

[2012] Planetary Reducers

精密行星減速機

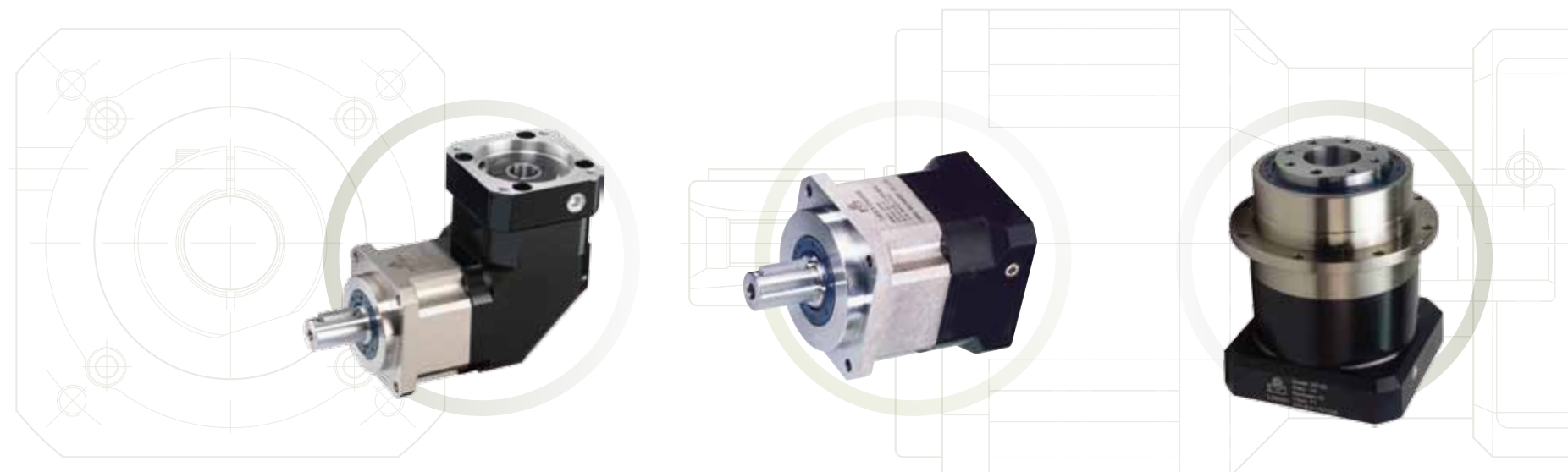
SERVOBOX® Series

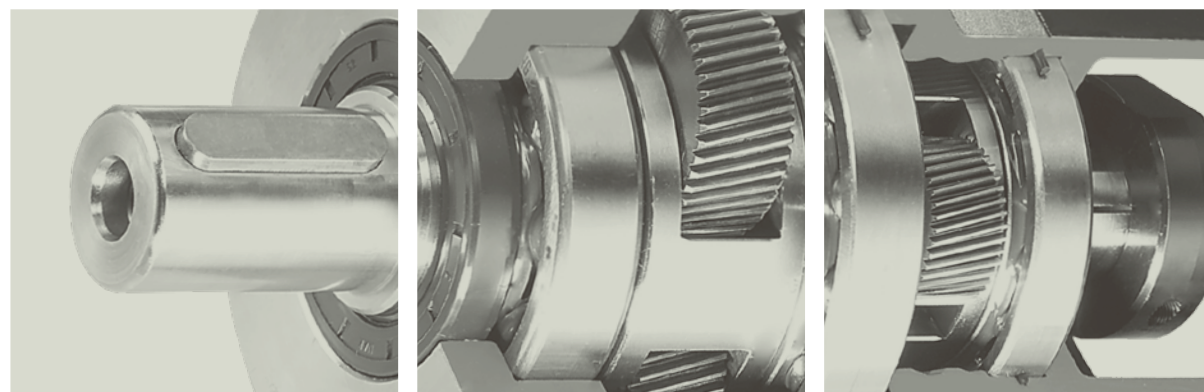


High Accuracy & Efficiency Profit

利明牌

精密行星減速機

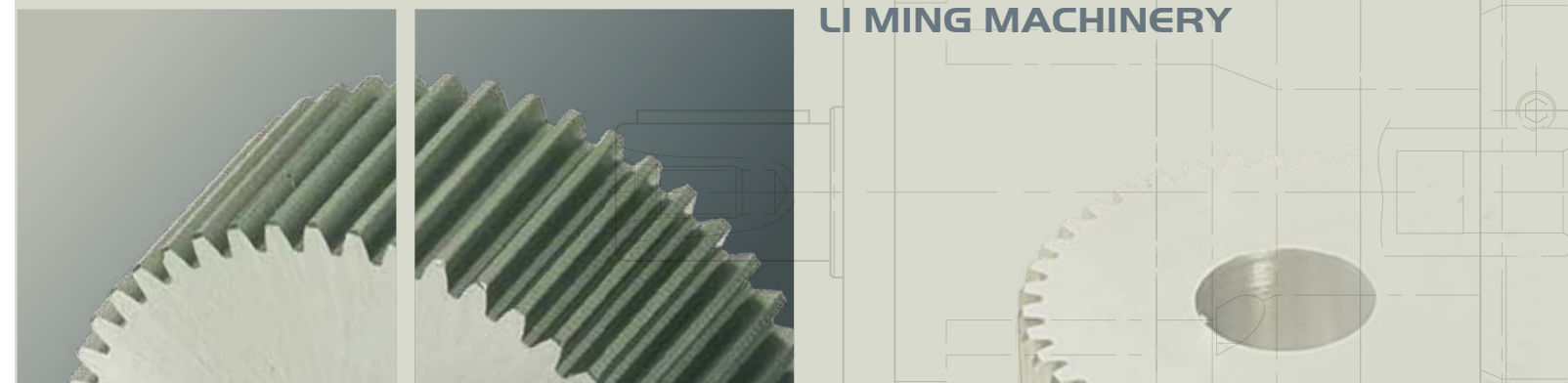




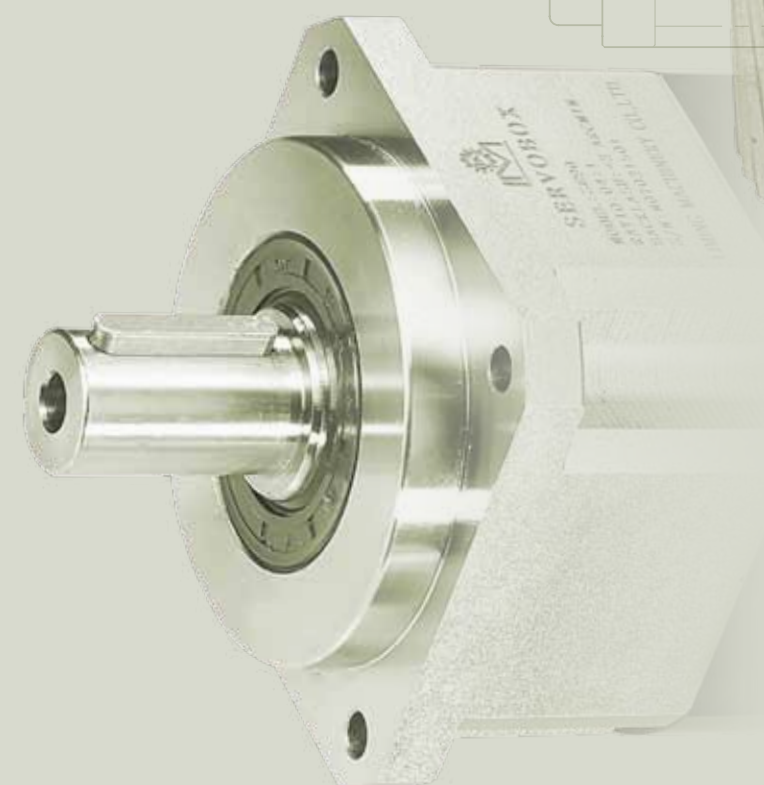
Quality First & Customer's Satisfaction

目次 INDEX

	02 公司簡介 Company Introductory
	10 SERVOBOX系列簡介 SERVOBOX Series Introductory
	20 SB系列 SB Series
	30 SBL系列 SBL Series
	36 SE系列 SE Series
	46 SEL系列 SEL Series
	54 SD系列簡介 SD Series Introductory
	56 SD系列 SD Series
	60 SDL系列 SDL Series
	64 設計參考資料 Engineering Information



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.

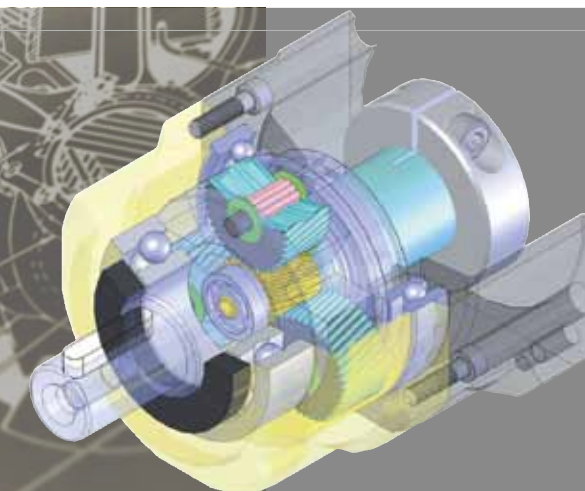
At Li Ming, we have a team with outstanding background in high-tech field. Li Ming's outstanding enterprise culture results from its practicality, constantly learning the advanced management system and a commitment to excellence.

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階技術的科技人才。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。LIMING減速機一直位居市場領導地位。



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.





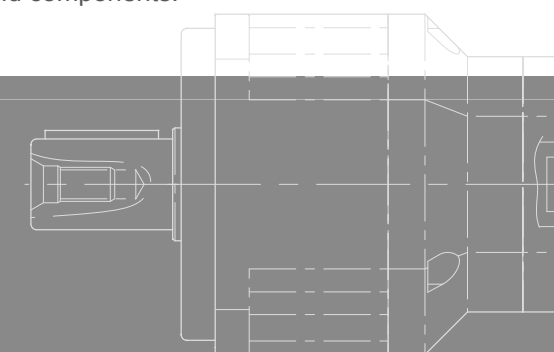
自動化加工設備

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術員，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。

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 strict 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.



Integrated

Manufacturing with
Full Range of
Automatic Equipment



Automatic

processing equipment

Automatic Processing Equipment

To enhance technical improvement, Li Ming Machinery Co.,Ltd. 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。

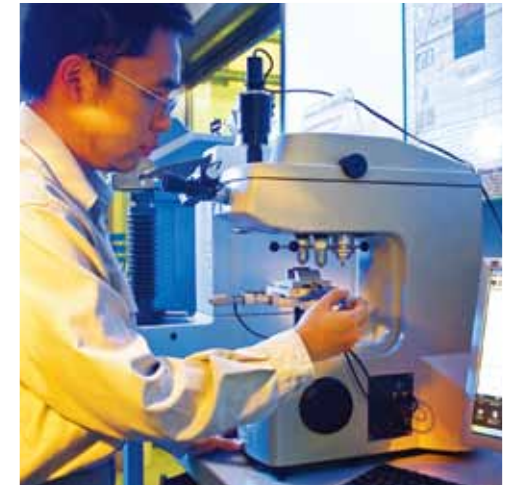


High Precision Planetary Reducer

Comprehensive Quality Control System

Comprehensive Quality Control is not a Mere Slogan

[Comprehensive Quality Control] is never a mere slogan of LIMING. 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 subject 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.



「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。





SD SERIES 系列

靜音 Quiet operation

使用斜齒輪實現順暢安靜地運轉。

Helical gears contribute to reduce vibration and noise.

高精度 High precision

背隙低於3弧分，定位精確。

Backlash ≤ 3 arc-min reaches precision alignment.

高剛性、高扭矩 High rigidity & torque

使用整體式滿針滾針軸承，大大提高了剛性和扭矩。

High rigidity & high torque are achieved by integrant needle roller bearings.

馬達連接板的模組化設計 Modular Design of Motor Connection Plate

獨特的模組化設計，適用於任何廠牌法蘭型式的伺服馬達。

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

無潤滑脂洩漏、維護方便 No grease leakage & Maintenance-free

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

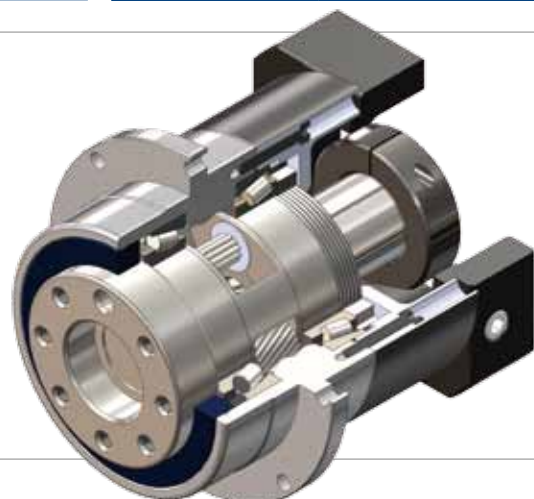
Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life.

Convenient installation is the advantage.

Indication of Model Numbers

機種型號表示

SD	-	90	-	10		-	P0	MOTOR
減速機型 Type		型號 Model		速比 Ratio		出力軸軸承選擇 Output Bearing	背隙等級 Backlash Class	馬達型號 Motor Type
SD		47		單段 1-Stage 5, 7, 10		<input type="checkbox"/> 標準品，滾珠軸承 Standard (Ball Bearing)	單段 1-Stage Ps ≤ 1 弧分(arcmin) P0 ≤ 3 弧分(arcmin) P1 ≤ 5 弧分(arcmin) P2 ≤ 7 弧分(arcmin)	
SDL		64		雙段 2-Stage 25, 35, 50, 70, 100		<input type="checkbox"/> 滾錐軸承 Taper Bearing	雙段 2-Stage Ps ≤ 3 弧分(arcmin) P0 ≤ 5 弧分(arcmin) P1 ≤ 7 弧分(arcmin) P2 ≤ 9 弧分(arcmin)	
		90						
		110						
		140						
		200						
		255						



一體式行星臂架及雙懸臂設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。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.



滿針的滾針軸承設計

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

Full Needle Roller Bearings Design

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



筒夾式連結機構

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

Collet Locking Mechanism

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



一體式螺旋內齒輪箱

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

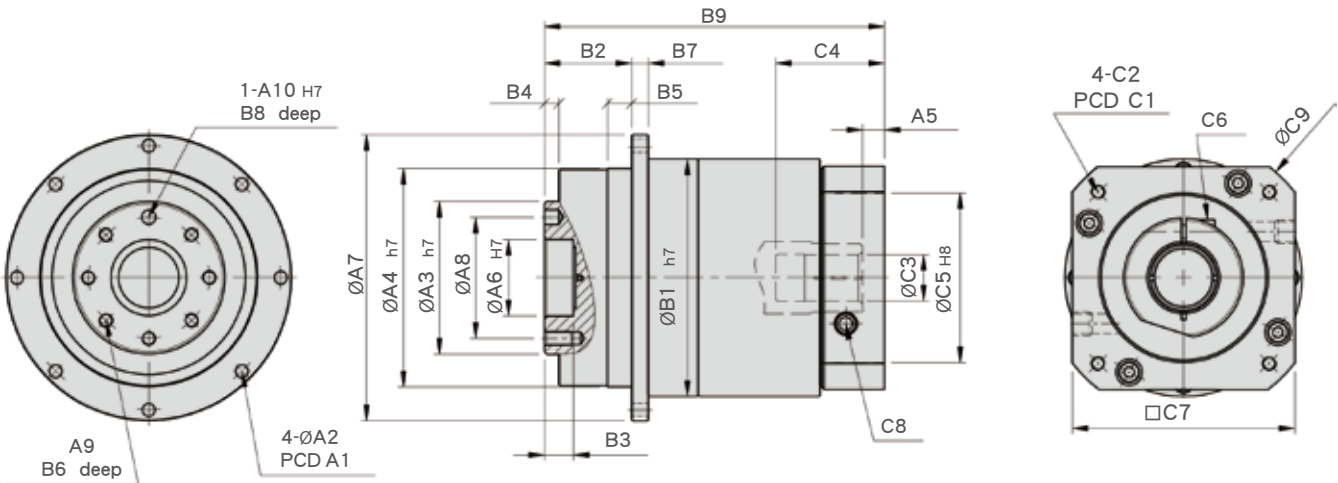
One-piece Helical Gear Box

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

MODEL : SD

單段 1-Stage

速比 RATIO : 5.7.10



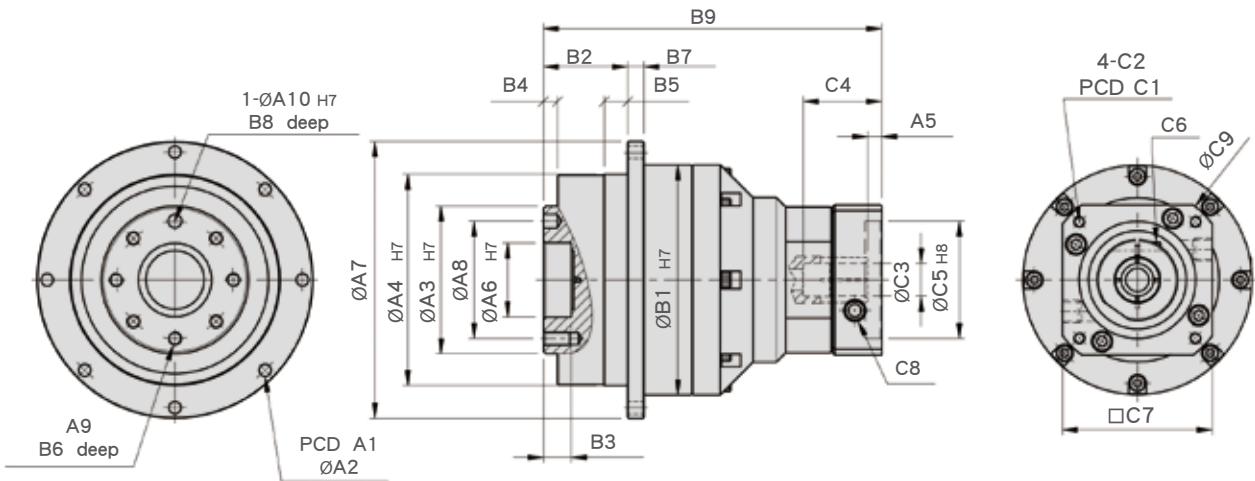
unit:mm

	Model Code	unit:mm						
		47	64	90	110	140	200	255
A	A1	67	79	109	135	168	233	280
	A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
	A3 h7	28	40	63	80	100	160	180
	A4 h7	47	64	90	110	140	200	255
	A5	6	6.5	8.5, 23	10, 20	10	11.5	12.5
	A6 h7	12	20	31.5	40	50	80	100
	A7	72	86	118	146	179	248	300
	A8	20	31.5	50	63	80	125	140
	A9	4-M3 x P0.5	7-M5 x P0.8	7-M6 x P1.0	11-M6 x P1.0	11-M8 x P1.25	11-M10 x P1.5	12-M16 x P2.0
	A10 H7	3	5	6	6	8	10	12
B	B1 h7	59	70	98	125	156	212	255
	B2	19.5	19.5	30	29	38	50	66
	B3	5	7	12	12	12	16	20
	B4	3	4	6	6	6	8	12
	B5	5	6	10	10	15	15	20
	B6	6.5	10	12	12	16	22	32
	B7	4	5	7	8	10	12	16
	B8	4	6	6	7	7	10	10
	B9	73	84.5	133、147.5	153、163	186.5	250.5	263
C	C1	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、200	200、215、265	200、265、300
	C2	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16	M12、M16
	C3	8、9、11	14、19	19、22、24	24、28、32	28、32、35	38、42、48、55	42、48、55
	C4	30.5	34	45、73	67、77	84.5	114.5	113.5
	C5 H8	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230	114.3、230、250
	C6	M3 x P0.5	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	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250	222、250、265
	C8	1/8"PT	1/8"PT	1/8"PT	1/4"PT	1/4"PT	3/8"PT	3/8"PT
	C9	58、74	80、90、105	116、140、165	138、165、190	170、190、245	230、250、300	254、300、340

規格 Model No.	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque	Nm	5	20	50	155	333	618	1189	2010
		7	19	47	142	309	573	1108	1870
		10	16	43	136	294	549	1059	1779
最大輸出力矩 Max. Output Torque	Nm	5~10	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	5~10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	5~10	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps	arcmin	5~10	—	—	≤1	≤1	≤1	≤1	≤1
背隙 Backlash P0	arcmin	5~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
背隙 Backlash P1	arcmin	5~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
背隙 Backlash P2	arcmin	5~10	≤7	≤7	≤7	≤7	≤7	≤7	≤7
扭轉剛性 Torsional Rigidity	Nm/arcmin	5~10	6	14	30	86	155	450	1126
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	N	5~10	340	590	1,970	2,970	4,690	6,700	8,800
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	N	5~10	—	—	2,670	4,260	6,240	8,100	10,610
使用壽命 Service Life	hr	5~10	20,000(連續運轉壽命為 10,000hrs) 20,000(Continuous operation life 10,000hrs)						
效率 Efficiency	%	5~10	≥97%						
使用溫度 Operating Temperature	℃	5~10	-25℃ ~ +95℃						
潤滑 Lubrication		5~10	全合成潤滑油脂 Synthetic Gear Grease						
防護等級 Protection Class		5~10	IP65						
安裝方向 Mounting Position		5~10	任意方向 Any						
噪音值 Noise Level	dB	5~10	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 Weight ±3%	Kg	5~10	0.7	1.4	4.2	7.4			

MODEL : SD

雙段 2-Stage
速比 RATIO : 25.35.50.70.100



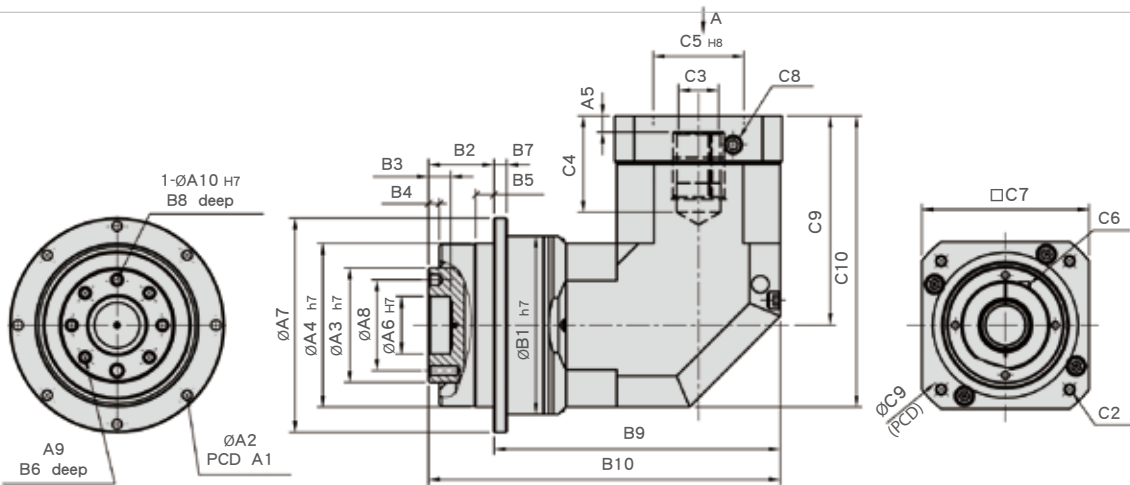
unit:mm

Model Code	47	64	90	110	140	200	255
	47	64	90	110	140	200	255
A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.8	12-9.0	16-13.5
A3 h7	28	40	63	80	100	160	180
A4 h7	47	64	90	110	140	200	255
A5	5	5	6	9, 23	10, 20	10	11.5
A6 H7	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4-M3 x P0.5	7-M5 x P0.8	7-M6 x P1.0	11-M6 x P1.0	11-M8 x P1.25	11-M10 x P1.5	12-M16 x P2.0
A10 H7	3	5	6	6	8	10	12
B1 h7	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	10	12	12	16	22	30.5
B7	4	5	7	8	10	12	18
B8	4	6	6	7	7	10	10
B9	99	109	144.5	189、203.5	224.5、234.5	290.5	349
C1	46、60、63	46、60、63	70、75、90	90、100、115、145	115、145、165	145、165、215	200、215、265
C2	M3、M4、M5	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16
C3	8、9、11	8、9、11	14、19	19、22、24	24、28、32	28、32、35	38、42、48、55
C4	30.5	32	33.5	59、73.5	67、77	84.5	114.5
C5 H8	30、40、50	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230
C6	M3 x P0.5	M3 x P0.5	M5 x P1.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46、55	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250
C8	1/8"PT	1/8"PT	1/8"PT	1/8"PT	1/4"PT	1/4"PT	3/8"PT
C9	58、74	58、74	80、90、105	116、140、165	138、165、190	170、190、245	230、250、300

規格 Model No.	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque	Nm	25	20	50	155	333	618	1189	2010
		35	19	47	142	309	573	1108	1870
		50	20	50	155	333	618	1189	2010
		70	19	47	142	309	573	1108	1870
		100	16	43	136	294	549	1059	1779
最大輸出力矩 Max. Output Torque	Nm	25~100	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	25~100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	25~100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps	arcmin	25~100	-	-	-	≤3	≤3	≤3	≤3
背隙 Backlash P0	arcmin	25~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
背隙 Backlash P1	arcmin	25~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
背隙 Backlash P2	arcmin	25~100	≤9	≤9	≤9	≤9	≤9	≤9	≤9
扭轉剛性 Torsional Rigidity	Nm/arcmin	25~100	6	14	30	86	155	450	1126
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	N	25~100	340	590	1,970	2,970	4,690	6,700	8,800
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	N	25~100	-	-	2,670	4,260	6,240	8,100	10,610
使用壽命 Service Life	hr	25~100	20,000(連續運轉壽命為 10,000hrs) 20,000(Continuous operation life 10,000hrs)						
效率 Efficiency	%	25~100	≥94%						
使用溫度 Operating Temperature	°C	25~100	-25°C ~ +90°C						
潤滑 Lubrication		25~100	全合成潤滑油脂 Synthetic Gear Grease						
防護等級 Protection Class		25~100	IP65						
安裝方向 Mounting Position		25~100	任意方向 Any						
噪音值 Noise Level	dB	25~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 Weight ±3%	Kg	25~100	1	1.9	4.8				

MODEL : SDL

單段 1-Stage
速比 RATIO : 5.7.10.14.20



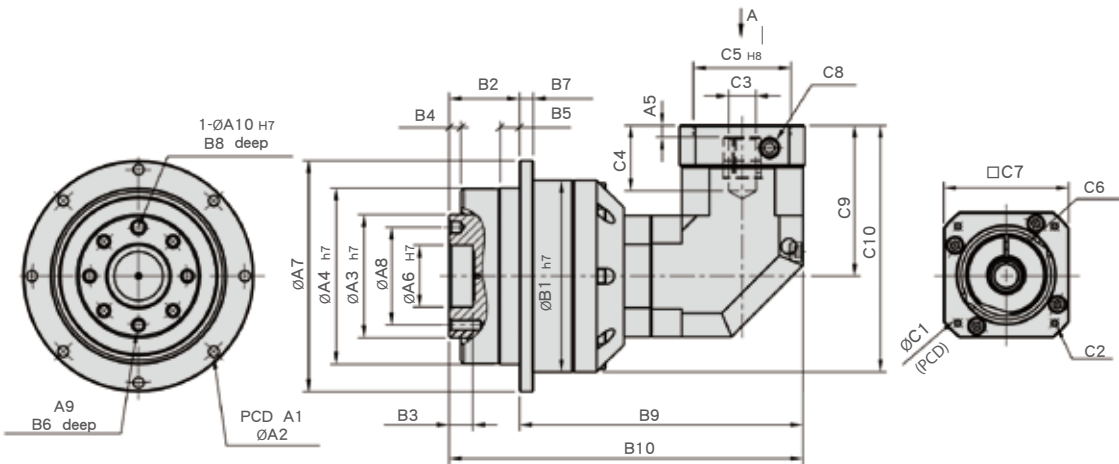
unit:mm

Model Code	47	64	90	110	140	200	255
	67	79	109	135	168	233	280
A1	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A2	28	40	63	80	100	160	180
A3 h7	47	64	90	110	140	200	255
A4 h7	6	6.5	8.5、23	10、20	10	12.5	12.5
A5	12	20	31.5	40	50	80	100
A6 H7	72	86	118	146	179	248	300
A7	20	31.5	50	63	80	125	140
A8	4-M3 x P0.5	7-M5 x P0.8	7-M6 x P1.0	11-M6 x P1.0	11-M8 x P1.25	11-M10 x P1.5	12-M16 x P2.0
A9	3	5	6	6	8	10	12
A10 H7	59	70	98	125	156	212	255
B1 h7	19.5	19.5	30	29	38	50	66
B2	5	7	12	12	12	16	20
B3	3	4	6	6	6	8	12
B4	5	6	10	10	15	15	20
B5	6.5	10	12	12	16	22	32
B6	4	5	7	8	10	12	16
B7	4	6	6	7	7	10	10
B8	82.5	105.5	163.6	203	227.5	313	332.5
B9	102	125	193.6	232	265.5	363	398.5
B10	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、200	200、215、265	200、265、300
C1	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16	M12、M16
C2	8、9、11	14、19	19、22、24	24、28、32	28、32、35	38、42、48、55	42、48、55
C3	27	33.5	53、67.5	67、77	85	132	132
C4	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230	220、250、265
C5 H8	M3 x P0.5	M5 x 0.8	M6 x 1.0	M8 x 1.25	M10 x 1.5	M10 x 1.5	M10 x 1.5
C6	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250	222、250、265
C7	1/8"PT	1/8"PT	1/8"PT	1/4"PT	1/4"PT	3/8"PT	3/8"PT
C8	61	77	115.3、129.8	141、151	174	235	235
C9	83	108	160.3、174.8	201、211	245	325	345
C10							

規格 Model No.	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque	Nm	5	20	50	155	333	618	1189	2010
		7	19	47	142	309	573	1108	1870
		10	20	50	136	294	549	1059	1779
		14	19	47	142	309	573	1108	1870
		20	16	43	136	294	549	1059	1779
最大輸出力矩 Max. Output Torque	Nm	5~20	3倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	rpm	5~20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	rpm	5~20	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps	arcmin	5~20	-	-	≤2	≤2	≤2	≤2	≤2
背隙 Backlash P0	arcmin	5~20	≤4	≤4	≤4	≤4	≤4	≤4	≤4
背隙 Backlash P1	arcmin	5~20	≤6	≤6	≤6	≤6	≤6	≤6	≤6
背隙 Backlash P2	arcmin	5~20	≤8	≤8	≤8	≤8	≤8	≤8	≤8
扭轉剛性 Torsional Rigidity	Nm/arcmin	5~20	6	14	30	86	155	450	1126
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	N	5~20	340	590	1,970	2,970	4,690	6,700	8,800
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	N	5~20	-	-	2,670	4,260	6,240	8,100	10,610
使用壽命 Service Life	hr	5~20	20,000(連續運轉壽命為 10,000hrs) 20,000(Continuous operation life 10,000hrs)						
效率 Efficiency	%	5~20	≥95%						
使用溫度 Operating Temperature	°C	5~20	-25°C ~ +95°C						
潤滑 Lubrication		5~20	全合成潤滑油脂 Synthetic Gear Grease						
防護等級 Protection Class		5~20	IP65						
安裝方向 Mounting Position		5~20	任意方向 Any						
噪音值 Noise Level	dB	5~20	≤61	≤63	≤65	≤68	≤70	≤72	≤74
重量 Weight ±3%	Kg	5~20							

MODEL : SDL

雙段 2-Stage
速比 RATIO : 25.35.50.70.100.140.200



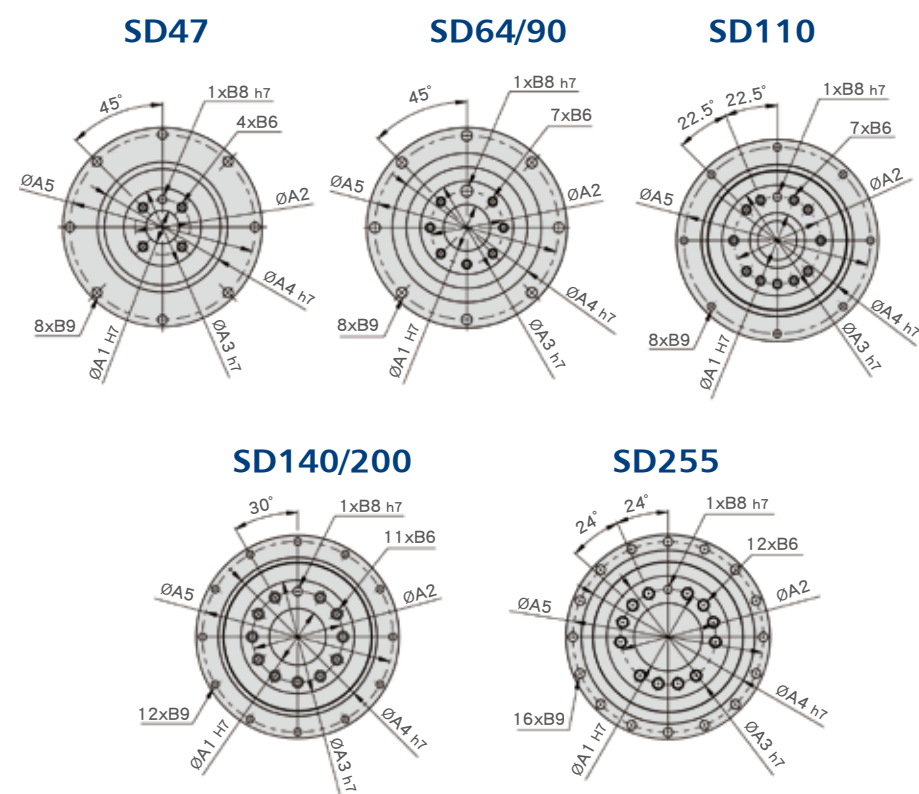
unit:mm

	Model Code	47	64	90	110	140	200	255
		A1	67	79	109	135	168	233
A	A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
	A3 h7	28	40	63	80	100	160	180
	A4 h7	47	64	90	110	140	200	255
	A5	6	6.5	8.5, 23	10, 20	10	12.5	12.5
	A6 H7	12	20	31.5	40	50	80	100
	A7	72	86	118	146	179	248	300
	A8	20	31.5	50	63	80	125	140
	A9	4-M3 x P0.5	7-M5 x P0.8	7-M6 x P1.0	11-M6 x P1.0	11-M8 x P1.25	11-M10 x P1.5	12-M16 x P2.0
	A10 H7	3	5	6	6	8	10	12
	B1 H7	59	70	98	125	156	212	255
B	B2	19.5	19.5	30	29	38	50	66
	B3	5	7	12	12	12	16	20
	B4	3	4	6	6	6	8	12
	B5	5	6	10	10	15	15	20
	B6	6.5	10	12	12	16	22	32
	B7	4	5	7	8	10	12	16
	B8	4	6	6	7	7	10	10
	B9	108.5	118.5	151	210.6	254.5	306.5	379.1
	B10	128	138	181	239.6	292.5	356.5	445.1
	C1	46、60、63	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、200	200、215、265
C	C2	M3、M4、M5	M3、M4、M5	M4、M5、M6	M5、M6、M8、M10	M6、M8、M10	M8、M10、M12	M10、M12、M16
	C3	8, 9, 11	8、9、11	14、19	19、22、24	24、28、32	32、35、38	38、42、48、55
	C4	27	27	33.5、40.5	53、67.5	67、77	85	117
	C5 H8	30、40、50	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230
	C6	M3 x P0.5	M3 x 0.5	M5 x 0.8	M6 x 1.0	M8 x 1.25	M10 x 1.5	M10 x 1.5
	C7	46、55	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250
	C8	1/8"PT	1/8"PT	1/8"PT	1/8"PT	1/4"PT	3/8"PT	3/8"PT
	C9	61	61	77	115.3、129.8	141、151	174	235
	C10	90.5	96	123.5、133	177.8、192.3	219、229	280	362.5

	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
規格 Model No. 額定輸出扭矩 Rated Output Torque	Nm	25	20	50	155	333	618	1189	2010
		35	19	47	142	309	573	1108	1870
		50	20	50	155	333	618	1189	2010
		70	19	47	142	309	573	1108	1870
		100	16	43	136	294	549	1059	1779
		140	19	47	142	309	573	1108	1870
最大輸出力矩 Max. Output Torque 額定輸入轉速 Rated Input Speed 最大輸入轉速 Max. Input Speed 背隙 Backlash Ps 背隙 Backlash P0 背隙 Backlash P1 背隙 Backlash P2 扭轉剛性 Torsional Rigidity 容許軸向力 Max.Axial Force 滾珠軸承 Ball Bearing 容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing 使用壽命 Service Life 效率 Efficiency 使用溫度 Operating Temperature 潤滑 Lubrication 防護等級 Protection Class 安裝方向 Mounting Position 噪音值 Noise Level 重量 Weight	Nm	25~200	3倍額定輸出力矩 3 Times of Rated Output Torque						
	rpm	25~200	3,000	3,000	3,000	3,000	3,000	3,000	2,000
	rpm	25~200	6,000	6,000	6,000	6,000	6,000	4,000	3,000
	arcmin	25~200	—	—	—	≤4	≤4	≤4	≤4
	arcmin	25~200	≤7	≤7	≤7	≤7	≤7	≤7	≤7
	arcmin	25~200	≤9	≤9	≤9	≤9	≤9	≤9	≤9
	arcmin	25~200	≤12	≤12	≤12	≤12	≤12	≤12	≤12
	Nm/arcmin	25~200	6	14	30	86	155	450	1126
	N	25~200	340	590	1,970	2,970	4,690	6,700	8,800
	N	25~200	—	—	2,670	4,260	6,240	8,100	10,610
	hr	25~200	20,000(連續運轉壽命為 10,000hrs) 20,000(Continuous operation life 10,000hrs)						
	%	25~200	≥92%						
	°C	25~200	-25°C ~ +90°C						
		25~200	全合成潤滑油脂 Synthetic Gear Grease						
		25~200	IP65						
		25~200	任意方向 Any						
	dB	25~200	≤56	≤58	≤60	≤63	≤65	≤67	≤70
	Kg	25~200							

SD 出力法蘭尺寸表

SD Output Frame Dimension



unit:mm

	Model Code	SD						
		SD47	SD64	SD90	SD110	SD140	SD200	SD255
A	A1 H7	12	20	31.5	40	50	80	100
	A2	20	31.5	50	63	80	80	140
	A3 h7	28	40	63	80	100	160	180
	A4 h7	47	64	90	110	140	200	255
B	A5	67	79	109	135	168	233	280
	B6	M3 x 0.5P	M5 x 0.8P	M6 x 1P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M16 x 2P
	B8	3	5	6	6	8	10	12
	B9	3.4	4.5	5.5	5.5	6.6	9	13.5

SERVOBOX 馬達選用參考表

SERVOBOX Series Reference Selection Table Of Motor

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

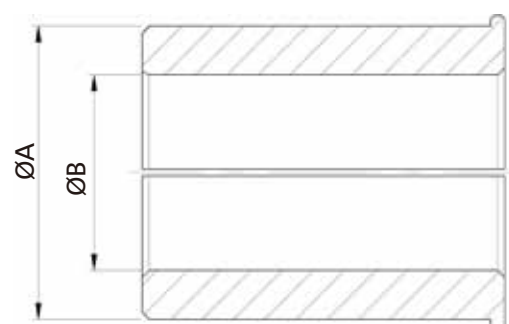
型號 Model	SB、SE	44	62	90	120	142	180	220
	SB-A、SE-A	44A	62A	90A	120A	142A	180A	220A
容量 Power	SD	47	64	90	110	140	200	255
	入力孔徑 Input Bore	5.65~11	6.35~19	14~24	19~32	22~38	38~55	42~55
100w		●	●					
200w		●	●					
400w			●	●				
750w				●	●			
1kw				●	●	●		
1.5kw				●	●	●		
2.2kw					●	●		
3.75kw					●	●		
5.5kw						●	●	
7.5kw						●	●	
11kw							●	●
15kw							●	●
22kw							●	●
30kw							●	●

雙段 SB, SE, SD, 2-Stage

型號 Model	SB、SE	62	90	120	142	180	220
	SD	47、64	90	110	140	200	255
容量 Power	入力孔徑 Input Bore	5.65~11	6.35~19	14~24	19~32	22~38	38~55
100w		●	●				
200w		●	●				
400w			●	●			
750w				●	●		
1kw				●	●		
1.5kw				●	●	●	
2.2kw					●	●	
3.75kw					●	●	
5.5kw						●	●
7.5kw						●	●
11kw						●	●
15kw							●
22kw							●
30kw							●

※ 以上表格僅供參考，選用時仍須以『額定輸出扭矩』為依據
The table is for reference. The selected model shall be based on rated output torque.

Bushing 軸套



軸套內徑為所使用伺服馬達的輸出軸軸徑。
下表中沒有的情況下需要插入軸套，在您所使用的輸出軸軸徑的近似值中選擇大值。

連接軸 孔徑 軸套 孔徑 ØA ØB	8	11	14	19	22	24	28	35	38	42	48
6	●		●								
6.35	●		●								
8		●	●								
9		●	●								
10			●	●							
11			●	●							
12			●	●							
12.7				●							
14				●		●					
16						●					
19					●	●	●				
22						●	●	●			
24							●	●			
25							●				
25.4								●			
28								●		●	
32								●			
35									●	●	
38										●	
42											●

Collet Screw & Set Collar Torque Table

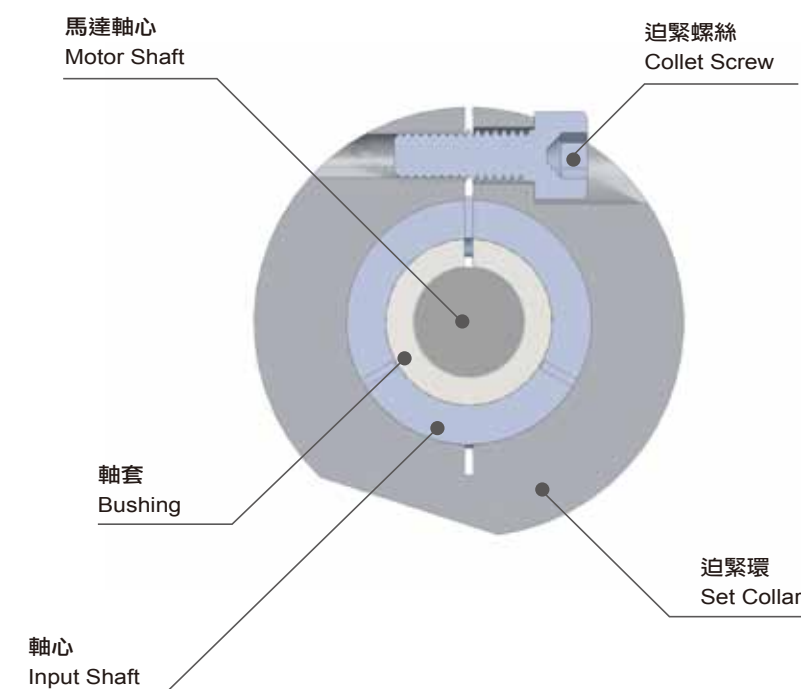
迫緊螺絲及迫緊環扭矩表

MODEL		迫緊螺絲規格 Spec. of Collet Screw	螺絲強度等級 Screw Grade	螺絲鎖緊扭矩 Tighten Torque(Nm)	迫緊扭矩 Clench Torque(Nm)	鍵 Key
SB、SE	SD					
44	47	M3*P 0.5	12.9	2.2	58	
62		M4*P 0.7	12.9	4.83	102	
64	64	M5*P 0.8	12.9	10	164	
90	90	M6*P 1.0	12.9	16.3	233	
120	110	M8*P 1.25	12.9	41	423	
142	140	M10*P 1.5	12.9	81	678	
180	200	M10*P 1.5	12.9	81	678	●
220	255	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 exceeds clench torque.

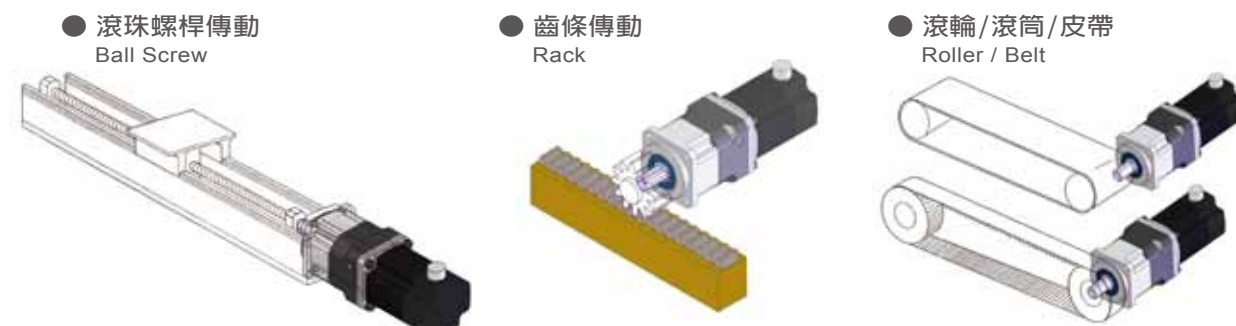
孔徑 Input Bore	Ø38	Ø42	Ø48	Ø55
鍵 Key	10 x 8	12 x 8	14 x 9	16 x 10



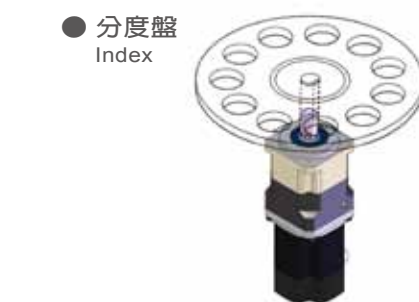
Applications

減速機應用範例

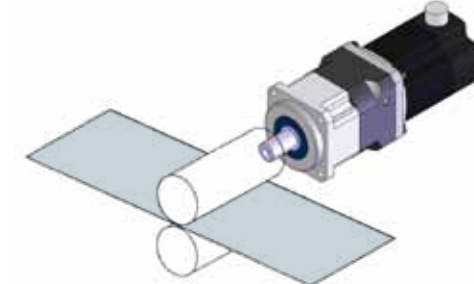
○ 線性動作機構 Linear Action



○ 回轉盤機構 Rotary Action



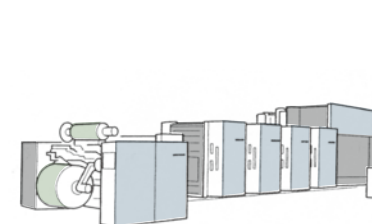
○ 其他機構 Others



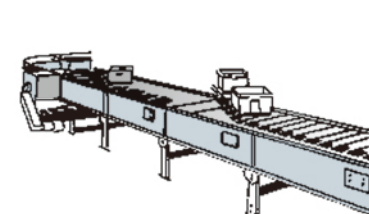
● 機器手臂 Robot



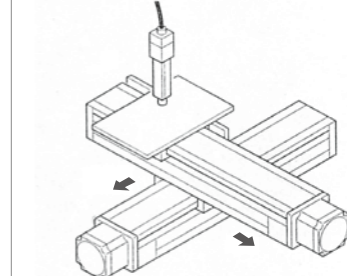
● 印刷機 Printing Machine



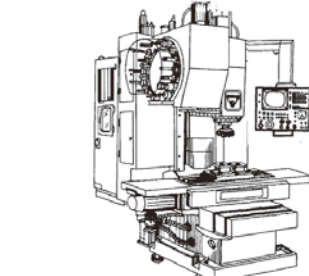
● 輸送機 Conveyor



● 工作台 Working Table



● CNC主軸 CNC Spindle



● 分割器 Index



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。
並將配合面擦拭乾淨。
Confirm the motor and gearbox size .
Clean up the mounting surface.



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 is under $\phi 35$.



檢查馬達出力軸尺寸，如需軸套，請先裝入力孔內。
Check motor shaft size and insert bushing into input bore if necessary.



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.



將馬達垂直裝入減速機。
Put the motor into the gearbox vertically.



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.



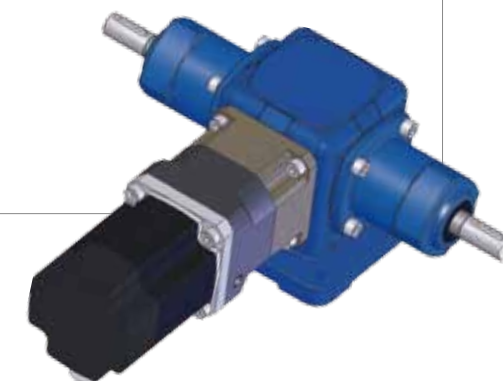
使用扭力扳手將迫緊環螺絲鎖緊。
Tighten the set collar bolt with torque wrench.



裝回塞頭。
Tighten back the screw plug.

- 務必先鎖緊馬達，才能鎖緊馬達軸心迫緊環。
To be sure to tighten motor first and then to tighten the set collar on motor shaft.
- 請依步驟順序組裝，尤其步驟6、7不可顛倒。
Please assembly in order according to above steps, especially for step 6 and step 7.

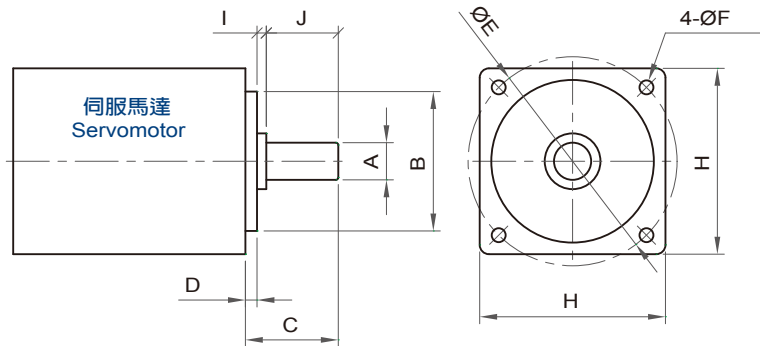
利明牌減速機系列產品 LIMING REDUCERS



精密行星減速機 Planetary Reducer



Inquiry Information 顧客詢問資料



A	B	C	D	E	F	H	I	J

行星減速機訂購編號

減速機型 Type	型號 Model	速比 Ratio	出力軸鍵槽 Output Shaft Keyway	背隙等級 Backlash Class	馬達型號 Motor Type

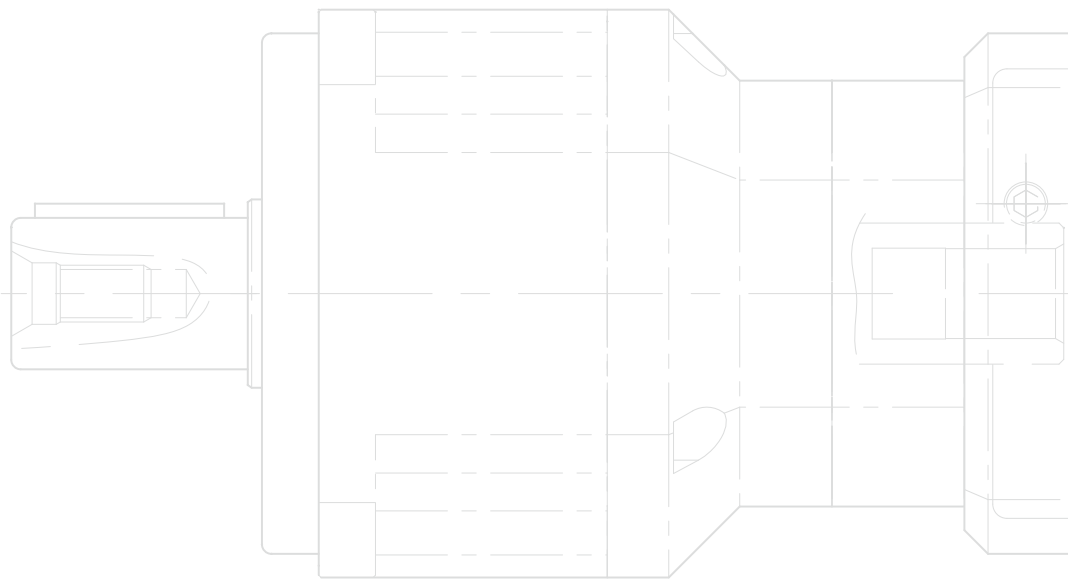
訂貨須知：

- ◆ 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 horsepower
- ◆ Speed ratio or R.P.M. of output shaft
- ◆ Method of connection and loading
- ◆ Quantity and applied mechanism
- ◆ Input connection method and input speed
- ◆ 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 Notes		



- 2012年9月版。
- 由於產品改良，未經通告變更印刷製品規格，請諒察。
- 由於印刷特性與拍攝技術的關係，印刷顏色與實物稍有差異，請諒察。
- 產品專利及版權所有，非經本公司同意，不得轉載本刊任何圖文或仿冒商品。
- 本目錄於製作時已力求完美，但因機種繁多，校稿疏失在所難免，請於訂貨時與業務人員進行確認。
- September, 2012
- We ask for your understanding if due to product improvements and the product in this catalogue have not yet been updated.
- We also ask for your understanding if due to printing limitations the objects and colors in this catalogue do not match the actual products exactly.
- The products in this catalogue have been registered with the patents office.
- The reprinting of this publication in any from or the imitation of any of the products described within is expressly forbidden without the express permission of the LI MING MACHINERY CO., LTD.