.5	M4 x P0.7 M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46, 55, 60, 76	64, 70, 80	92, 110, 130, 142	130, 150	146, 180, 190	182, 200, 220, 250	220, 222, 250, 265
C8	32	41	58.5, 73	69.5	94	131.5	131

規格 Model No.	單位 Unit	速比 Ratio	#50	#70	#90	#120	#145	#180	#220
額定輸出扭矩 Rated Output Torque	Nm	15	17	50	125	268	482	940	1420
		20	15	45	111	238	426	860	1300
		25	14	42	104	223	401	835	1270
		30	17	50	125	268	482	940	1420
		35	13	39	98	208	373	790	1180
		40	15	45	111	238	427	860	1300
		50	14	42	104	223	402	835	1270
		70	13	40	98	208	373	790	1180
		100	12	37	92	198	357	760	1100
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	5,000	4,800	4,000	3,600	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	rpm	15~100	8,000	6,000	6,000	4,800	3,600	3,600	3,600
背隙 Backlash	arcmin	15~100	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity	Nm/arcmin	15~100	2.3	5	15	45	69	140	220
容許徑向力 Max. Radial Force	N	15~100	750	1,180	3,000	6,500	9,100	11,150	35,000
容許軸向力 Max. Axial Force	N	15~100	325	590	1,500	3,250	4,550	5,575	17,500
使用壽命 Service Life	hr	15~100	20,000						
效率 η 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 Synthetic oil						
防護等級 Degree of Gearbox Protection		15~100	IP65						
安裝方向 Mounting Position		15~100	任意方向 Any						
噪音值 Noise Level	dB	15~100	≤ 65	≤ 65	≤ 68	≤ 70	≤ 72	≤ 72	≤ 72
重量 Weight ±3%	Kg	15~100	0.9	2.24	4.59	11.22	22.5		



## Low Backlash Worm Reducer

### 低背隙蝸輪減速機

#### PNE系列低背隙鋁合金蝸輪減速機

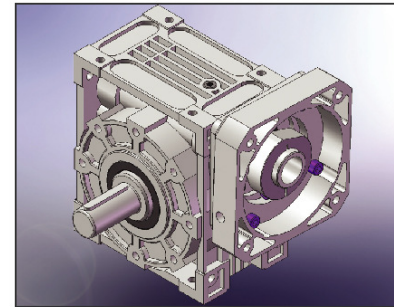
全系列小於8弧分 · Backlash  $\leq$  8 arcmin

- 機體用優質的鋁合金壓鑄成形。
- 蝸桿使用鎢鉬合金銅(SCM415)，經滲碳熱處理及精密研磨。
- 蝸輪使用鋁青銅成形專用刀具及經K線加工，表面平滑、傳動平穩、效率高、噪音小。

Outer Shell: Cast aluminum ALADC 12, alone-piece cust.

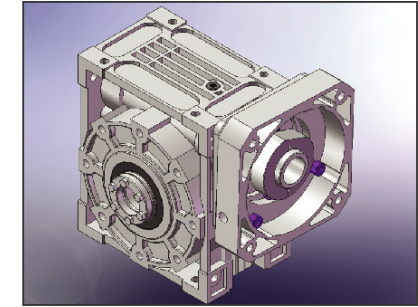
Worm Wheel: ACBC 3, CNC precision lathe machining shaping cutting blade of minimum cutting coefficient and extended service life.

Worm Shaft: SCM415, CNC precision lathe machining gear grinding after cutting and carburizing with precision gear grinding.



#### PNEM

- 實心軸  
Solid Output Shaft



#### PNEOM

- 中空軸  
Hollow Output Shaft

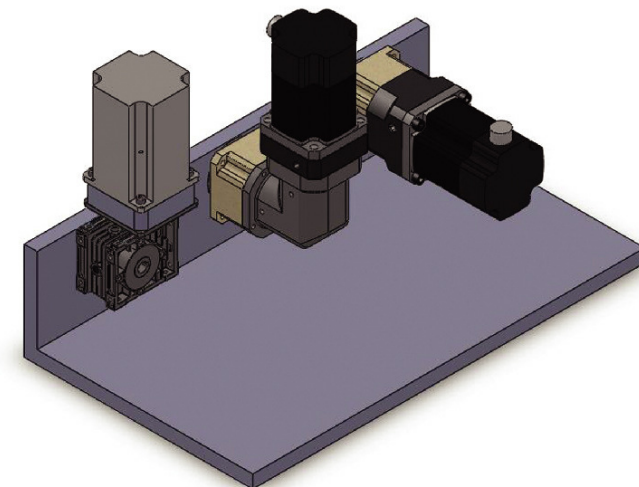
## Indication Of Model Numbers

### 機種型號表示

PNEM	60	30	L	MOTOR
減速機型 TYPE	型號 MODEL	速比 RATIO	軸向 Shaft Direction	馬達型號： MOTOR NO.
PNEM	30	1/5	R	
PNEOM	40	1/10	L	
	50	1/15		
	60	1/20		
	70	1/30		
		1/40		
		1/50		
		1/60		

## Application

### 應用範例





## 高精度可調背隙蝸輪減速機 Adjustable Backlash Worm Reducer

### ANE系列可調背隙蝸輪減速機

雙導程設計，高扭力，高剛性、低噪音，低震動，低背隙（0~6弧分）

- 背隙調整容易，倍增精度壽命
- 特殊規格歡迎訂製
- 適用高精度傳動及分度，定位，定寸之應用
  - 工具機第四軸
  - 旋轉工作檯，分度盤
  - 機器人
  - 各式產業機械定位，定寸裝置

### Adjustable Backlash Worm Reducer

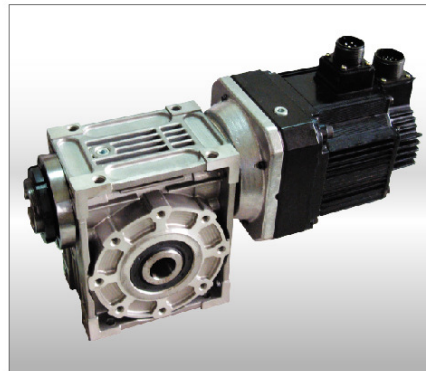
#### ANE Series Adjustable Backlash Worm Gear Reducer

Features: dual-lead design, high output torque, high rigidity, low noise, low vibration and low backlash (0-6 arcmin.)

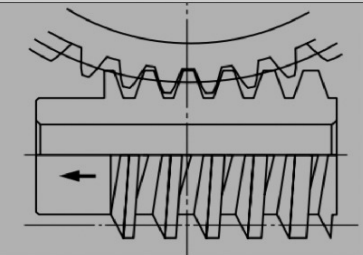
- Easy to adjust backlash for increasing accuracy and service life.
- Customized specifications are available.
- Suitable for high-accuracy transmission system, indexing, positioning and sizing applications:
  - 4th-axis of machine tools
  - Rotary tables and index tables
  - Robots
  - Positioning and sizing devices of various industrial machinery



○ 實心軸傳動  
Solid output shaft



○ 中空軸傳動  
Hollow output shaft



### ○ 雙導程蝸桿傳動及齒隙調整原理

由於普通蝸桿蝸輪是用蝸桿沿蝸輪徑向移動來調整齒合側隙，因而改變了傳動組的中心距，中心距的改變會引起齒面接觸情況變差，甚至加劇磨損，不利於保持蝸輪組的精度；而雙導程蝸桿是用蝸桿軸向移動來調整齒合側隙，不會改變傳動組的中心距，可避免上述缺點。

雙導程蝸桿簡單說就是蝸桿的齒厚是變化的，左齒面與右齒面導程長度不同，使得齒厚形成有連續變化的齒形，蝸輪的齒面也為了與蝸桿配合，而製作成左右不同的齒面，這樣就可以調整蝸輪蝸桿的間隙達到最佳狀態。當使用過程由於蝸輪磨損，造成蝸輪蝸桿的間隙變大，可以通過調整蝸桿的軸向位置，使蝸輪蝸桿的間隙變小。

雙導程蝸桿傳動具有改變齒合側隙的特點，能夠始終保持正確的齒合關係；並且結構緊湊，調整方便，因而在要求連續精確分度的結構中被採用，以便調整齒合側隙到最小程度。

### ○ Principle of Dual-lead Worm Transmission and Backlash Adjustment

The backlash adjustment on a conventional worm / worm gear set is made by moving the worm along the worm gear in radial direction, which may result in a change of center distance of the transmission set. Such change of center distance will cause poor contact between teeth, wearing and affection on accuracy of worm / worm gear set. However, the backlash adjustment on a dual-lead worm is made by moving worm in axial direction, which does not change the distance of the transmission set and avoid above problems.

The dual-lead worm features varied teeth thickness. There is a different lead length between the right and left tooth faces, that creates a continuous teeth shapes. To properly engage with the worm, the teeth faces of worm gear are also designed with different right and left tooth faces. This permits backlash adjustment to achieve the best condition. After a period of operation, if a backlash between worm and worm gear increases due to wear, it can be adjusted by moving the worm in axial direction until a proper backlash is obtained.

The dual-lead worm transmission allows for changing side backlash to keep correct teeth-engagement at all times. In addition, it has a compact structure and easy adjustment. Therefore, it is ideally suited for indexing devices that require continuous accuracy by adjusting teeth backlash to the minimum extent.

## SERVOBOX 馬達選用參考表 SERVOBOX Series Selection Table of Motor for Reference

單段 SB, SE, 1-Stage 雙段 SB-A, SE-A, 2-Stage

型號 Model	44	62	90	120	142	180	220
	44A	62A	90A	120A	142A	180A	220A
入力孔徑 Input Bore	5.65~11	6.35~19	14~24	19~32	22~38	38~55	42~55
容量 Power							
100w	●	●					
200w	●	●					
400w		●					
750w			●	●			
1kw			●	●	●		
1.5kw			●	●	●		
2.2kw				●	●	●	
3.75kw				●	●	●	
5.5kw					●	●	
7.5kw					●	●	●
11kw						●	●
15kw						●	●
22kw						●	●
30kw						●	●

雙段 SB, SE, 2-Stage

型號 Model	62	90	120	142	180	220
	入力孔徑 Input Bore	5.65~11	6.35~19	14~24	19~32	22~38
容量 Power						
100w	●					
200w	●					
400w	●	●				
750w		●	●			
1kw		●	●	●		
1.5kw		●	●	●		
2.2kw			●	●	●	
3.75kw			●	●	●	
5.5kw					●	
7.5kw					●	●
11kw					●	●
15kw					●	●
22kw					●	●
30kw					●	●

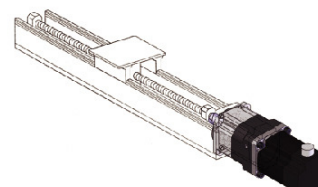
## FABGEAR 馬達選用參考表 FABGEAR Series Selection Table of Motor for Reference

型號 Model	50	70	90	120	145
	入力孔徑 Input Bore	5.65~8	6.35~14	14~24	19~32
容量 Power					
100w	●	●			
200w		●			
400w		●			
750w			●	●	
1kw			●	●	
1.5kw			●	●	●
2.2kw				●	●
3.75kw				●	●
5.5kw					●
7.5kw					
11kw					
15kw					
22kw					

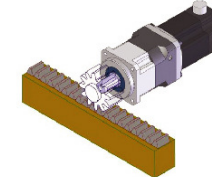
## Applications 減速機應用範例

### ○ 線性動作機構 Linear Action

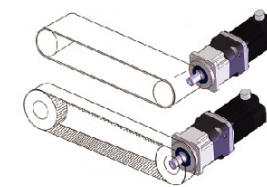
● 滾珠螺桿傳動  
Ball Screw



● 齒條傳動  
Rack

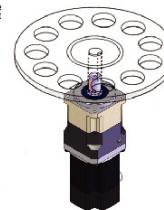


● 滾輪/滾筒/皮帶  
Roller / Belt

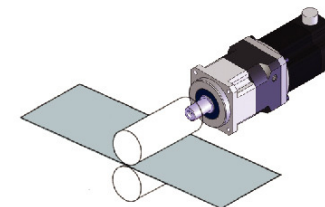


### ○ 回轉盤機構 Rotary Action

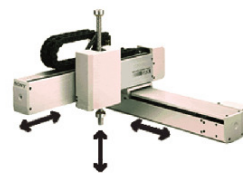
● 分度盤  
Index



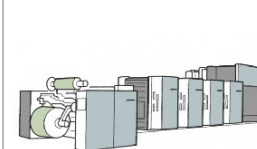
### ○ 其他機構 Others



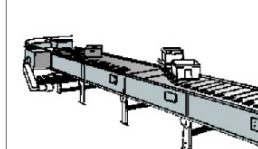
● 機器手臂  
Robot



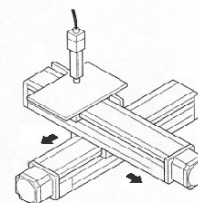
● 印刷機  
Printing Machine



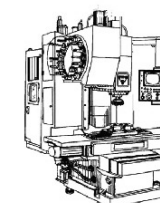
● 輸送機  
Conveyor



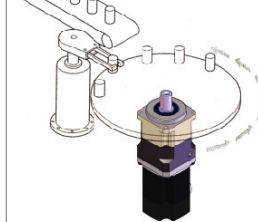
● 工作台  
Working Table



● CNC主軸  
CNC Spindle



● 分割器  
Index



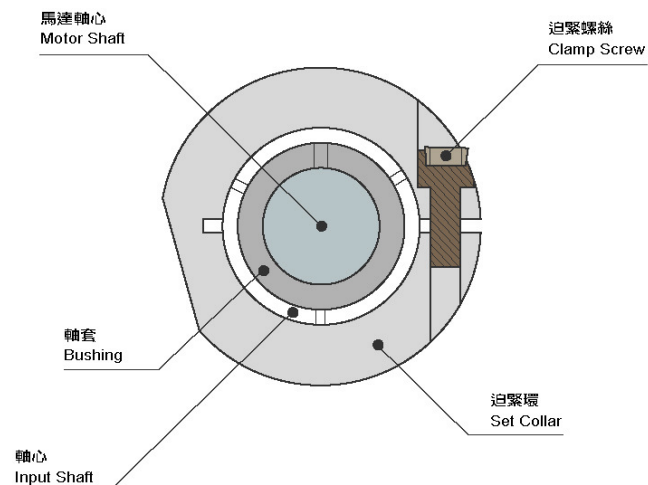
## Clamp Screw & Set Collar Torque Table

迫緊螺絲及迫緊環扭矩表

MODEL	迫緊螺絲規格 Spec. of Clamp Screw	迫緊螺絲強度 Screw Grade	鎖緊扭矩 Tighten Torque(N.m)	迫緊扭矩 Clench Torque(N.m)	鍵 Key
44	M3*P 0.5	12.9	2.2	58	
62	M4*P 0.7	12.9	4.83	102	
	M5*P 0.8	12.9	10	164	
90	M6*P 1.0	12.9	16.3	233	
120	M8*P 1.25	12.9	41	423	
142	M10*P 1.5	12.9	81	678	
180	M10*P 1.5	12.9	81	678	●
220	M10*P 1.5	12.9	81	678	●

\* 馬達扭矩超過迫緊扭矩時，可能導致打滑。  
It will cause slip when motor torque exceed clench torque.

孔徑 Input Bore	Ø38	Ø42	Ø48	Ø55
鍵 Key	10 x 8	12 x 8	14 x 9	16 x 10



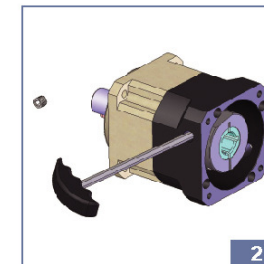
## Planetary Gearbox and Motor Mounting Instructions

行星減速機與馬達安裝指南



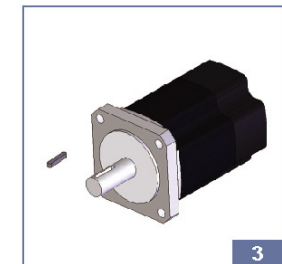
核對馬達型號與減速機規格是否正確。並將配合面擦試乾淨。

Confirm the motor and gearbox size. Clean up the mounting surface.



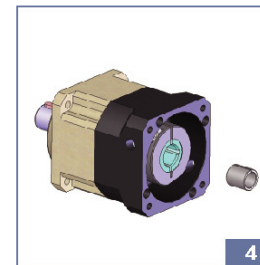
取出塞頭，使用六角扳手將迫緊環螺絲鬆開。並將螺絲對準孔位。

Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.



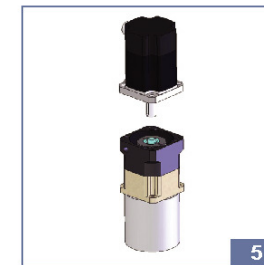
如馬達軸徑在 $\phi 35$ 以下，請將馬達軸上的鍵拿掉。

Remove the motor key if the diameter of motor shaft under  $\phi 32$ .



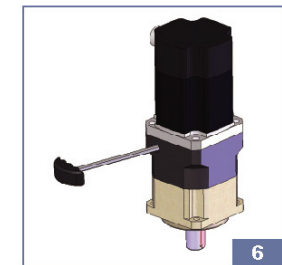
檢查馬達出力軸尺寸，如需軸套，請先裝進入力孔內。

Check motor shaft size and insert bushing into input bore if necessary.



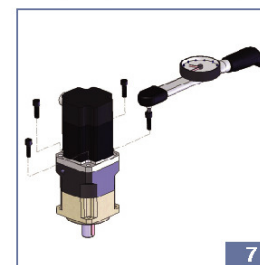
將馬達垂直裝入減速機。

Put the motor into the gearbox vertically.



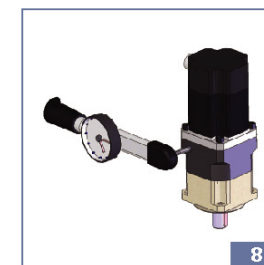
使用六角扳手將迫緊環螺絲稍微固定。

Adapted the motor. Tighten the set collar bolt with light torque.



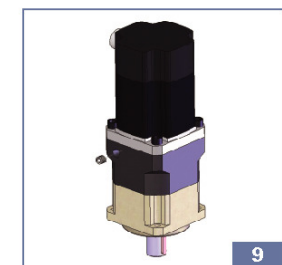
依序使用扭力扳手鎖上外六角螺絲。

Tighten the mounting bolt in 1~4 order with torque wrench.



使用扭力扳手將迫緊環螺絲鎖緊。

Tighten the set collar bolt with torque wrench.



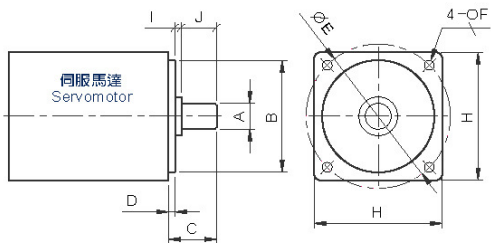
裝回塞頭。

Tighten back the screw plug.





# Inquiry Information 客戶詢問資料



A	B	C	D	E	F	H	I	J

### 行星減速機訂購編號



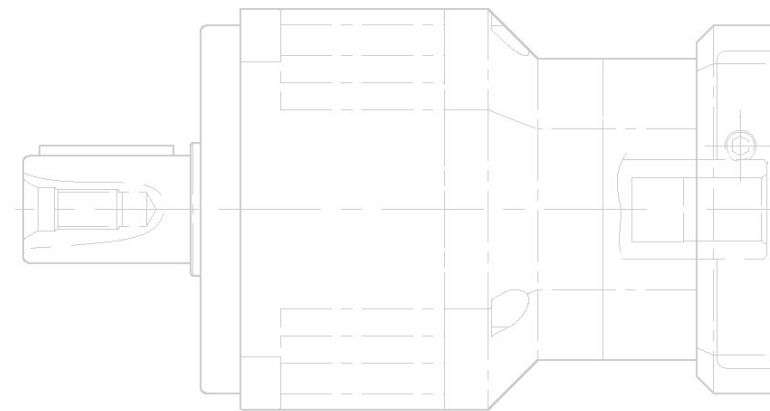
### 訂貨須知：

- ◆ 機種、型號、馬力
- ◆ 減速比或每分鐘回轉數
- ◆ 荷重狀況及聯結方式
- ◆ 數量及被安裝的機械名稱
- ◆ 入力方式和入力轉速
- ◆ 馬達廠牌型號或法蘭及馬達軸尺寸

### General Notices:

- ◆ Type, model and horse power
- ◆ Speed ratio or R.P.M. of output shaft
- ◆ Method of connection and load factor
- ◆ Quantity and what kind of machinery
- ◆ Speed ratio or R.P.M. of input shaft
- ◆ Motor band & Model no or frame & motor shaft dimension.

公司名稱 Company Name		聯絡人 Contact Person
地址 Address		
電話 Tel	傳真 Fax	電子信箱 E-Mail
備註 Comment		



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March, 2009

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