

標準型行星減速機

Standard Type Planetary Gearbox

PLE



1. 靜音

使用直齒輪實現順暢安靜的運轉

2. 高剛性、高扭矩

使用整體式滾珠軸承，大大提高了剛性和扭矩。

3. 法蘭、連接器方式

可以安裝到馬達上。

4. 無潤滑脂泄漏

使用高粘度、不易分離的潤滑脂，有效防止潤滑脂泄漏。

5. 維護方便

在產品壽命期內無需更換潤滑脂，安裝更便捷。

1. Quiet operation

Helical gears are used to achieve smooth and quiet operation.

2. High rigidity & torque The use of integral ball bearings greatly improves the rigidity and torque.

3. Methods of flange and connector

It can be installed on any motor in the world.

4. No grease leakage

The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.

5. Convenient maintenance

No need to replace the grease in the product life period, and the installation is more convenient.

減速機的選型 Model Selection of Speed Reducers

PLE 系列 Type

PLE080 — 10 — S1 — P1 / 馬達

減速機型式 Reducer Model

PLE040, PLE060, PLE080, PLE090
PLE120, PLE160

出力軸鍵槽 Output Shaft Keyway

S1: 實心軸，無鍵槽
(Solid Output Shaft No Keyway)
S2: 標準品，有鍵槽
Standard (Keyway)
S3: 輸出為孔
Output for holes

馬達型號 Motor Model

馬達制造商及型號
Motor Manufacturer & Model

減速比 Ratio

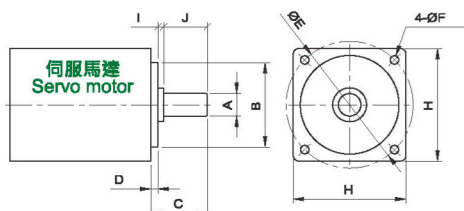
單節 1-stage: 3, 4, 5, 6, 7, 8, 9, 10
雙節 2-stage: 12, 15, 16, 20, 25, 28, 30, 35, 40, 50, 70, 80, 100
雙節 3-stage: 60, 64, 72, 80, 90, 100, 120, 144, 150, 160, 180, 200
240, 258, 288, 320, 384, 512, 600, 800, 1000

背隙等級 Backlash Grade

P0: 高精密背隙 High precision backlash
P1: 精密背隙 Precision backlash
P2: 標準背隙 Standard backlash

減速器匹配電機需要確認下列尺寸：

The gearbox matching motor needs to be confirmed with following dimensions :



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 NO.	

PLE 減速機性能資料 Reducer Specifications

規格 Specs	單位 Unit	節數 Stage	減速比 Ratio	PLE040	PLE060	PLE080	PLE090	PLE120	PLE160
額定輸出扭矩 T_{2N} Rated Output Torque	Nm	1	3	14	28	105	113	120	323
			4	15	38	108	115	215	364
			5	17	40	112	118	230	423
			7	13	35	105	110	160	358
			10	10	15	50	56	110	293
		2	15	14	28	105	113	120	323
			20	15	38	108	120	240	364
			25	17	40	112	118	250	423
			30	13	28	105	113	120	323
			35	17	35	112	118	240	358
			40	12	38	110	115	236	364
			50	15	40	108	118	230	423
			70	13	35	105	110	210	358
			100	12	31	50	56	210	293
最大輸出扭矩 T_{2NOT} / Max. Output Torque	Nm	1,2	3~100	3倍額定輸出扭矩/3Times of Nominal Output Torque					
額定輸入轉速 Ω_{1N} / Rated Input Speed	rpm	1,2	3~100	3000	3000	3000	3000	3000	2500
最大輸入轉速 Ω_{1B} / Max. Input Speed	rpm	1,2	3~100	5000	5000	5000	5000	5000	3600
精密背隙 P1 / Precision Backlash P1	arcmin	1	3~10	≤6	≤6	≤6	≤6	≤6	≤6
		2	12~100	≤8	≤8	≤8	≤8	≤8	≤8
標準背隙 P2 / Standard Backlash P2	arcmin	1	3~10	≤8	≤8	≤8	≤8	≤8	≤8
		2	12~100	≤10	≤10	≤10	≤10	≤10	≤10
扭轉剛性/Torsional Rigidity	Nm/arcmin	1,2	3~100	3	6	12	12	22	50
容許徑向力 F_{2rB} / Max. Radial Force	N	1,2	3~100	320	460	1300	1300	3200	6520
容許軸向力 F_{2aB} / Max. Axial Force	N	1,2	3~100	160	230	660	660	1600	3260
使用壽命 / Service Life	hr	1,2	3~100	20000 h					
效率 η / Efficiency	%	1	3~10	≥97%					
		2	15~100	≥94%					
重量/Weight	kg	1	3~10	0.73	0.99	2.1	2.4	4.98	18.2
		2	15~100	1.05	1.46	3.2	3.6	6.92	24.9
使用溫度 / Operating Temperature	℃	1,2	3~100	-25℃~+90℃					
潤滑/Lubrication		1,2	3~100	全合成潤滑油脂 Synthetic Grease					
防護等級 / Protection Class		1,2	3~100	IP65					
安裝方向 / Mounting Position		1,2	3~100	任意方向 Any Direction					
噪音值($n_1=3000$ rpm, 無負載) / Noise Level	dB(A)	1,2	3~100	≤62	≤63	≤65	≤65	≤67	≤68

減速機轉動慣量 Reducer Rotary Inertia

規格 Specs	單位 Unit	節數 Stage	減速比 Ratio	PLE040	PLE060	PLE080	PLE090	PLE120	PLE160
轉動慣量 J_1 Moment of Inertia	kg.cm ²	1	3	0.03	0.16	0.61	0.61	3.25	9.21
			4	0.03	0.14	0.48	0.48	2.74	7.54
			5	0.03	0.13	0.47	0.47	2.71	7.42
			7	0.03	0.13	0.45	0.45	2.65	7.25
			10	0.03	0.13	0.45	0.45	2.62	7.14
		2	12~40	0.03	0.13	0.44	0.44	2.58	7.07
			50~100	0.03	0.13	0.44	0.44	2.57	7.04

1. 減速比($i=N_{in}/N_{out}$) 2. 輸出轉數100rpm時, 作用于輸出軸中心位置。 3. *連續運轉, 使用壽命為10000hrs。

1. Ratio ($i=N_{in}/N_{out}$) 2. Output revolutions 100rpm, acting on the output shaft center position.

3. *Continuous operation, service life is 10000hrs.

MODEL: PLE

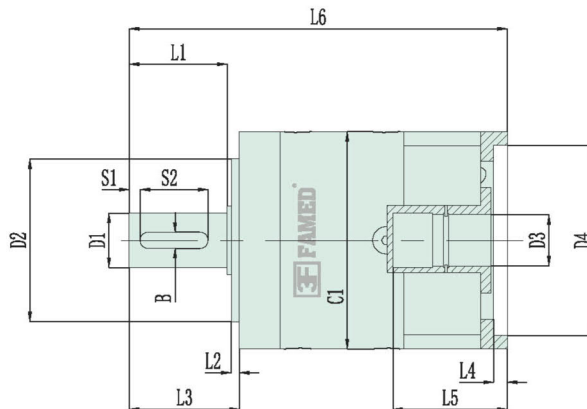
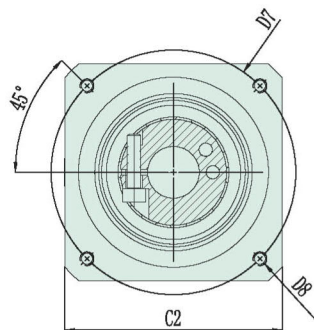
單段 1-Stage

速比 Ratio: 3, 4, 5, 6, 7, 8, 9, 10

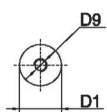
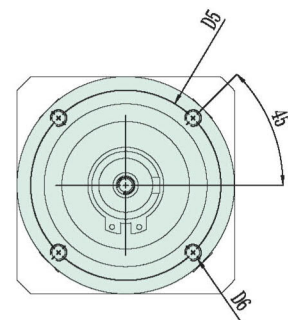


外形尺寸圖 Dimensions:

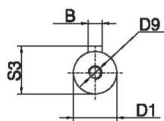
輸入端 Input



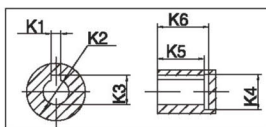
輸出端 Output



出力軸形式 S1
Output shaft type S1



出力軸形式 S2
Output shaft type S2



輸出孔形式 S3
Output hole type S3

Unit:mm

尺寸 Size	PLE040-L1	PLE060-L1	PLE080-L1	PLE090-L1	PLE120-L1	PLE160-L1
D1	φ 10	φ 14	φ 20	φ 20	φ 25	φ 40
D2	φ 26	φ 40	φ 60	φ 60	φ 80	φ 130
D3	φ 8 (≤8)	φ 14 (≤14)	φ 19 (≤19)	φ 19 (≤24)	φ 22 (≤24)	φ 35 (≤35)
D4	φ 30 (30-50)	φ 50 (50-70)	φ 70 (50-110)	φ 70 (50-110)	φ 110 (70-130)	φ 114.3 (110-150)
D5	φ 34	φ 52	φ 70	φ 70	φ 100	φ 145
D6	(4-M4*8L)	(4-M5*15L)	(4-M6*12L)	(4-M6*20L)	(4-M10*18L)	(4-M12*24L)
D7	φ 46 (45-70)	φ 70 (70-130)	φ 90 (70-145)	φ 90 (70-145)	φ 145 (90-165)	φ 200 (145-220)
D8	(4-M4*12L)	(4-M5*10L)	(4-M6*15L)	(4-M6*15L)	(4-M8*16L)	(4-M12*20L)
D9	M3*9L	M5*16L	M6*18L	M6*18L	M10*25L	M16*30L
L1	23	30	36	36	50	80
L2	2	3	3	3	4	5
L3	26	35	40.5	40.5	55.5	87
L4	(3.5)	(4)	(5)	(6)	(10)	(10)
L5	(27)	(31)	(42)	(47)	(62.5)	(81)
L6	(88)	(115)	(139.0)	(150)	(210)	(276)
C1	φ 42	φ 60	φ 80		φ 120	φ 165
C2	(□42)	(□60)	(□80)	(□90)	(□120)	(□176)
S1	2	3	4	3	5	5
S2	16	20	25	25	40	65
S3	11.2	16	22.5	22.5	28	43
B	3	5	6	6	8	12
K1	-	3	5	5	6	10
K2	-	φ 10	φ 15	φ 15	φ 20	φ 35
K3	-	11.4	17.3	17.3	22.8	38.3
K4	-	20	30	30	38	58
K5	-	15	20	20	27	35
K6	-	18	24	24	32	40

注1: () 括號內為可選擇範圍尺寸, () 括號外為標準尺寸。

注2: 減速機出力軸可以為客戶定制大小和長短。

注3: 輸入尺寸依據各品牌伺服馬達或步進馬達可以有所變動。

Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

Note 2: The reducer output shaft size and length can be customized for customers.

Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

MODEL: PLE

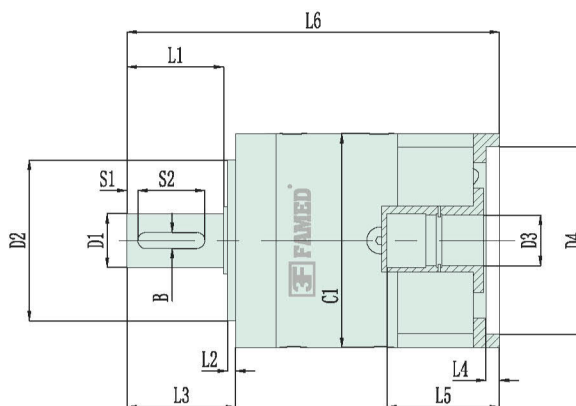
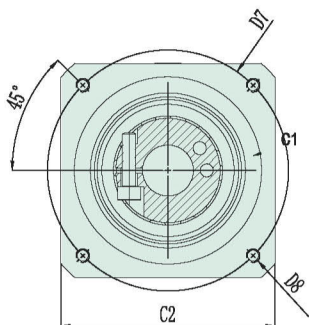
雙段 2-Stage

速比 Ratio: 12, 15, 16, 20, 25, 28, 30, 35
40, 50, 70, 80, 100

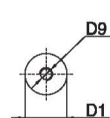
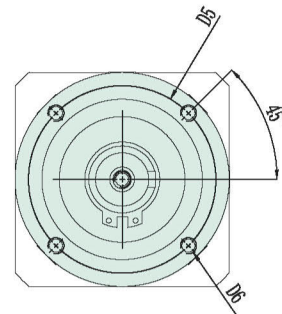


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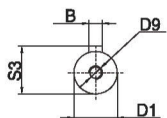
輸入端 Input



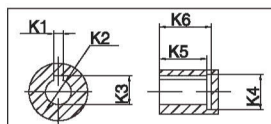
輸出端 Output



出力軸形式 S1
Output shaft type S1



出力軸形式 S2
Output shaft type S2



輸出孔形式 S3
Output hole type S3

Unit:mm

尺寸 Size	PLE040-L2	PLE060-L2	PLE080-L2	PLE090-L2	PLE120-L2	PLE160-L2
D1	φ 10	φ 14	φ 20	φ 20	φ 25	φ 40
D2	φ 26	φ 40	φ 60	φ 60	φ 80	φ 130
D3	φ 8 (≤ 8)	φ 14 (≤ 14)	φ 19 (≤ 19)	φ 19 (≤ 24)	φ 22 (≤ 24)	φ 35 (≤ 35)
D4	φ 30 (30-50)	φ 50 (50-70)	φ 70 (50-110)	φ 70 (50-110)	φ 110 (70-130)	φ 114.3 (110-150)
D5	φ 34	φ 52	φ 70	φ 70	φ 100	φ 145
D6	(4-M4*8L)	(4-M5*15L)	(4-M6*12L)	(4-M6*20L)	(4-M10*18L)	(4-M12*24L)
D7	φ 46 (45-70)	φ 70 (70-130)	φ 90 (70-145)	φ 90 (70-145)	φ 145 (90-165)	φ 200 (145-220)
D8	(4-M4*12L)	(4-M5*10L)	(4-M6*15L)	(4-M6*15L)	(4-M8*16L)	(4-M12*20L)
D9	M3*9L	M5*16L	M6*18L	M6*18L	M10*25L	M16*30L
L1	23	30	36	36	50	80
L2	2	3	3	3	4	5
L3	26	35	40.5	40.5	55.5	87
L4	(3.5)	(4)	(5)	(6)	(10)	(10)
L5	(27)	(31)	(42)	(47)	(62.5)	(81)
L6	(103)	(133)	(159.0)	(170)	(239.5)	(317)
C1	φ 42	φ 60	φ 80		φ 120	φ 165
C2	(□ 42)	(□ 60)	(□ 80)	(□ 90)	(□ 120)	(□ 176)
S1	2	3	4	3	5	5
S2	16	20	25	25	40	65
S3	11.2	16	22.5	22.5	28	43
B	3	5	6	6	8	12
K1	-	3	5	5	6	10
K2	-	φ 10	φ 15	φ 15	φ 20	φ 35
K3	-	11.4	17.3	17.3	22.8	38.3
K4	-	20	30	30	38	58
K5	-	15	20	20	27	35
K6	-	18	24	24	32	40

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