

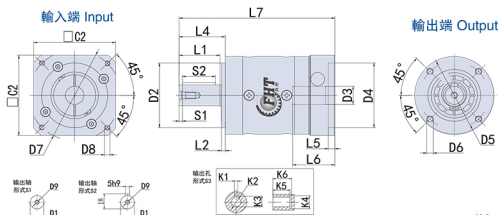
MODEL: PLE

雙段 2-Stage

速比: 15, 20, 25, 30, 35, 40, 50, 70, 100



外形尺寸圖 Dimensions:



Unit:mm

尺寸 Size	PLE040-L2	PLE060-L2	PLE080-L2	PLE120-L2	PLE160-L2
D1	φ 12(13)	φ 14(16)	φ 20(22)	φ 25(32)	φ 40
D2	φ 26	φ 40	φ 60	φ 80	φ 130
D3	φ 8(≦11)	φ 14(≦19)	φ 19(≦24)	φ 24(≦32)	φ 35(42)
D4	φ 30(30-50)	φ 50(50-70)	φ 70(50-110)	φ 110(70-110)	φ 114.3(110-150)
D5	φ 34	φ 52	φ 70	φ 100	φ 145
D6	(4-M4)	(4-M5)	(4-M6)	(4-M10)	(4-M12)
D7	φ 46(45-70)	φ 70(70-130)	φ 90(70-145)	φ 145(90-185)	φ 200(145-220)
D8	(4-M4X3L)	(4-M4X10L)	(4-M5X12L)	(4-M6X25L)	(4-M12X25L)
D9	MSX0.7P	MSX0.8P	MSX1.0P	M10X1.5P	M16X2.0P
L1	18	31	36	50	80
L2	2	3	3	4	5
L4	26	35	40	55	87
L5	(4)	(5)	(5)	(8)	(7)
L6	26	32	42	59	86
L7	104.5	133	168	221	331.5
C1	φ 42	φ 60	φ 80	φ 120	φ 160
C2	(□150)	(□162)	(□192)	(□120)	(□176)
S1	2	2	4	5	8
S2	14	14	28	40	65
S3	13.5	16	22.5	28	43
B	4	5	6	8	12
K1	3	3	6	8	10
K2	φ 8	φ 8	φ 16	φ 25	φ 35
K3	9.2	9.2	21	28	38.3
K4	φ 11	φ 11	φ 24	φ 32	φ 42
K5	20	20	30	40	52
K6	24	24	35	48	58

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: Input sizes can be subject to changed according to the brand servo motors or stepper motor sizes.

PRECISION PLANETARY REDUCERS

精密行星減速機

PAD



- 高精度**
背隙低於3分、定位精確。
- 高剛性、高扭矩**
使用整體式滾子軸承, 大大提高了剛性和扭矩。
- 高負載容量**
主軸承採用錐形滾針軸承, 實現高負載容量。
- 法蘭、連接器方式**
可以安裝到世界上任何一臺馬達上。
- 無潤滑脂滲漏**
使用高粘度、不易分離的潤滑脂, 有效防止潤滑脂滲漏。
- 維護方便**
在產品壽命期內無需更換潤滑脂, 安裝更便捷。

- High precision**
Standard backlash is 3 arc-min, ideal for precision control
- High rigidity & torque**
High rigidity & high torque were achieved by uncaged needle roller bearings.
- High load capacity**
Adopting taper roller bearing for the main output shaft to increase radial and axial load.
- Adapter-bushing connection**
Can be attached to any motor all over the world.
- No grease leakage**
Perfect solution using high viscosity anti-separation grease.
- Maintenance-free**
No need to replace the grease for the life of the unit. Can be attached in any position.

減速機的選型/Indication of Model Numbers

PAD 系列/PAD Series

PAD 090 - 10 - S1 - P1 / 馬達

減速機型式/Type

PAD047, PAD064, PAD090, PAD110
PAD140, PAD200, PAD255

輸出軸鍵槽 Output Shaft Keyway

S1: 實心軸, 無鍵槽
(Solid Output Shaft No Keyway)
S2: 標準品, 有鍵槽
Standard (Keyway)

馬達型號/Motor Type

馬達製造商及型號

減速比/Ratio

單節: 3, 4, 5, 6, 7, 8, 9, 10
雙節: 12, 15, 16, 20, 25, 28, 30, 35, 40, 50,
70, 80, 100

背隙等級Backlash Class

P0: 高精度背隙/Micro Backlash P0
P1: 精密背隙/Precision Backlash P1
P2: 標準背隙/Standard Backlash P2

選型範例: PAD090-100-S2-P1/Panasonic MSMJ 082S1A

PAD 減速機性能資料 Specification Table

規格 Model No	單位 Unit	節數 Stage	減速比 Ratio	PAD047	PAD064	PAD090	PAD110	PAD140	PAD200	PAD255
額定輸出力矩 T ₂ Rated Output Torque	Nm	1	4	19	50	133	278	555	1050	1700
			5	22	60	160	330	650	1200	2000
			7	19	50	140	300	550	1100	1800
			10	14	40	100	230	450	900	1500
			20	19	50	133	278	555	1050	1700
		2	25	22	60	160	330	650	1200	2000
			35	19	50	140	300	550	1100	1800
			40	19	45	120	260	500	1000	1600
			50	22	60	160	330	650	1200	2000
			70	19	50	140	300	550	1100	1800
100	14	40	100	230	450	900	1500			
最大輸出扭矩 T _{2max} ¹⁾ / Max Output Torque	Nm	1,2	4-100	3倍額定輸出力矩3Times of Nominal Output Torque						
額定輸入轉速 T ₂ /Rated Input Speed	rpm	1,2	4-100	5000	5000	4000	4000	3000	3000	2000
最大輸入轉速 T ₂ /Max Input Speed	rpm	1,2	4-100	10000	10000	8000	8000	6000	6000	4000
超精密背隙 P0 / Micro Backlash P0	arcmin	1	4-10	<=1	<=1	<=1	<=1	<=1	<=1	<=1
2	12-100	<=3	<=3	<=3	<=3	<=3	<=3	<=3	<=3	
精密背隙 P1 / Precision Backlash P1	arcmin	1	4-10	<=3	<=3	<=3	<=3	<=3	<=3	<=3
2	20-100	<=5	<=5	<=5	<=5	<=5	<=5	<=5	<=5	
標準背隙 P2 / Standard Backlash P2	arcmin	1	4-10	<=6	<=6	<=6	<=6	<=6	<=6	<=6
2	20-100	<=8	<=8	<=8	<=8	<=8	<=8	<=8	<=8	
扭轉剛性 / Torsional Rigidity	Nm/arcmin	1,2	4-100	8	13	30	80	150	450	1010
最大彎曲力矩 M ₂ ²⁾	N	1,2	4-100	43	125	235	430	1300	3064	5900
許用軸向力 F _{axial} ²⁾ / Max Axial Force	N	1,2	4-100	990	1050	2850	2990	10590	16660	29430
使用壽命 / Service Life	hr	1,2	4-100	22000h						
效率 η / Efficiency	%	1	4-10	>=97%						
		2	20-100	>=94%						
重量 / Weight	kg	1	4-10	0.7	1.3	3.2	5.8	12.3	33	57.9
2	20-100	1	1.5	4.1	7.6	16.8	38	72.6		
使用溫度 / Operating Temperature	°C	1,2	4-100	(-15°C ~ +90°C)						
潤滑 / Lubrication	1,2	4-100	全合成潤滑油(Synthetic Grease)							
防護等級 / Protection Class	1,2	4-100	IP65							
安裝方向 / Mounting Position	1,2	4-100	任意方向(Any Direction)							
噪音值 L ₁ =3000rpm, 真音值 / Noise Level	dB(A)	1,2	4-100	<=56	<=58	<=60	<=63	<=65	<=67	<=70

減速機轉動慣量/Moment of Inertia/

規格 Model No	單位 Unit	節數 Stage	減速比 Ratio	PAD047	PAD064	PAD090	PAD110	PAD140	PAD200	PAD255
轉動慣量 J ₁ Moment of inertia	kg·cm ²	1	4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
			5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
			20	0.03	0.13	0.44	2.57	7.03	22.51	50.56
		2	20-40	0.03	0.13	0.47	2.71	7.42	23.29	53.27
			50-100	0.03	0.13	0.44	2.57	7.03	22.51	50.56

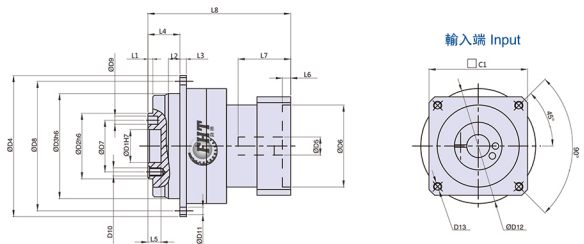
- 最大減速比(i=Nn/Nout)
- 最大輸出力矩T₂=60% of T_{2NOT}
- 輸出轉數100rpm時，作用於輸出法蘭位置，連續運轉，使用壽命為15000hrs。

MODEL: PAD

單段 1-Stage
速比: 4, 5, 7, 10



外形尺寸圖 Dimensions:



尺寸 Size	PAD047-L1	PAD064-L1	PAD090-L1	PAD110-L1	PAD140-L1	PAD200-L1	PAD255-L1
D1	12	20	31.5	40	50	80	100
D2	28	40	63	80	100	160	180
D3	47	64	90	110	140	200	255
D4	72	86	118	145	179	247	300
D5	<=11/=>12	11(8-14)	19(14-22)	24(22-28)	24(24-48)	35(35-48)	48(48-55)
D6	30	30(30-50)	50(50-110)	110	110(110-114.3)	114.3(114.3-200)	200
D7	20	31.5	50	63	80	125	140
D8	67	79	109	135	168	233	280
D9	Ø3	Ø5x深度8	Ø6x深度7	Ø6x深度7	Ø8x深度7	Ø10x深度10	Ø12x深度10
D10	4-M3	7-M5x深度8	8-M5x深度12	11-M5x深度12	11-M5x深度17	11-M10x深度20	12-M16x深度25
D11	6-Ø3.4	8-Ø4.5	8-Ø5.5	8-Ø5.5	12-Ø6.6	12-Ø9	16-Ø13.5
D12	46	45(45-70)	70(70-145)	145	145(145-200)	200(200-235)	235
D13	M4	M4-M5	M5-M8	M8	M8-M12	M12	M12
L1	3	6	6	6	6	8	12
L2	7	7	10	10	14.5	15	21.5
L3	4	4	7	8	10	12	18
L4	19.5	19.5	30	29	38	50	66
L5	4	8	12	13	12	16	20
L6	3.5	4-5	5-10	10	6-8	6-10	10
L7	30	28(28-34)	32(32-59)	60	73(73-115)	88(88-117)	119.5
L8	70	80.5-87	97(97-120)	142	158(159-201)	198(196-229)	255
C1	48	60(40-60)	90(60-130)	130	130(130-180)	180(180-220)	220

注1: () 括號內為可選擇範圍尺寸，() 括號外為標準尺寸。
 Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.
 注2: 減速機出力軸可以為客戶定制大小和長短。
 Note 2: The reducer output shaft size and length can be customized for customers.
 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 3: Input sizes can be subject to changed according to the brand servo motors or stepper motors sizes.

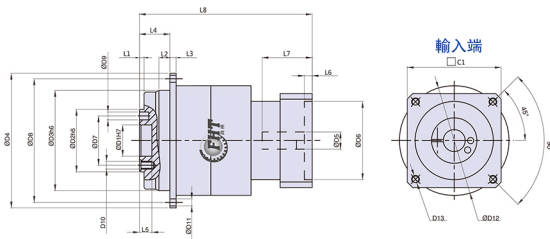
MODEL: PAD

雙段 2-Stage

速比: 20, 25, 28, 35, 40, 50, 70, 100



外形尺寸圖 Dimensions:



輸入端

Unit:mm

尺寸 Size	PAD047-L2	PAD064-L2	PAD090-L2	PAD110-L2	PAD140-L2	PAD200-L2	PAD255-L2
D1	12	20	31.5	40	50	80	100
D2	28	40	63	80	100	160	180
D3	47	64	90	110	140	200	255
D4	72	86	118	145	179	247	300
D5	≤11/≤12	11(8-14)	19(14-22)	19(22-28)	19(19-38)	35(24-48)	38(38-55)
D6	30	30(30-50)	50(50-110)	70(70-110)	70(70-114.3)	110(110-200)	114.3(114.3-200)
D7	27	31.5	50	63	80	125	140
D8	67	79	109	135	166	233	280
D9	Ø3	Ø5x深度8	Ø6x深度7	Ø6x深度7	Ø6x深度7	Ø10x深度10	Ø12x深度10
D10	4-M3	7-M5x深度8	8-M6x深度12	11-M6x深度12	11-M6x深度17	11-M10x深度20	12-M16x深度25
D11	8-Ø3.4	8-Ø4.5	8-Ø5.5	8-Ø5.5	12-Ø6.5	12-Ø9	16-Ø13.5
D12	46	45(45-70)	70(70-145)	90(90-145)	90(90-200)	145(145-235)	200(200-235)
D13	M4	M4-M5	M5-M8	M6-M8	M5-M12	M8-M12	M12
L1	3	3	6	6	6	8	12
L2	7	7	10	10	14.5	15	20
L3	4	4	7	8	10	12	18
L4	19.5	19.5	30	29	38	50	66
L5	4	8	12	13	12	16	20
L6	3.5	4-5	5-10	6-10	6-8	6-10	6-10
L7	30	28(28-34)	34(34-59)	43(43-60)	65(65-85)	73(73-117)	73(73-117)
L8	97.5	103(103-110)	123(123-139)	150(150-176)	195(195-211)	292(292-336)	306(306-322)
C1	48	60(40-60)	90(60-130)	90(90-130)	90(90-180)	180(130-220)	180(180-220)

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MODEL: PAD

輸出端尺寸圖 Dimensions:

