

高精度通用型 行星式減速機

Universal High-precision Planetary
Gear Reducers

產品特點

Characteristics

高定位精度、低噪音

High-positioning accuracy and low noise

內部齒輪採用高級鎳鎢鉬合金鋼材，經深層的滲碳硬化處理後，再經精密齒面研磨，使得齒面光滑，耐磨性佳，精度高。

Inner gears are made of SNCM alloys. Deep carburizing is treated first and ground comes next. These procedures make gear surface smoother, endure higher abrasion resistance and perform higher accuracy.

高剛性

High torsional rigidity

輸出端採用歐製雙滾錐軸承支撐，可承受更大之軸向和徑向負載。箱體內環齒及行星托架皆為一體式結構，剛性佳。

Output shaft is supported with European-made double-row tapered roller bearings and sustains higher axial and radial loads. Ring gear and carrier are one-piece structure to obtain excellent torsional rigidity.

高起動

High dynamics

行星式結構的高精度，低慣性矩及平衡特性，配合伺服馬達驅動，可達到高起動的特性。

Good balance between the high accuracy and the low moments of inertia is highlighted in the planetary gear structure. High dynamics are achievable in coordination with the transmission of servo motors.

易安裝

Easy to install

減速機聯接板及輸入軸孔採彈性設計，能與各廠牌的伺服馬達相結合。

Input shaft bushings and connection plates come in various dimensions and can be compatible with all servo motors.

長壽命、免保養

Long service life and maintenance-free

採用德製優質人工合成潤滑油，流動性佳，富含極佳抗壓劑，齒箱內各零件間充分得到潤滑及保護，可免換機油。

採用特製高品質、耐熱、耐磨不易變質之油封，減速機密封性佳。

Premium Germany-made synthetic oil is adopted with high circulation and anti-ultra-pressure additive. Components are thoroughly protected and lubricated in the gearbox. No oil change is required.

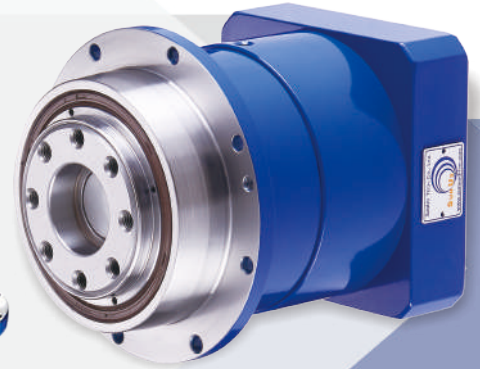
Stable, high-quality, heat-resistant and wear-resistant seals are in use to secure airtightness.

盤面式輸出軸，行星托架與法蘭面為一體式結構，確保與搭配件之同心度與結合強度。結構設計緊湊，適用於有限空間應用

Output shaft is designed with the flange design. Carrier and flange come in one-piece structure to ensure both the concentricity and bong strength of within the accessories. Compact design is perfect for the limited space.



DGS



DG

▶ 電腦數控分度盤
CNC rotary table

▶ 自動交換盤
Automatic pallet changer

▶ 換刀機構
Automatic tool changer

▶ 醫療產業
Medical industry

▶ 半導體機械設備 / 光電面板
TFT-LCD & semi-conductor mechanical equipment

輸出端採用四顆行星齒輪傳動，加大軸承設計，可負荷更大的扭矩剛性和彎曲力矩，適用於重負荷，高精度，耐久性的機械

Four planetary gears and larger bearings are added onto the output shaft. Higher torsional rigidity and bending torque are acceptable. Compatible with heavy-duty, high-accuracy machinery.



UM

▶ 數控重型龍門銑床
CNC gantry type milling machine

▶ 數控落地搪床
CNC planning boring machine

▶ CNC 重型臥車.立車
CNC heavy duty horizontal & vertical lathe

▶ 重型CNC彎管機
Heavy tube bending machine

▶ 塑膠押出成型機
Plastic extruder molding machine

▶ 全電式塑膠射出成型機
All-electric injection molding machine

▶ 風力發電機
Wind turbine

▶ 潛遁機
Tunnel boring machine

▶ 重型工程機械
Heavy construction engineering machine

規 格 Size			UM210	UM240	UM270	UM300	UM330	UM360	UM390
最大加速扭矩 $T_{2B}^{(1)}$ Output Torque	Nm	減速比 i							
		4	4190	6410	9165	11220	15330	20342	25285
緊急停止扭矩 $T_{2Not}^{(2)}$ Emergency Stop Torque	Nm	4	9100	13870	19800	24230	33075	43830	53640
		5.5	7800	11935	17010	20860	28470	37710	46000
額定輸出扭矩 T_{2N} Nominal output Torque	Nm	4	2725	4170	5970	7310	9995	13270	16800
		5.5	2325	3360	4680	6335	8660	11490	14300
減速比 i		單段 1-Stage	4/5.5						
額定輸入轉速 n_{1N} Nominal Input Speed	rpm	4/5.5	1500	1500	1500	1500	1500	1500	1000
最大輸入轉速 n_{1Max} Max. Input Speed	rpm	4/5.5	2000	2000	2000	2000	2000	2000	1500
最大軸向力 ⁽³⁾ F_{aMax} Radial Load	N	4/5.5	25280	37750	48300	68700	73350	80050	113500
標準背隙 Standard Backlash	arcmin	單段 1-Stage	≤ 3	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
精密背隙 Reduced Backlash	arcmin	單段 1-Stage	≤ 2	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
滿載時使用效率 Efficiency with Full Load	%	單段 1-Stage	≥ 94						
使用壽命 L_{h2} Service Life	h	單段 1-Stage	20000						
重量 Weight	kg	單段 1-Stage	85	100	110	130	165	195	300
噪音值 Noise Level	dB		≤ 70						
使用溫度範圍 Permissible Gear Reducer Temp	°C		- 10°C ~ + 90°C						
防護等級 Protection Class			IP 64						
潤滑油 Lubrication			人工合成潤滑油 Synthetic oil Viscosity ISO VG220						
轉動慣量 J_1 Mass Moments of Inertia	kg	4	210.28	337.90	394.94	-	-	-	-
	cm ²	5.5	204.50	327.23	376.85	-	-	-	-

註(1)本表適用於起動頻率1000次/小時以內，若超出時，請與本公司洽詢。 Note (1) Data are measured at the frequency under 1000 times per hour. Contact us if your data are beyond the presented table above.

註(2)堪用期內可作1000次之動作。 Note (2) Operation can be up 1000 times in product life.

註(3)輸出轉速100rpm作用於法蘭中心。 Note (3) Act at the center of output flange in 100 rpm.

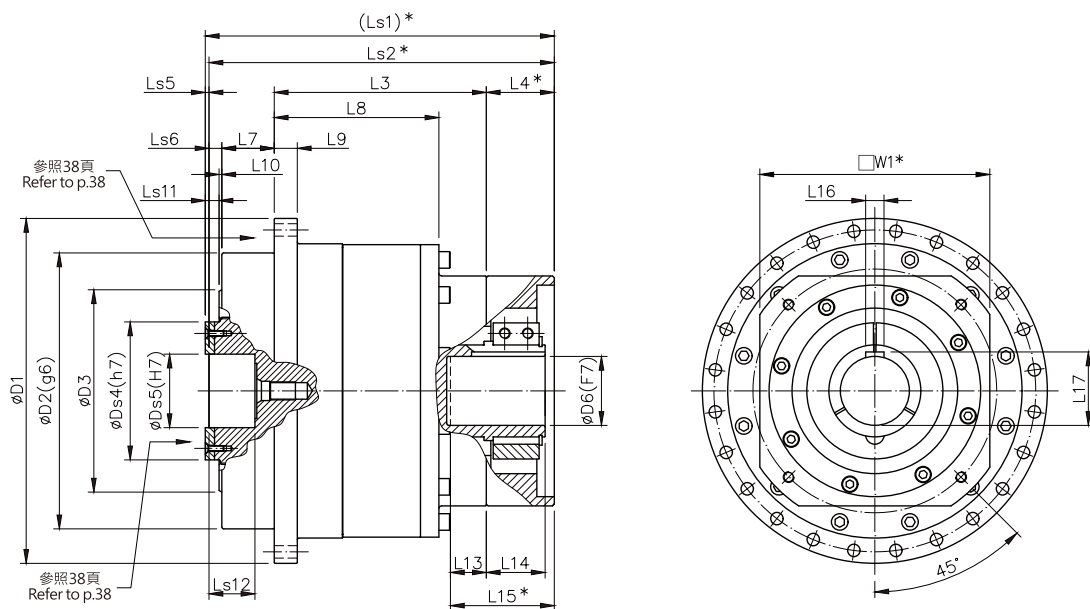
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· 若為連續運轉使用，請與本公司洽詢。

· If any customized ratios are unavailable from above, please contact us for more.

· Consult us if your mode is continuous operation.

UM 尺寸 [mm] Dimensions [mm]



UM

規格 段數	Size Stage	UM210	UM240	UM270	UM300	UM330	UM360	UM390
※ W1 min.		200	220	250	250	270	320	370
D1		305	325	350	375	430	475	550
D2 (g6)		230	270	280	300	320	385	420
D3		160	190	200	220	240	280	320
Ds4 (h7)		125	145	160	170	180	220	250
Ds5 (H7)		45	50	50	50	60	80	100
D6 (F7) max.		65	70	75	75	85	100	100
Ls1		342.5	367	423	413	456	525.5	603
Ls2		338.5	362	417	407	451	517.5	594
L3		174	196	223	226	240	281.5	313
※ L4		84	82	94	74	87	102	105
Ls5		4	5	5	6	5	8	9
Ls6		15	18	18	17	18	20	36
L7		45	51	54	57	62	86	92
L8		162.5	175	207	214	237	244.5	270
L9		18	20	22	25	25	25	30
L10		3	3	3	3	3	3	4
Ls11		18	23	23	24	27	29	45
Ls12		25	35	50	50	60	60	80
L13		33	34	46	39	40	43	70
L14		74	72	79	64	77	75	90.5
※ L15 min.		117	116	140	113	127	140	175
L16		18	20	20	20	22	28	28
L17		69.4	74.9	79.9	79.9	90.4	106.4	106.4

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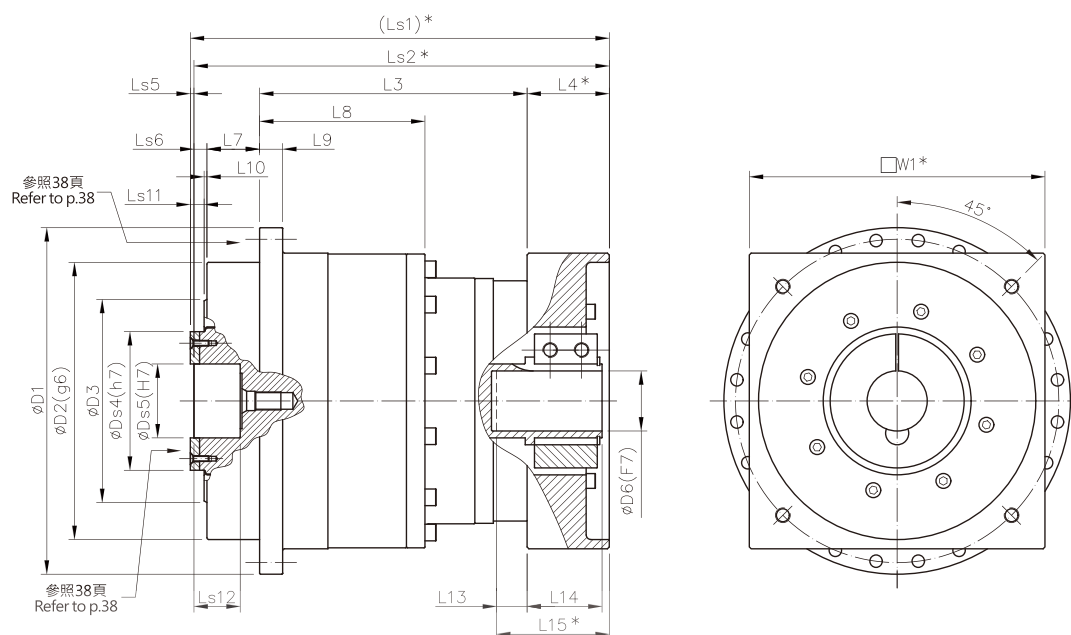
UM 技術資料 Technical Data (雙段2-Stage、三段3-Stage)

規 格		Size	UM210	UM240	UM270	UM300	UM330	UM360	UM390	
最大加速扭矩 $T_{2B}^{(1)}$ Output Torque	Nm	減速比 i								
		12	4375	6920	10400	12745	15755	24380	29500	
		16/22	4375	6920	11250	13120	16980	24940	30500	
		36/48	4395	8225	10220	14210	16990	27645	32000	
		66/88/110	5540	8650	12330	14350	18945	27640	32500	
緊急停止扭矩 $T_{2Not}^{(2)}$ Emergency Stop Torque	Nm	12	9600	15180	21970	26955	33160	50850	61000	
		16/22	9600	15180	23320	28640	37000	51730	62400	
		36/48	10460	16870	23180	29155	38060	55720	64400	
		66/88/110	11150	17480	24935	29155	42210	55720	65400	
		154/220	10230	17600	19490	29155	42335	55800	65800	
額定輸出扭矩 T_{2N} Nominal output Torque	Nm	12	3095	4985	7165	8400	10595	15900	19300	
		16/22	3095	4985	7590	8800	10800	16840	19950	
		36/48	3115	5475	7115	9470	10810	17900	20910	
		66/88/110	3330	5540	8075	9500	10820	17935	21250	
		154/220	2905	4620	8115	9500	10680	17460	21500	
減速比 i		雙段 2-Stage	12/16/22							
		三段 3-Stage	36/48/66/88/110/154/220							
額定輸入轉速 n_{1N} Nominal Input Speed	rpm	12~220	1500	1500	1500	1500	1500	1500	1500	
最大輸入轉速 n_{1Max} Max. Input Speed	rpm	12~220	3000	3000	3000	3000	2500	2000	1500	
最大軸向力 ⁽³⁾ F_{aMax} Radial Load	N	12~220	25280	37750	48300	68700	73350	80050	113500	
標準背隙 Standard Backlash	arcmin	雙段 2-Stage	≤4	≤4	≤3	≤3	≤3	≤3	≤3	
		三段 3-Stage	≤7	≤6	≤6	≤5	≤5	≤4	≤4	
精密背隙 Reduced Backlash	arcmin	雙段 2-Stage	≤3	≤2	≤2	≤2	≤2	≤2	≤2	
		三段 3-Stage	≤4	≤3	≤3	≤3	≤3	≤3	≤3	
滿載時使用效率 Efficiency with Full Load	%	12~220	≥90							
使用壽命 L_{h2} Service Life	h	12~220	20000							
重量 Weight	kg	雙段 2-Stage	90	125	138	162	200	235	290	
		三段 3-Stage	95	135	150	175	220	250	380	
噪音值 ⁽⁴⁾ Noise Level	dB		≤70							
使用溫度範圍 Permissible Gear Reducer Temp	°C		- 10°C ~ + 90°C							
防護等級 Protection Class			IP 64							
潤滑油 Lubrication			人工合成潤滑油 Synthetic oil viscosity				ISO VG220			
轉動慣量 J_1 Mass Moments of Inertia	kg cm ²	雙段 2-Stage	12	61.61	94.96	149.5	-	455.38	-	-
			16	54.49	83.93	128.26	-	396.10	-	-
			22	53.77	82.33	121.96	-	381.10	-	-
		三段 3-Stage	36	20.24	47.42	57.97	-	90.10	-	-
			48	18.29	43.14	53.55	-	82.07	-	-
			66	20.24	47.42	57.97	-	90.10	-	-
			88	18.29	43.14	53.55	-	82.07	-	-
			110	18.04	42.54	52.95	78.68	80.58	-	-
			154	17.41	42.05	52.51	-	102.95	-	-
			220	17.38	42.00	52.46	-	102.25	-	-

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Note (1) Data are measured at the frequency under 1000 times per hour. Contact us if your data are beyond the presented table above.
 Note (2) Operation can be up 1000 times in product life.
 Note (3) Act at the center of output flange in 100 rpm.
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UM 尺寸 [mm] Dimensions [mm]



UM

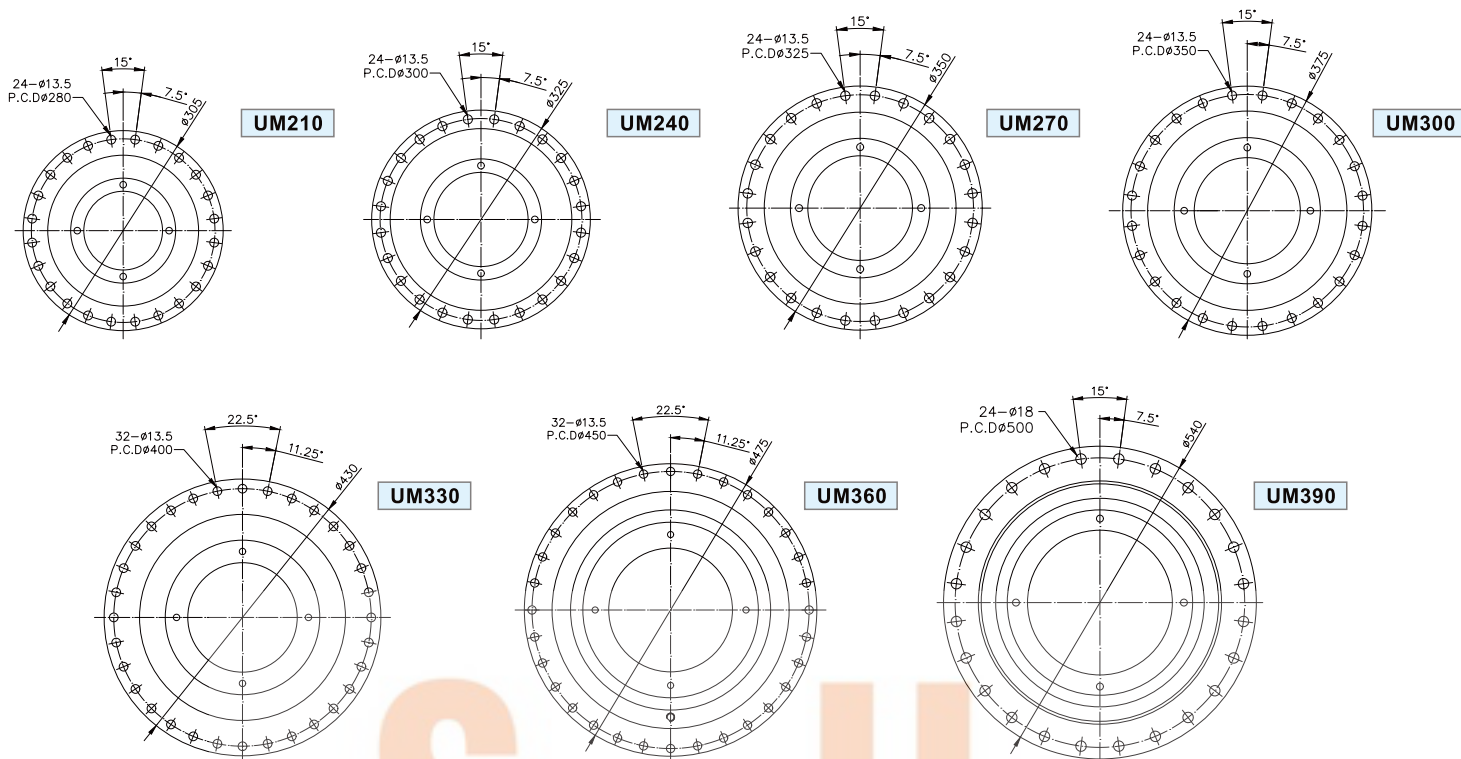
規格 段數	Size		UM210		UM240		UM270		UM300		UM330		UM360		UM390	
	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3
※ W1 min.	180	150	220	180	240	190	250	220	220	190	260	220	310	370		
D1	305		325		350		375		430		475		550			
D2 (g6)	230		270		280		300		320		385		420			
D3	160		190		200		220		240		280		320			
Ds4 (h7)	125		145		160		170		180		220		250			
Ds5 (H7)	45		50		50		50		60		80		100			
D6 (F7) max.	55	42	60	48	65	55	65	60	70	60	80	70	80	70		
Ls1	394	309.5	418.5	466	470	497.5	480	523.5	503	555.5	573	639	630	687.5		
Ls2	390	305.5	413.5	461	465	492.5	474	517.5	498	550.5	565	631	621	678.5		
L3	246	290.5	262.5	313	309	359.5	313	366.5	336	388.5	381	441.5	408	465.5		
※ L4	84	55	82	79	84	61	89	79	82	82	78	83.5	85	85		
Ls5	4		5		5		6		5		8		9			
Ls6	15		18		18		17		18		20		36			
L7	45		51		54		57		62		86		92			
L8	162.5		175		207		214		237		244.5		270			
L9	18		20		22		25		25		25		30			
L10	3		3		3		3		3		3		4			
Ls11	18		23		23		24		27		29		45			
Ls12	25		35		50		50		60		60		80			
L13	29	24	34	34	32	31	33	37	38	34	32	32.5	40	35		
L14	57.5	43.5	63.5	52.5	84	53.5	81	62	74	67	71.5	71.5	70	77		
※ L15 min.	93	78	104	100	116	92	122	103	120	108	110	116	125	120		

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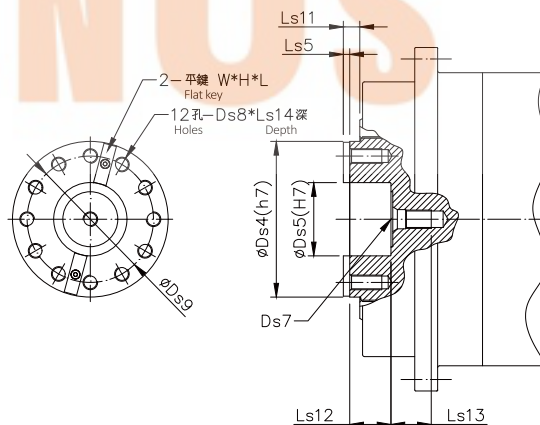
UM 輸出法蘭面尺寸 [mm]

Output flange dimension [mm]



S. 標準型輸出軸 [mm]

Standard output shaft (mm)

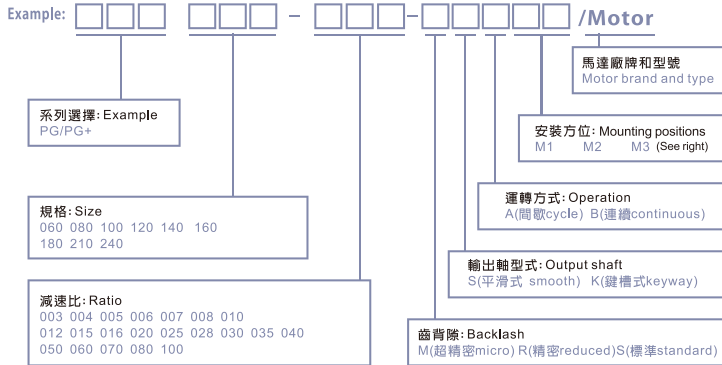


規格 Size	UM210	UM240	UM270	UM300	UM330	UM360	UM390
Ds4 (h7)	125	145	160	170	180	220	250
Ds5 (H7)	45	50	50	50	60	80	100
Ds7	M20*P2.5	M20*P2.5	M20*P2.5	M24*P3	M24*P3	M24*P3	M24*P3
Ds8	M12*P1.75	M14*P2	M16*P2	M16*P2	M20*P2.5	M20*P2.5	M24*P3
Ds9	102	120	130	138	140	180	200
Ls5	6	8	8	10	12	12	13
Ls11	18	23	23	24	27	29	45
Ls12	15	15	15	15	20	25	30
Ls13	42	42	42	50	50	50	50
Ls14	25	30	35	35	42	42	55
W*H*L	16*16*38	18*18*46	20*20*50	22*22*55	25*25*55	25*25*65	28*28*70

高精度通用型行星式減速機

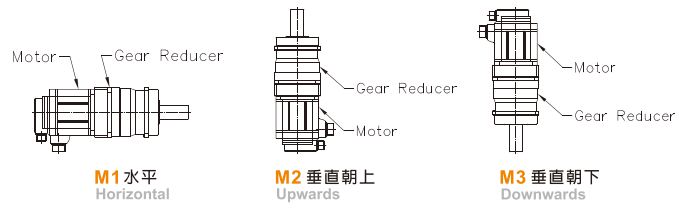
Universal high-precision planetary gear reducers

選用範列: **P G B 0 6 0 - 0 0 5 - R S A M 1** /MITSUBISHI-HC-KFS43

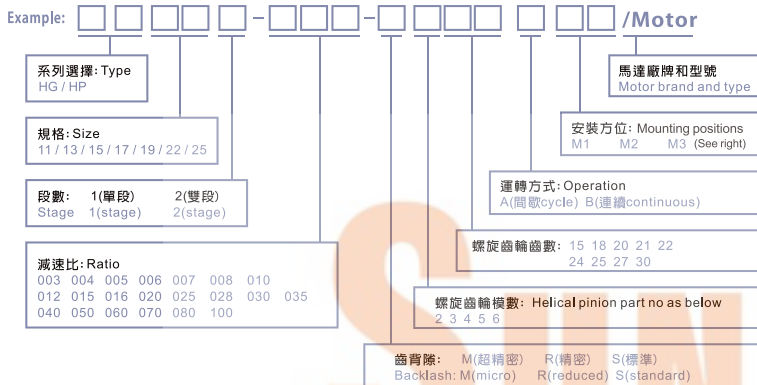


安裝方位

Mounting positions

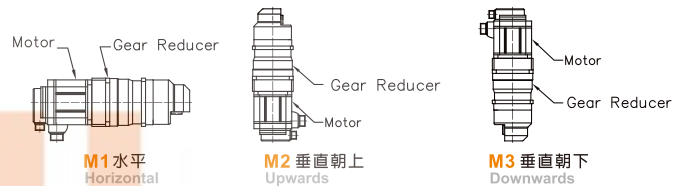


選用範列: **H G 1 1 1 - 0 0 5 - R 2 1 8 A M 1** /MITSUBISHI/HCSF5102

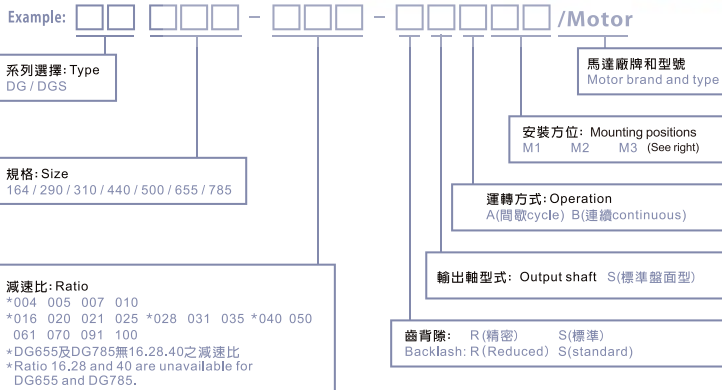


安裝方位

Mounting positions

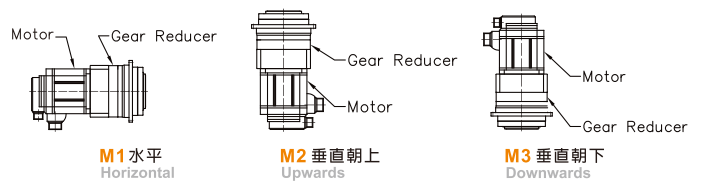


選用範列: **D G 1 6 4 - 0 0 5 - R S A M 1** /MITSUBISHI-HC-KFS43

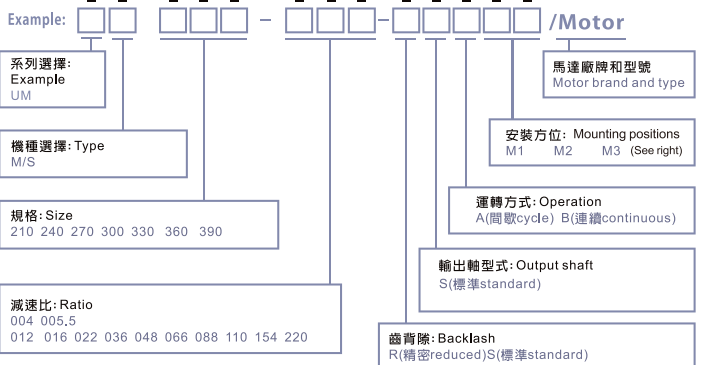


安裝方位

Mounting positions



選用範列: **U M 2 1 0 - 1 1 0 - R S A M 1** /MITSUBISHI-HC-KFS43



安裝方位

Mounting positions

