

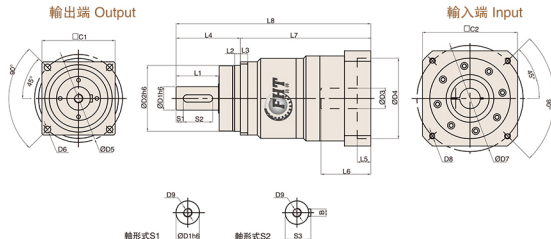
MODEL: VRS

雙段 2-Stage

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



外形尺寸圖 Dimensions:



Unit:mm

尺寸 Size	VRS060-L2	VRS075-L2	VRS100-L2	VRS140-L2	VRS180-L2	VRS210-L2	VRS240-L2
D1	16	22	32	40	55	75	85
D2	60	70	90	130	160	180	200
D3	8(8-14)	14(14-24)	19(19-28)	24(24-38)	38(24-42)	48(48-55)	48
D4	30(30-50)	50(50-110)	50(50-110)	110(110-114.3)	114.3(110-114.3)	200	220
D5	60	65	120	165	215	250	280
D6	4-09.5	4-06.6	4-09	4-011	4-013.5	4-017	4-017
D7	46(45-70)	70(70-145)	70(70-145)	145(145-200)	200(145-200)	235	240
D8	M3-M5	M4-M8	M5-M8	M8-M12	M8-M12	M12	M16
D9	M5	M8	M12	M16	M20	M20	M20
L1	28	36	58	82	82	105	130
L2	5	6	8	10	12	15	20
L3	6	7	10	12	15	17	20
L4	48	56	88	112	112	143	170
L5	8-9	10.5-16	12-18.5	6-8	6-10	10	12
L6	42.5-43.5	50.5-66	61-68	69-81	69-117	116	55
L7	116.5-117.5	143-158.5	172-178	210-222	236.5-293.5	257	346
L8	164.5-165.5	199-214.5	260-266	322-334	348.5-406.5	400	516
C1	60	75	100	140	182	215	240
C2	40(40-65)	60(60-130)	60(60-130)	130(130-180)	130(130-180)	220	250
S1	2	3	10	5	6	7	3
S2	28	38	40	70	70	90	105
S3	18	24.5	35	43	59	79.5	90
B	5	6	10	12	16	20	22

注1: () 括號內為可選標準範圍尺寸, () 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度。
 注3: 輸入尺寸依據各品牌降壓馬達或步進馬達可以有所變動。

PRECISION PLANETARY REDUCERS

精密行星減速機

PFR



1. 省空間

直交型減速機使用螺旋式傘齒輪, 馬達的安裝可實現90度彎曲, 節省了安裝空間。

2. 高剛性、高扭矩

使用整體式滾針軸承, 大大提高了剛性和扭矩。

3. 連接穩、軸套方式

可以安裝到世界上任何一臺馬達上。

4. 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。

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. Space - saving

Right angle reducer using spiral bevel gear
Customer can locate the motor at 90 degree away from the reducer if required to save space.

2. High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

3. Adapter-bushing connection

Can be attached to any motor all over the world.

4. No grease leakage

Perfect solution by high viscosity anti-separation grease.

5. Maintenance-free

No need to replace the grease for the life time.
Can be attached in any position.

減速機的選型/Indication of Model Numbers

PFR 系列/PFR Series

PFR 080 - 10 - S1 - P1 / 馬達

減速機型式/Type

PFR040, PFR060, PFR080, PFR120, PFR160

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: 輸出孔
Output for holes

馬達型號/Motor Type

馬達製造商及型號
Motor manufacturer and model

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
參節: 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 Class

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

選型範例: PFR080-100-S2-P1/Panasonic MSMJ 082S1A

PFR 減速機性能資料 Specification Table

規格 Model No	單位 Unit	節數 Stage	減速比 Ratio	PFR040	PFR060	PFR080	PFR120	PFR160
額定輸出扭矩T _{2n} Rated Output Torque	Nm	1	3	17	28	112	165	423
			4	15	38	110	146	364
			5	14	40	108	160	423
			7	13	35	105	149	358
			10	12	25	100	141	293
		2	15	17	28	112	165	423
			20	15	38	110	146	364
			25	14	40	108	160	423
			30	13	28	112	165	423
			35	13	35	105	149	358
	40	12	38	110	146	364		
	50	14	40	108	160	423		
	70	13	35	105	149	358		
	100	12	25	100	141	293		
	3倍額定輸出扭矩/3Times of Nominal Output Torque							
最大輸出扭矩T _{2n0.1} / Max Output Torque	Nm	1,2	3-100	3000	3000	3000	3000	2500
額定輸入轉速T _{1n} /Rated Input Speed	rpm	1,2	3-100	5000	5000	5000	5000	3600
最大輸入轉速T _{1m} /Max Input Speed	rpm	1,2	3-100	5000	5000	5000	5000	3600
精密齒輪P1 / Precision Backlash P1	arcmin	1	3-10	≤8	≤8	≤8	≤8	≤8
		2	12-100	≤10	≤10	≤10	≤10	≤10
標準齒輪P2 / Standard Backlash P2	arcmin	1	3-10	≤11	≤11	≤11	≤11	≤11
		2	12-100	≤13	≤13	≤13	≤13	≤13
扭轉剛性Torsional Rigidity	Nm/arcmin	1,2	3-100	3	6	12	22	50
容許徑向力F _{rw} ¹ / Max Radial Force	N	1,2	3-100	320	460	1300	3200	6520
容許軸向力F _{rw} ² / Max Axial Force	N	1,2	3-100	160	230	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	4.98	18.2
		2	15-100	1.05	1.46	3.2	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/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Any				
噪音值(p1=3000rpm, 無負載) / Noise Level	dB(A)	1,2	3-100	≤62	≤63	≤65	≤67	≤68

減速機轉動慣量/Moment of Inertia/

規格 Model No	單位 Unit	節數 Stage	減速比 Ratio	PFR040	PFR060	PFR080	PFR120	PFR160
轉動慣量J1 Moment of Inertia	kg.cm ²	1	3	0.16	0.63	3.48	12.84	36.72
			4	0.16	0.6	3.31	12.22	34.63
			5	0.16	0.59	3.28	12.1	34.24
			7	0.16	0.59	3.27	12.05	34.07
			10	0.16	0.59	3.26	12.03	34.02
		2	12-40	0.16	0.59	3.26	12.03	34.02
			50-100	0.16	0.59	3.26	12.03	34.02

- 最大加速力矩T_{2a}=60% of T_{2n0T}
- 輸出轉速100rpm時，作用於輸出軸中心位置。
- 3-10段大減速比不在上表中，有軸加長和加大設計，需要用到請告知銷售人員。

MODEL: PFR

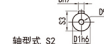
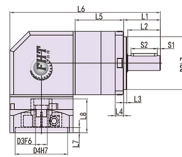
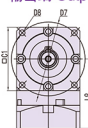
單段 1-Stage

速比: 3, 4, 5, 6, 7, 8, 9, 10, 14, 20

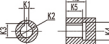
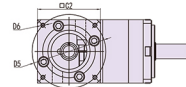


外形尺寸圖 Dimensions:

輸出端 Output



輸入端 Input



Unit:mm

尺寸 Size	PFR060-L1	PFR080-L1	PFR120-L1	PFR160-L1
D1	φ14(16)	φ20 (22)	φ25 (32)	φ40
D2	φ50	φ80	φ110	φ130
D3	φ14 (φ8.35-19)	φ19 (φ11-24)	φ22 (φ16-24)	φ35 (φ22-38)
D4	φ50 (φ43-70)	φ70 (φ50-110)	φ110 (φ55.5-110)	φ114.3 (φ110-114.3)
D5	φ70 (φ45-90)	φ90 (φ70-145)	φ145 (φ90-155)	φ200 (φ145-200)
D6	4-M4 (M3-M6)	4-M5 (M4-M8)	4-M8 (M5-M12)	4-M12 (M8-M12)
D7	φ70	φ100	φ130	φ185
D8	4-φ5.5	4-φ6.5	4-φ8.5	4-φ11
D9	M5X0.8P	M8X1.25P	M10X1.5P	M16X2P
L1	35	40	55	87
L2	31	35	49	78
L3	3	3	4	5
L4	8	12	15	20
L5	46	55	80	111
L6	143	190	273	295
L7	5(4-6)	8(5-8)	8(5-8)	5 (5-7)
L8	32(32-44)	42(42-60)	70 (59-70)	86 (62-86)
L9	66(66-88)	95.5(95.5-113.5)	130 (119-130)	165.5 (165.5-189.5)
C1	60	90	120	160
C2	60(60-90)	90(90-130)	130 (120)	175 (142)
S1	3	3	5	5
S2	25	30	40	70
S3	16	22.5	28	43
B	5	6	8	12
K1	4	6	8	10
K2	φ11	φ22	φ28	φ38
K3	12.8	24.5	31.3	41.3
K4	φ16	φ32	φ38	φ48
K5	15	20	27	35
K6	18	24	32	40

MODEL: PFR

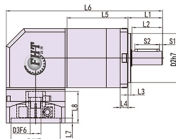
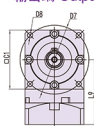
雙段 2-Stage

速比: 15, 20, 25, 30, 35, 40, 50, 70, 80, 100
120, 140, 160, 180, 200

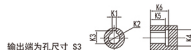
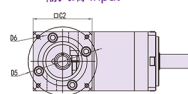


外形尺寸圖 Dimensions:

輸出端 Output



輸入端 Input



Unit:mm

尺寸 Size	PFR060-L2	PFR080-L2	PFR120-L2	PFR160-L2
D1	φ14(16)	φ20 (22)	φ25 (32)	φ40
D2	φ50	φ80	φ110	φ130
D3	φ14 (φ6.35-19)	φ19 (φ11-24)	φ22 (φ16-24)	φ35 (φ22-38)
D4	φ50 (φ30-70)	φ70 (φ50-110)	φ110 (φ55.5-110)	φ114.3 (φ110-114.3)
D5	φ70 (φ45-90)	φ90 (φ70-145)	φ145 (φ90-155)	φ200 (φ145-200)
D6	4-M4 (M3-M6)	4-M5 (M4-M8)	4-M8 (M6-M12)	4-M12 (M8-M12)
D7	φ70	φ100	φ130	φ185
D8	4-φ5.5	4-φ6.5	4-φ8.5	4-φ11
D9	MSX0.8P	MSX1.25P	M10X1.5P	M16X2P
L1	35	40	55	87
L2	31	35	49	78
L3	3	3	4	5
L4	8	12	15	20
L5	62	78.5	110	149
L6	159	219.5	303	333
L7	5(4-6)	8(5-9)	8(5-9)	5 (5-7)
L8	32(32-44)	42(42-60)	70 (59-70)	86 (62-96)
L9	66(66-88)	95.5(95.5-113.5)	130 (119-130)	165.5 (165.5-189.5)
C1	60	90	120	160
C2	60(60-90)	90(90-130)	130 (120)	175 (142)
S1	3	3	5	5
S2	25	30	40	70
S3	16	22.5	28	43
B	5	6	8	12
K1	4	6	8	10
K2	φ11	φ22	φ28	φ38
K3	12.8	24.5	31.3	41.3
K4	φ16	φ32	φ38	φ48
K5	15	20	27	35
K6	18	24	32	40

PRECISION PLANETARY REDUCERS

精密行星減速機

PER

1. 省空間

直交型減速機使用螺旋式齒輪，馬達的安裝可實現90度彎曲，節省了安裝空間。

2. 高剛性、高扭矩

使用整體式滾針軸承，大大提高了剛性和扭矩。

3. 連接器、軸套方式

可以安裝到世界上任何一臺馬達上。

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. Space - saving

Right angle reducer using spiral bevel gear. Customer can locate the motor at 90 degree away from the reducer if required to save space.

2. High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

3. Adapter-bushing connection

Can be attached to any motor all over the world.

4. No grease leakage

Perfect solution by high viscosity anti-separation grease.

5. Maintenance-free

No need to replace the grease for the life time. Can be attached in any position.



減速機的選型/Indication of Model Numbers

PER 系列/PER Series

PER 080	-	10	-	S1	-	P1	/	馬達
減速機型式/Type		出力軸鍵槽 Output Shaft Keyway				馬達型號/Motor Type		
PER040, PER060, PER080, PER120 PER160		S1: 實心軸, 無鍵槽 (Solid Output Shaft No Keyway) S2: 標準品, 有鍵槽 Standard (Keyway) S3: 輸出孔 Output for holes				馬達製造商及型號 Motor manufacturer and model		
減速比/Ratio		背隙等級Backlash Class						
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 參節: 60, 64, 72, 80, 90, 100, 120, 144, 150, 160, 180, 200, 240, 256, 288, 320, 384, 512, 600, 800, 1000		P0: 高精密背隙/Micro Backlash P0 P1: 精密背隙/Precision Backlash P1 P2: 標準背隙/Standard Backlash P2						

選型範例: PER080-100-S2-P1/Panasonic MSMJ 082S1A