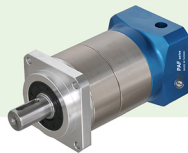


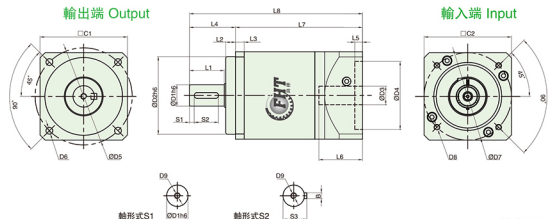
MODEL: PAF

雙段 2-Stage

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



外形尺寸圖 Dimensions:



尺寸 Size	PAF042-L2	PAF60-L2	PAF90-L2	PAF120-L2	PAF150-L2	PAF180-L2	PAF220-L2
D1	13	16	22	32	40	55	75
D2	35	50	80	110	130	160	180
D3	8(≤11)	14(≤14)	19(≤24)	24(≤32)	35(≤42)	38(≤50)	55(≤55)
D4	30(30~50)	50(30~70)	70(50~110)	110(50~130)	130(95~180)	160(95~200)	180(180~250)
D5	50	70	100	130	165	215	250
D6	4-Ø4.2	4-Ø5.5	4-Ø7	4-Ø9	4-Ø11	4-Ø13	4-Ø17
D7	46(22~70)	70(45~90)	90(70~145)	145(70~145)	200(145~215)	235(200~300)	235(200~300)
D8	M3~M5	M3~M6	M4~M10	M6~M10	M8~M13	M10~M13	M10~M13
D9	M4×0.7P	M5×0.8P	M6×1.0P	M8×1.25P	M12×1.75P	M12×1.75P	M20×2.5P
L1	20	28	36	50	74	82	105
L2	5.5	7	10	12	15	20	30
L3	7	8	9	12	15	16	20
L4	27	36	47.5	65	92	106	138
L5	4(2~7)	5(2~10)	8(4~10)	10(4~10)	10(4~10)	12.5(4~12.5)	12.5(4~12.5)
L6	26	32(30~42)	45(25~60)	65(50~80)	84(50~90)	105(50~130)	105(60~138)
L7	72	111.5	131	175.3	213.3	257	328
L8	99	147.5	178.5	240.3	305.3	363	466
C1	42	62	90	120	150	180	220
C2	42(42~70)	62(62~90)	90(90~165)	120(115~130)	150(142~200)	182(182~220)	220
S1	3	3	5	5	5	6	7
S2	15	20	25	40	60	70	90
S3	15	18	24.5	35	43	59	79.5
B	5	5	6	10	12	16	20

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.

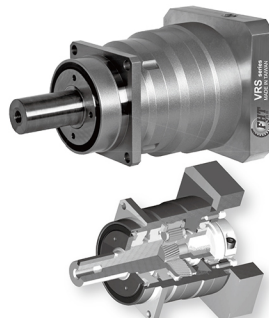
Note 2: The reducer output shaft size and length can be customized for customers.

Note 3: Input sizes can be subject to changed according to the brand servo motors or stepper motors sizes.

PRECISION PLANETARY REDUCERS

精密行星減速機

VRS



1.高精度

背隙低於3分、定位精準。

2.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。

3.高負載容量

主軸承採用錐形滾針軸承, 實現高負載容量。

4.法蘭、連接器方式

可以安裝到世界上任何一臺馬達上。

5.無漏滑脂洩漏

使用高粘度、不易分離的潤滑脂, 有效防止潤滑脂洩漏。

6.維護方便

在產品壽命期內無需更換潤滑脂, 安裝更便捷。

1.High precision

Standard backlash is 3 arc-min, ideal for precision control

2.High rigidity & torque

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

3.High load capacity

Adopting taper roller bearing for the main output shaft to increase radial and axial load.

4.Adapter-bushing connection

Can be attached to any motor all over the world.

5.No grease leakage

Perfect solution using high viscosity anti-separation grease.

6.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

VRS 系列/VRS Series

VRS 060	-	10	-	S1	-	P1	/	馬達
減速機型式/Type				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)		馬達型號/Motor Type		馬達製造商及型號
VRS060, VRS075, VRS100, VRS140, VRS180, VRS210, VRS240								
減速比/Ratio				背隙等級Backlash Class				
單節: 3, 4, 5, 6, 7, 8, 9, 10 雙節: 15, 16, 20, 25, 28, 30, 35, 40, 50, 70, 100				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: VRS180-100-S2-P1/Panasonic MSMJ 082S1A

規格 Model No	單位 Unit	齒數 Stage	減速 Ratio	VRS060	VRS075	VRS100	VRS140	VRS180	VRS210	VRS240
額定輸出扭矩 Rated Output Torque	Nm	1	3	55	130	208	342	588	1140	1500
			4	50	140	290	542	1050	1700	2500
			5	60	160	330	650	1200	2000	2500
			6	55	150	310	600	1100	1900	2260
			7	50	140	300	550	1100	1800	2300
			8	45	120	260	500	1000	1600	2100
			9	40	100	230	450	900	1500	1800
			10	40	100	230	450	900	1500	1800
		2	15	55	130	208	342	588	1140	2300
			16	55	130	208	342	588	1140	2300
			20	50	140	290	542	1050	1700	2500
			25	60	160	330	650	1200	2000	2500
			28	60	160	330	650	1200	2000	2500
			30	55	150	310	600	1100	1900	2300
			35	50	140	300	550	1100	1800	2200
			40	45	120	260	500	1000	1600	2350
			50	60	160	330	650	1200	2000	2200
			70	50	140	300	550	1100	1800	2200
			100	40	100	230	450	900	1500	1800
最大輸出扭矩 T _{200%} / 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 n _{in} / Rated Input Speed	rpm	1,2	3-100	5000	4000	4000	3000	3000	2000	1000
最大輸入轉速 n _{in} / Max. Input Speed	rpm	1,2	3-100	10000	8000	8000	6000	6000	4000	2500
超精密背隙 P0 / Micro Backlash P0	arcmin	1	3-10	≤1	≤1	≤1	≤1	≤1	≤1	≤1
		2	12-100	≤3	≤3	≤3	≤3	≤3	≤3	≤3
精密背隙 P1 / Precision Backlash P1	arcmin	1	3-10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
		2	15-100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
扭轉剛性/Torsional Rigidity	Nm/arcmin	1,2	3-100	7	14	25	50	145	225	260
容許徑向力 F _r ≤ F _r ² / Max. Radial Force	N	1,2	3-100	2750	4100	6400	9880	15000	20000	27500
容許軸向力 F _a ≤ F _a ² / Max. Axial Force	N	1,2	3-100	2350	3200	5360	9690	14200	28000	30000
安裝壽命 / Service Life	hr	1,2	3-100	20000h						
效率 η / Efficiency	%	1	3-10	≥96%						
		2	15-100	≥93%						
重量/Weight	kg	1	3-10	1.8	3.8	7.2	16.8	32	49	65
		2	15-100	2.1	4.1	8.1	17.5	35	53	70
使用溫度 / Operating Temperature	°C	1,2	3-100	(-15°C ~ +90°C)						
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						
安裝等級 / Mounting Position		1,2	3-100	任意方向(Arbitrary Direction)						
噪音值(n1-3000rpm, 無負載) / Noise Level	dB(A)	1,2	3-100	≤62	≤62	≤65	≤68	≤68	≤70	≤70

減速機轉動慣量/Moment of Inertia/

規格 Model No	單位 Unit	齒數 Stage	減速 Ratio	VRS060	VRS075	VRS100	VRS140	VRS180	VRS210	VRS240
轉動慣量 J ₁ Moment of Inertia	kg·cm ²	1	3	0.16	0.61	3.25	9.21	28.98	69.61	82.16
			4	0.14	0.48	2.74	7.54	23.67	54.37	75.58
			5	0.13	0.47	2.71	7.42	23.29	53.27	75.29
			6	0.13	0.45	2.65	7.25	22.75	51.72	72.35
			7	0.13	0.45	2.62	7.14	22.48	50.97	69.13
			8	0.13	0.44	2.58	7.07	22.59	50.84	69.22
			9	0.13	0.44	2.57	7.04	22.53	50.63	66.23
			10	0.13	0.44	2.57	7.03	22.51	50.56	66.23
		2	15-40	0.03	0.13	0.47	2.71	7.42	23.29	48.23
			50-100	0.03	0.13	0.44	2.57	7.03	22.51	45.58

1.減速比(i=Nm/Nout)

2.輸出轉數100rpm時，作用於輸出軸中心位置。

3.連續運轉，使用壽命為10000hrs.

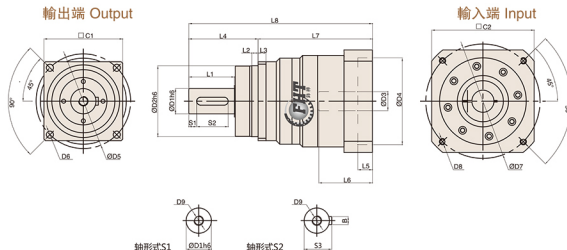
MODEL: VRS

單段 1-Stage

速比: 3, 4, 5, 6, 7, 8, 9, 10



外形尺寸圖 Dimensions:



Unit:mm

尺寸 Size	VRS060-L1	VRS075-L1	VRS100-L1	VRS140-L1	VRS180-L1	VRS210-L1	VRS240-L1
D1	16	22	32	40	55	75	85
D2	60	70	90	130	160	180	200
D3	8(8-19)	14(14-24)	19(19-35)	24(24-48)	38(38-48)	48(48-55)	60
D4	30(30-70)	50(50-110)	70(70-114.3)	110(110-114.3)	114.3(114.3-200)	200	220
D5	68	85	120	165	215	250	290
D6	4-Ø5.5	4-Ø6.6	4-Ø9	4-Ø11	4-Ø13.5	4-Ø17	4-Ø17
D7	46(45-90)	70(70-145)	90(90-200)	145(145-200)	200(200-235)	235	240
D8	M3-M5	M4-M8	M5-M12	M8-M12	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	7.5-9	10.5-16	12-36.5	8	10	10	12
L6	42-43.5	50.5-66	62-82	69-115	83-117	116	55
L7	94.5-96	117.5-133	139-153	170-216	210-244	257	295
L8	142.5-144	173.5-189	227-247	282-328	322-356	400	465
C1	60	75	100	140	182	215	240
C2	40(40-80)	60(60-130)	80(80-180)	130(130-180)	180(180-220)	220	250
S1	2	3	10	5	6	7	3
S2	22	28	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 are subject to changed according to the brand servo motors or stepper motors sizes.

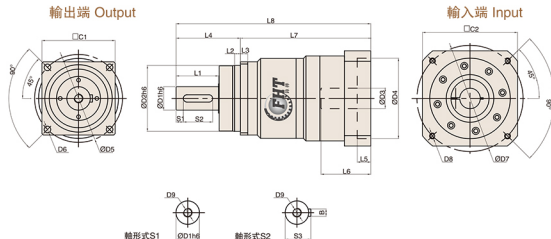
MODEL: VRS

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 motors sizes.

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