

機械消隙 行星式減速機

Mechanical Backlash-free
Planetary Gear Reducers

產品特點

Characteristics

全封閉式消隙

Enclosed gearbox

特別設計的機械結構，消除減速機內部及齒輪齒條間隙，徹底解決一般減速機驅動齒輪齒條時，針對製造或安裝上的誤差所產生的背隙，給予彌補或消除。

Specially designed structure eliminates clearance between inner gearbox and racks and pinions. This completely supplements and clears up backlash of manufacture or/and installation while gearboxes drive both pinions and racks.

節省成本

Cost saving

只需使用單顆伺服馬達驅動，即可達到雙顆伺服馬達及驅動器的消隙效果，可降低NC控制器的成本。由於背隙消除，加工刀具軌跡穩定，壽命增長。

Only driven by one single servo motor, mechanical preload system achieves the equivalent measure to electrical preload system, effectively reducing the cost on the controller. Increased tool life and tool path are expected along with the clearance of backlash.

容易設定

Easy to set up

全封閉式機械消隙由單顆伺服馬達驅動，在電腦參數的設定上，比使用雙顆伺服馬達的電機消隙更為容易。

Driven by one single servo motor, parameter settings can be easier for enclosed mechanical preload system than electrical preload system.

可獲得更佳的加工表面光滑度及精度

Better smooth surface and accuracy

背隙消除後，刀具軌跡穩定，可獲得更佳的加工表面光滑度及精度。

Tool life becomes more stable when backlash is eliminated, resulting in smooth surface and accuracy on processing.

超大扭力

Huge torsional rigidity

大型高品質滾錐軸承，輸出軸能承受更大的軸向和徑向的負荷，承受超大扭力和剛性，應用範圍廣。

Premium taper roller bearings are in use and output shaft sustains higher axial and radial loads. Massive application.

高起動性

High dynamics

整體式輸出齒軸設計，特製高強度較少齒數齒輪，伺服馬達可選用較小規格，獲得最小啟動扭矩，較大剛性。

One-piece output design and specially made high-strength gear with fewer teeth can match with smaller servo motor and achieve higher rigidity.

高定位精度

Precise positioning

精密齒輪研磨，齒面光滑，齒形精準。

齒輪箱和內環齒輪採整體結構設計，特殊合金鋼材，穩定性高。

High-precision ground gear with smooth surface and excellent tooth. Gearbox and inner ring are one-piece structure. Special alloys are adopted and result in high stability.

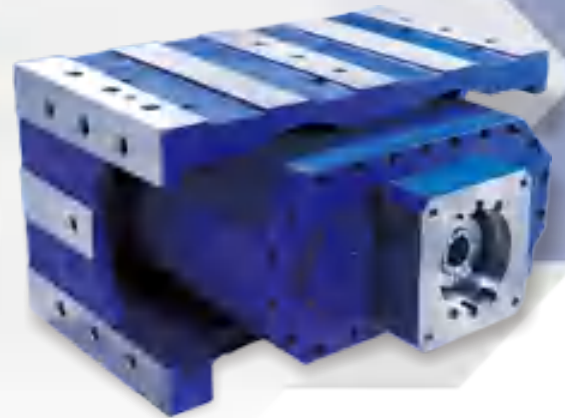
長壽命、低噪音

Long service life and low noise

採用精密研磨齒輪，經深層滲碳硬化處理後，再經精密齒面研磨，使得齒輪剛性大，且齒面光滑耐磨性佳，可延長使用壽命及低噪音。經長時間操作使，仍維持消隙功能。

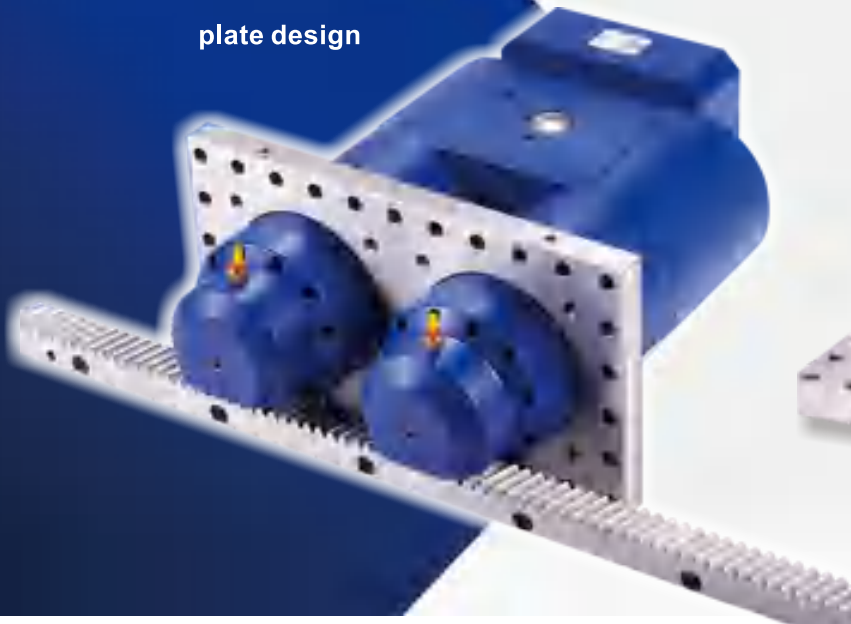
High-precision ground gears are treated with deep carburizing first and ground afterwards, leading to higher rigidity on their surface. Because of their smoothness and durability, longer service life and low noise are expected. Backlash-free motion remains unchanged even after a long period of operation.

DMU 箱型系列 box design



SUNUs

BMU 板型系列 plate design



DMU 技術資料 Technical Data(雙段2-Stage)

規 格	Size	DMU140	DMU160	DMU180	DMU210	DMU240
最大加速扭矩 (1) Output Torque T2B [Nm]	減速比 i					
	32 / 40	1120	1770	2500	5920	9395
	44/55/66/77/88/110	950	1545	2220	5430	7950
緊急停止扭矩 (2) Emergency Stop Torque T2Not [Nm]	32 / 40	2320	3650	5150	12800	19300
	44/55/66/77/88/110	1950	3140	4330	10990	16110
額定輸出扭矩 Nominal output torque T2N [Nm]	32 / 40	735	1150	1645	3890	6180
	44/55/66/77/88/110	625	1000	1460	3570	5230
減速比 i Ratio	雙段2-stage	32 / 40 / 44 / 55 / 66 / 77 / 88 / 110				
額定輸入轉 Nominal Input Speed n1N [rpm]	32~110	3000	3000	3000	2500	2000
最大輸入轉速 Max. Input Speed n1Max [rpm]	32~110	4000	4000	4000	3500	3500
滿載時使用效率 %	32~110	≥ 93				
使用壽命 Lh2 [h] Efficiency with Full Load	32~110	20000				
重量 [kg] Weight	雙段2-stage					

規 格	Size	DMU140	DMU160	DMU180	DMU210	DMU240
轉動慣量 Mass Moments of Inertia J1 [kg · cm ²]	減速比 i					
	32~110	39.77	42.80	95.73	228.50	360.00

輸出齒輪資料 Output pinion data

規 格	Size	DMU140	DMU160	DMU180	DMU210	DMU240
螺旋齒輪 Helical tooth pinion (螺旋角Helical 19° 31'42")	模數 Module	M4	M4	M5	M6	M8
	齒數 N# of teeth	15T	18T	15T	18T	15T
正齒輪 Spur tooth pinion	模數 Module	M4	M4	M5	M6	M8
	齒數 N# of teeth	16T	19T	16T	19T	16T
節圓直徑 Pitch circle diameter	螺旋齒輪 Helical tooth pinion	φ 63.66	φ 79.39	φ 79.58	φ 114.59	φ 127.32
	正齒輪 Spur tooth pinion	φ 64	φ 76	φ 80	φ 114	φ 128
圓周長 Circumference	螺旋齒輪 Helical tooth pinion	200	240	250	360	400
	正齒輪 Spur tooth pinion	201.06	238.76	251.33	358.14	402.12
轉位係數 Addendum modification coefficient	螺旋齒輪 Helical tooth pinion	0.355	-	0.3723	-	0.355
	正齒輪 Spur tooth pinion	0.475	-	0.45	-	0.4375

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。

註(2)堪用期內可作1000次之動作。

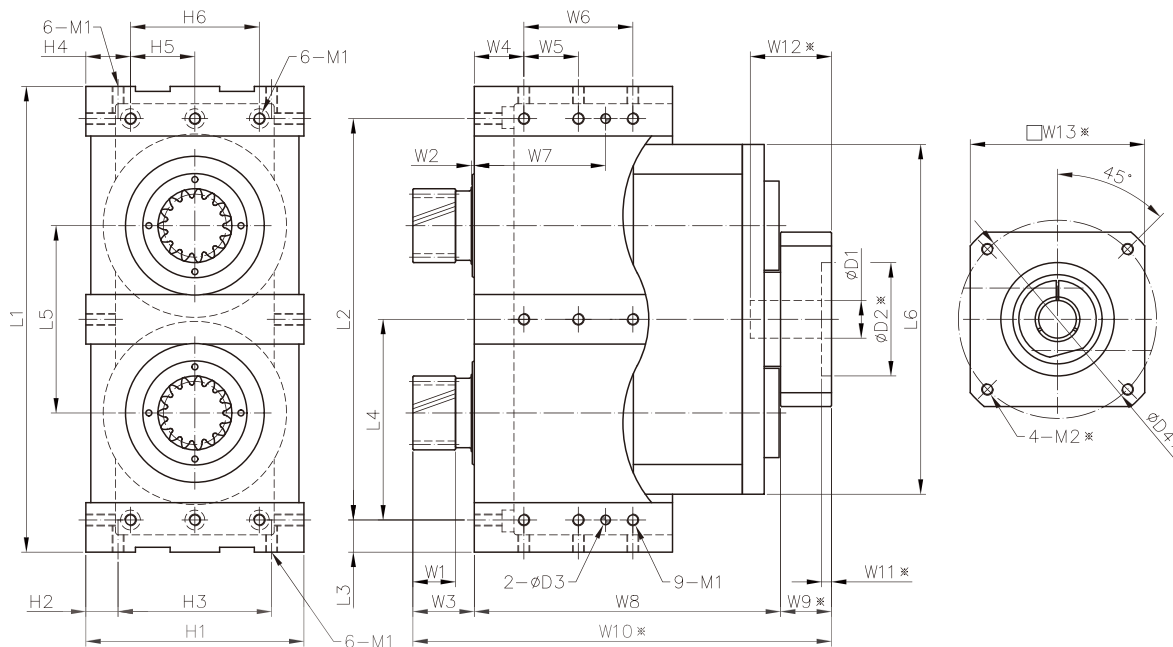
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Note (1) Data are measured at the frequency under 1000 times per hour. Contact us if your data are beyond the presented table above.

Note (2) Operation can be up 1000 times in product life.

- If any customized ratios are unavailable from above, please contact us for more.
- Consult us if your mode is continuous operation.

DMU 尺寸 [mm] Dimensions [mm]



規格 Size	DMU140	DMU160	DMU180	DMU210	DMU240
段數 Stage	2	2	2	2	2
H1	220	270	320	380	420
H2	32.5	35	35	50	60
H3	155	200	250	280	300
H4	45	60	70	100	90
H5	65	75	90	90	120
H6	130	150	180	180	24
L1	470	530	600	720	815
L2	405	460	530	620	695
L3	32.5	35	35	50	60
L4	202.5	230	265	310	347.5
L5	189	207	240	270	320
L6	353	386	458	512	600
W1	43	43	54	65	88
W2	3	6	-	-	4
W3	62	64	68	86.5	115
W4	50	60	80	90	90
W5	55	65	75	105	95
W6	110	130	150	210	180
W7	132.5	157.5	192.5	247.5	232.5
W8	309	336.5	385	480.5	519.5
W9 ※	51.5	52	61	56	48
W10※	422.5	452.5	514	623	682.5
W11※	10	15	15	10	10
W12※	82	82.5	98	85	83.5
W13※	176	176	176	176	190
D1(F7) max.	38	38	42	48	55
D2※	114.3	114.3	114.3	114.3	180
D3	9.5	9.5	11.5	13.5	13.5
D4※	200	200	200	200	215
M1	M12*P1.75	M16*P2	M20*P2.5	M20*P2.5	M20*P2.5
M2※	M12*P1.75	M12*P1.75	M12*P1.75	M12*P1.75	M12*P1.75

・ ※此記號表示之尺寸視聯結之伺服馬達不同而有所變動。
 ・ 本公司的產品不斷的研究、發展。上表所示之尺寸力求精準，若有不符，仍以實物為準，如需確實之尺寸，可洽本公司。

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DMU

BMU 技術資料 Technical Data(雙段2-Stage)

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重量 [kg] Weight	雙段2-stage					

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	齒數 N# of teeth	16T	19T	16T	19T	16T
節圓直徑 Pitch circle diameter	螺旋齒輪 Helical tooth pinion	φ 63.66	φ 79.39	φ 79.58	φ 114.59	φ 127.32
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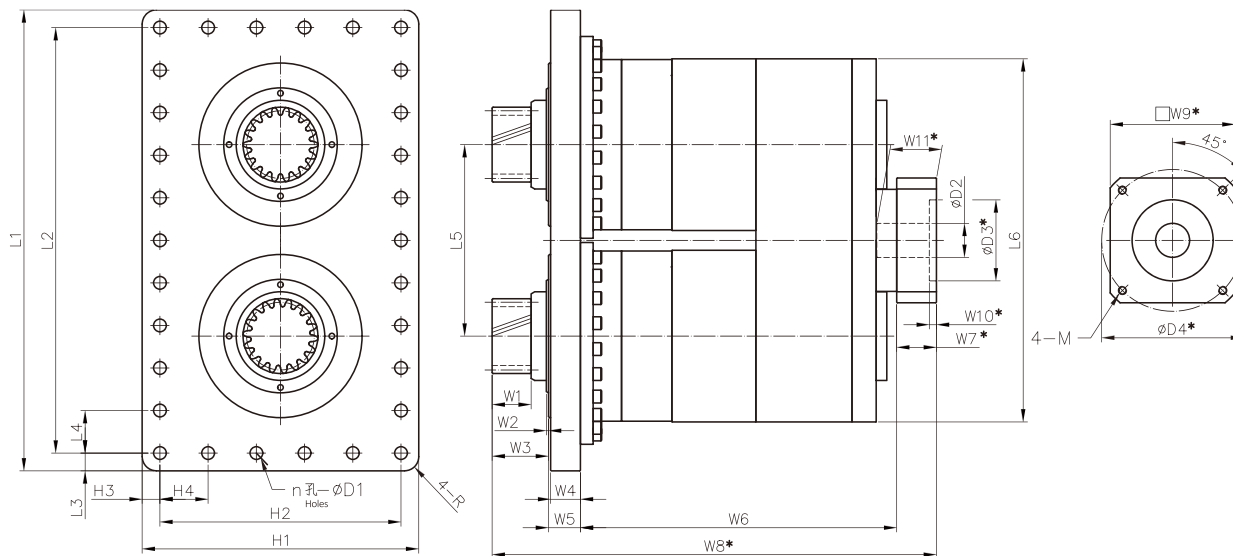
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BMU 尺寸 [mm] Dimensions [mm]



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H1	220	285	300	380	400
H2	200	255	275	340	360
H3	10	15	12.5	20	20
H4	40	51	55	68	72
L1	410	490	540	650	720
L2	390	460	515	610	680
L3	10	15	12.5	20	20
L4	39	46	51.5	61	68
L5	189	207	240	270	320
L6	353	386	458	512	600
W1	43	43	54	65	86
W2	2	4.5	3	3	3
W3	62	62.5	77	89.5	114
W4	20	22	25	35	40
W5	30	36.5	46	45	51
W6	279	301.5	353	446	469.5
W7 ※	51.5	52	32.5	54	48
W8	422.5	452.5	514	623	682.5
※ W9	176	176	176	176	190
※ W10	10	15	15	10	10
※ W11	82	82.5	98	85	83.5
D1	9	11	11	18	18
D2(F7)max.	38	38	42	48	55
D3	114.3	114.3	114.3	114.3	180
D4	200	200	200	200	215
n	30	30	30	30	30
R	10	10	10	20	20

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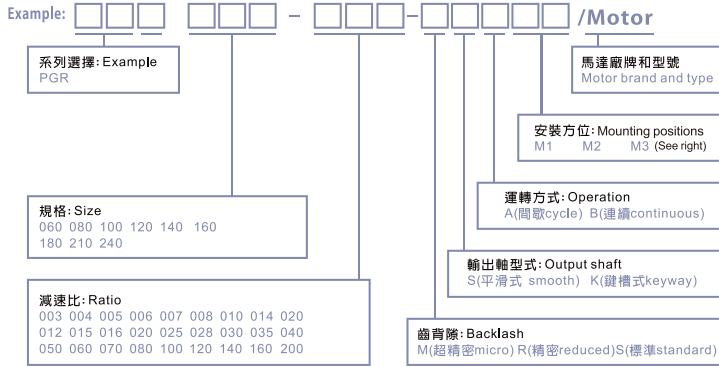
BMU

直角型行星式減速機

Right-angle Planetary Gear Reducers

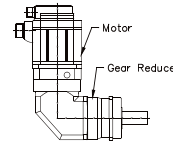


選用範列: **PGR 060 - 005-RSAM1** /MITSUBISHI-HC-KFS43

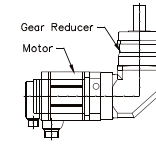


安裝方位

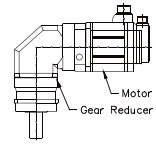
Mounting positions



M1 水平
Horizontal

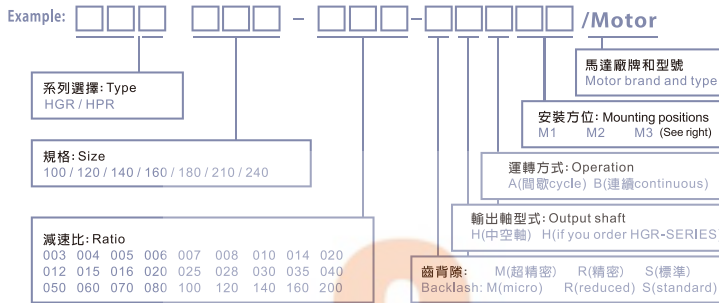


M2 垂直朝上
Upwards



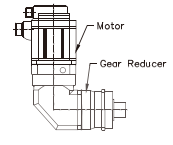
M3 垂直朝下
Downwards

選用範列: **HGR 100 - 005-RHAM1** /MITSUBISHI/HCKFS102

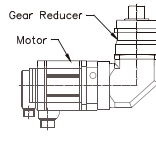


安裝方位

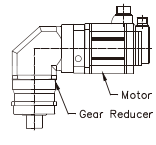
Mounting positions



M1 水平
Horizontal



M2 垂直朝上
Upwards

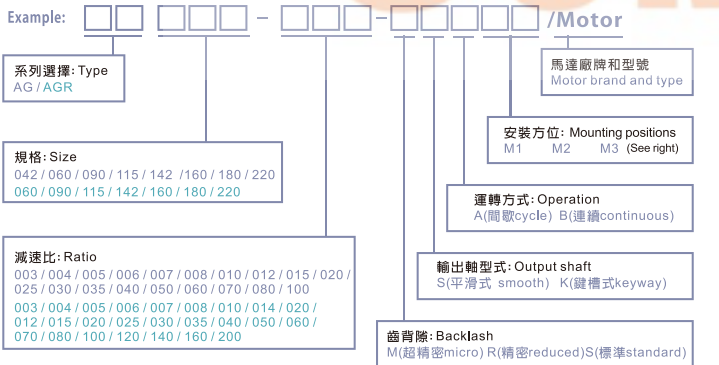


M3 垂直朝下
Downwards

經濟型行星式減速機

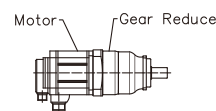
Economic Planetary Gear Reducers

選用範列: **AG 142 - 005-RSAM1** /MITSUBISHI-HC-KFS43

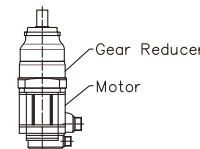


安裝方位

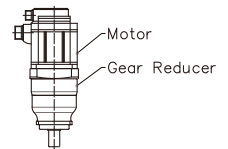
Mounting positions



M1 水平
Horizontal



M2 垂直朝上
Upwards

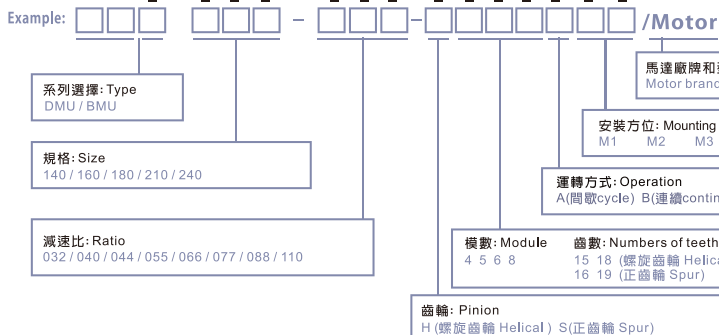


M3 垂直朝下
Downwards

機械消隙行星式減速機

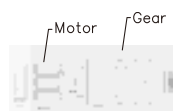
Mechanical Backlash-free Planetary Gear Reducers

選用範列: **DMU 210 - 110-H618AM1** /MITSUBISHI-HC-KFS43

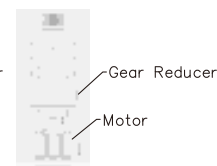


安裝方位

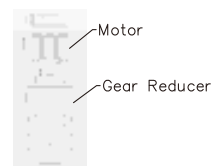
Mounting positions



M1 水平
Horizontal



M2 垂直朝上
Upwards



M3 垂直朝下
Downwards