

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.

HG/HP 系列 SERIES

中空輸出軸設計，可搭接較少齒數的齒輪，伺服馬達可選用較小規格，獲得最小起動扭矩，達到高經濟效益。此外，也可將滾珠螺桿直接與減速機連接，獲得更加精度

Hollow output shaft is designed with the installation of fewer teeth and compatible with a smaller servo motor. Less torque is required to start operation and produce higher economical benefits. Ball screws can be directly installed with planetary gear reducers to reach higher accuracy.



▶ 包裝機械
Packing machine

▶ 充填機
CNC boring machine

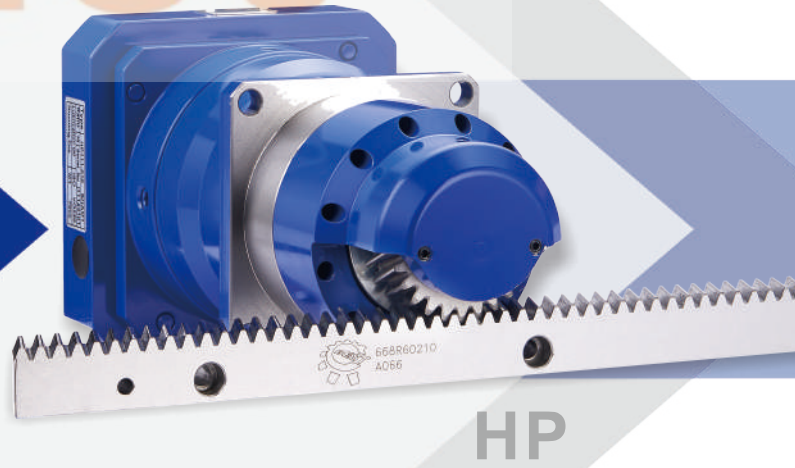
▶ 焊接機
Welding machine

▶ 木工機
Woodworking machine

▶ CNC 彈簧機
CNC spring machine

輸出端增加外罩箱體及軸承支撐，可大幅提昇徑向負荷承載，特別適用於高起動性和高速齒輪/齒排移動的機械

Output shaft is enclosed with the outer cover and bearings to sustain higher radial loads, especially suitable for high dynamics and fast-moving racks or pinions onto the machinery.



▶ 數控重型龍門銑床
CNC planning milling machine

▶ 重型CNC彎管機
Large tube bending machine

▶ 高速印刷機
High speed printing machine

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

▶ 雷射切割機
Laser cutting machine

HG 技術資料 Technical Data (單段1-Stage)

規 格 Size			HG100	HG120	HG140	HG160	HG180	HG210	HG240	
最大加速扭矩 $T_{2B}^{(1)}$ Output Torque	Nm	減速比 i								
		3	202	330	440	735	1055	1750	3600	
		4/5	270	350	510	810	1300	2600	4100	
		6	250	340	445	730	1180	2150	3780	
		7	240	310	440	700	1130	1680	3500	
		8	215	285	410	650	1040	1600	3300	
緊急停止扭矩 $T_{2Not}^{(2)}$ Emergency Stop Torque	Nm	3	630	800	1100	1700	3000	6200	9000	
		4/5	710	900	1260	1850	3250	6480	9500	
		6	650	800	1120	1700	2880	5000	8950	
		7	625	780	1100	1600	2800	5500	8650	
		8	550	690	1025	1470	2560	4600	7200	
		10	500	650	900	1250	2220	3900	6800	
額定輸出扭矩 T_{2N} Nominal output Torque	Nm	3	135	195	315	500	880	1200	2000	
		4/5	185	240	340	550	1100	1900	2600	
		6	155	210	320	460	845	1580	2250	
		7	125	180	315	430	820	1050	1700	
		8	120	175	293	410	755	1000	1660	
		10	115	160	220	350	650	950	1550	
減速比 i		單段 1-Stage	3/4/5/6/7/8/10							
額定輸入轉速 n_{1N} Nominal Input Speed	rpm	3/4/5	2600	2300	2200	1800	1500	1200	1100	
		6/7/8/10	2900	2700	2700	2500	2400	1700	1600	
最大輸入轉速 n_{1Max} Max. Input Speed	rpm	3~10	4500	4000	3600	3200	3000	2500	2200	
徑向負荷力 $F_{rMax}^{(3)}$ Radial Load	N	3~10	6000	7500	9000	11500	14000	18000	27000	
軸向負荷力 $F_{aMax}^{(3)}$ Axial Load	N	3~10	5400	6700	9000	11300	14000	18000	27000	
超精密背隙 Micro Backlash	arcmin	3~10	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	
精密背隙 Reduced Backlash	arcmin	3~10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 2	≤ 2	≤ 2	
標準背隙 Standard Backlash	arcmin	3~10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4	
扭轉剛性 Torsional Rigidity	Nm/ arcmin	3~10	23	35	50	95	150	220	355	
滿載時使用效率 Efficiency with Full Load	%	3~10	≥ 97							
使用壽命 L_{h2} Service Life	h	3~10	20000							
重量 Weight	kg	3~10	8	12	16	23	33	56	85	
噪音值 $^{(4)}$ Noise Level	dB		≤ 62	≤ 65			≤ 66	≤ 68		
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	3	4.73	5.90	10.50	16.22	37.40	72.10	140.80	
		4	4.22	5.09	9.10	12.90	29.80	50.50	97.10	
		5	4.13	4.93	8.85	12.30	28.43	45.20	87.40	
		6	4.08	4.89	8.63	11.88	27.67	44.10	84.50	
		7	4.05	4.83	8.50	11.83	27.55	42.60	81.40	
		8	4.04	4.83	8.48	11.80	27.47	42.20	80.10	
10	4.04	4.81	8.46	11.70	27.45	41.90	79.80			

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。

註(3)輸出轉速100rpm作用於輸出軸中心。

註(4)噪音值測量於5比/輸入轉速3000rpm/距離1公尺/無負載運轉。

- 如您所需之減速比，非表內所有，請與本公司洽詢。
- 若為連續運轉使用，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.

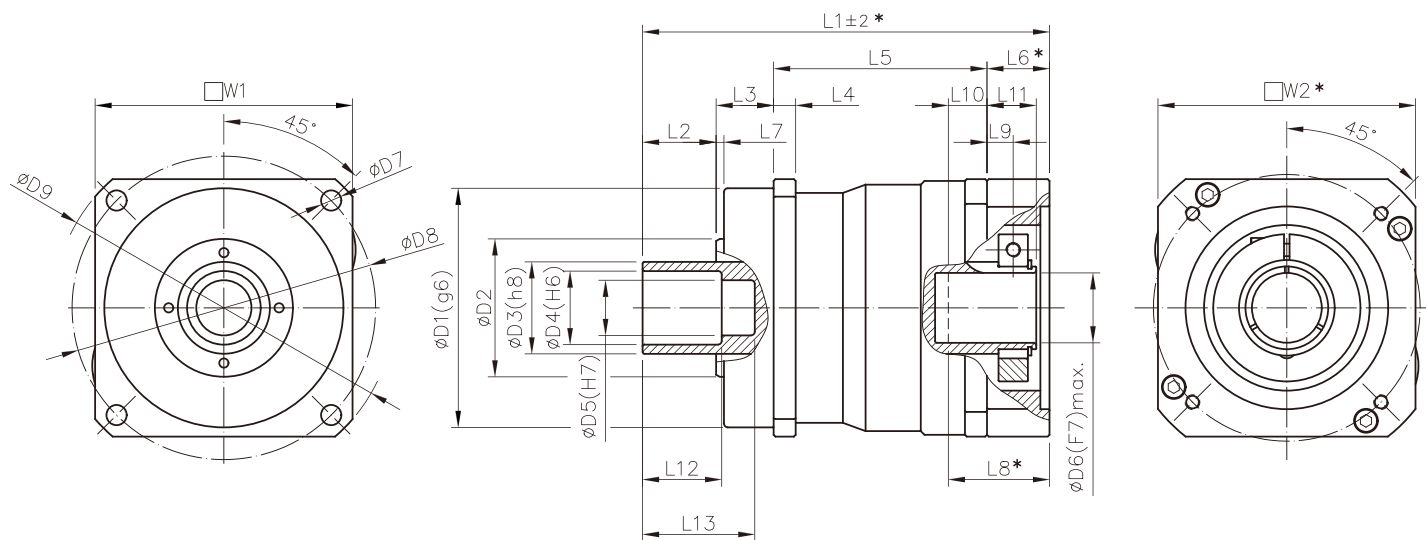
Note (2) Operation can be up 1000 times in product life.

Note (3) Act at the center of output shaft in 100 rpm.

Note (4) Noise is inspected under the condition of ratio 5; input speed 3000 rpm; 1-meter distance and free load operation.

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

HG 尺寸 [mm] Dimensions [mm]



HG

規格 Size	HG100	HG120	HG140	HG160	HG180	HG210	HG240
W1	100	120	140	160	182	210	240
※ W2 min.	118	130	140	175	190	190	240
D1(g6)	90	110	130	145	160	180	200
D2	60	65	75	85	95	125	140
D3(h8)	36	44	50	55	62	75	90
D4(H6)	29	35	40	45	50	60	70
D5(H7)	24	30	30	36	40	50	60
D6(F7)max.	32	35	38	42	48	55	60
D7	9	9	11	13	13	17	17
D8	120	130	165	190	215	250	290
D9	135	155	185	215	240	279	320
※ L1	183.5	197.5	221.5	226.5	260	292.5	348
L2	36	35	40	42	45	48	56
L3	32	30	31	30	30	38	40
L4	10	11	12	13.5	15	17	20
L5	97.5	104	116	120	137	156.5	174
※ L6	28	28.5	34.5	34.5	48	50	78
L7	4	3	4	3	3	3	3
※ L8	52	52	60	60	82	82	110
L9	11.5	12.8	14.3	14.3	17.8	18.5	22.5
L10	24	24	25.5	25.5	34	32	32
L11	22	24.5	27	27	33.5	34.5	41
L12	30	42	43	50	55	66	76
L13	45	62	63	75	85	100	112

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· 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。

· ※ Actual dimension marked above may vary from different servo motors.
· We have persistently invested time in R&D and make every effort to maintain the correctness of the specification above. If there is any discrepancy between the data and real dimensions, please refer to our actual products and contact us for specific dimensions.

規格 Size			HG100	HG120	HG140	HG160	HG180	HG210	HG240		
最大加速扭矩 $T_{2B}^{(1)}$ Output Torque	Nm	減速比 i									
		12/15	202	330	440	735	1055	1750	3600		
		16/20/25/40/50	270	350	510	810	1300	2600	4100		
		30/60	250	340	445	730	1180	2150	3780		
		28/35/70	240	310	440	700	1130	1680	3500		
		80	215	285	410	650	1040	1600	3300		
		100	190	245	340	500	900	1500	2700		
緊急停止扭矩 $T_{2Not}^{(2)}$ Emergency Stop Torque	Nm	12/15	630	800	1100	1700	3000	6200	9000		
		16/20/25/40/50	710	900	1260	1850	3250	6480	9500		
		30/60	650	800	1120	1700	2880	5500	8950		
		28/35/70	625	780	1100	1600	2800	5000	8650		
		80	550	690	1025	1470	2560	4600	7200		
		100	500	650	900	1250	2220	3900	6800		
		12/15	135	195	315	500	880	1200	2000		
額定輸出扭矩 T_{2N} Nominal output Torque	Nm	16/20/25/40/50	185	240	340	550	1100	1900	2600		
		30/60	155	210	320	460	845	1580	2250		
		28/35/70	125	180	315	430	820	1050	1700		
		80	120	175	293	410	755	1000	1660		
		100	115	160	220	350	650	950	1550		
		減速比 i	雙段 2-Stage	12/15/16/20/25/28/30/35/40/50/60/70/80/100							
		額定輸入轉速 n_{1N} Nominal Input Speed	rpm	12~40	3200	3000	3000	2900	2800	2200	2000
50~60	3600			3300	3200	3100	3000	2400	2200		
70~100	4200			3900	3500	3300	3200	2800	2400		
最大輸入轉速 n_{1Max} Max. Input Speed	rpm	12~100	4500	4000	3600	3600	3600	3000	3000		
徑向負荷力 $Fr_{Max}^{(3)}$ Radial Load	N	12~100	6000	7500	9000	11500	14000	18000	27000		
軸向負荷力 $Fa_{Max}^{(3)}$ Axial Load	N	12~100	5400	6700	9000	11300	14000	18000	27000		
超精密背隙 Micro Backlash	arcmin	12~100	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3		
精密背隙 Reduced Backlash	arcmin	12~100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4		
標準背隙 Standard Backlash	arcmin	12~100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6		
扭轉剛性 Torsional Rigidity	Nm/ arcmin	12~100	23	35	50	95	150	220	355		
滿載時使用效率 Efficiency with Full Load	%	12~100	≥ 94								
使用壽命 L_{h2} Service Life	h	12~100	20000								
重量 Weight	kg	12~100	9.2	15.2	20.3	23.7	35.5	59	87		
噪音值 $^{(4)}$ Noise Level	dB		≤ 60	≤ 65			≤ 66	≤ 68			
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	12	4.73	5.90	10.50	10.50	11.00	37.50	37.70		
		15	4.73	5.90	10.50	10.50	11.00	37.50	37.70		
		16	4.20	5.09	9.00	9.30	9.30	30.00	31.30		
		20	4.20	5.07	9.00	9.20	9.30	30.00	31.00		
		25	4.12	4.91	8.83	9.00	9.05	28.70	30.10		
		28	4.20	5.07	9.00	9.20	9.20	29.90	31.00		
		30	4.08	4.90	8.63	8.65	8.65	27.70	29.05		
		35	4.12	4.91	8.82	8.90	9.03	28.80	30.08		
		40	4.04	4.80	8.45	8.50	8.52	27.70	28.70		
		50	4.04	4.80	8.45	8.49	8.52	27.70	28.70		
		60	4.04	4.80	8.45	8.49	8.50	27.70	28.55		
70	4.04	4.80	8.45	8.49	8.50	27.70	28.50				
80	4.04	4.80	8.45	8.49	8.50	27.70	28.50				
100	4.04	4.80	8.45	8.48	8.50	27.70	28.50				

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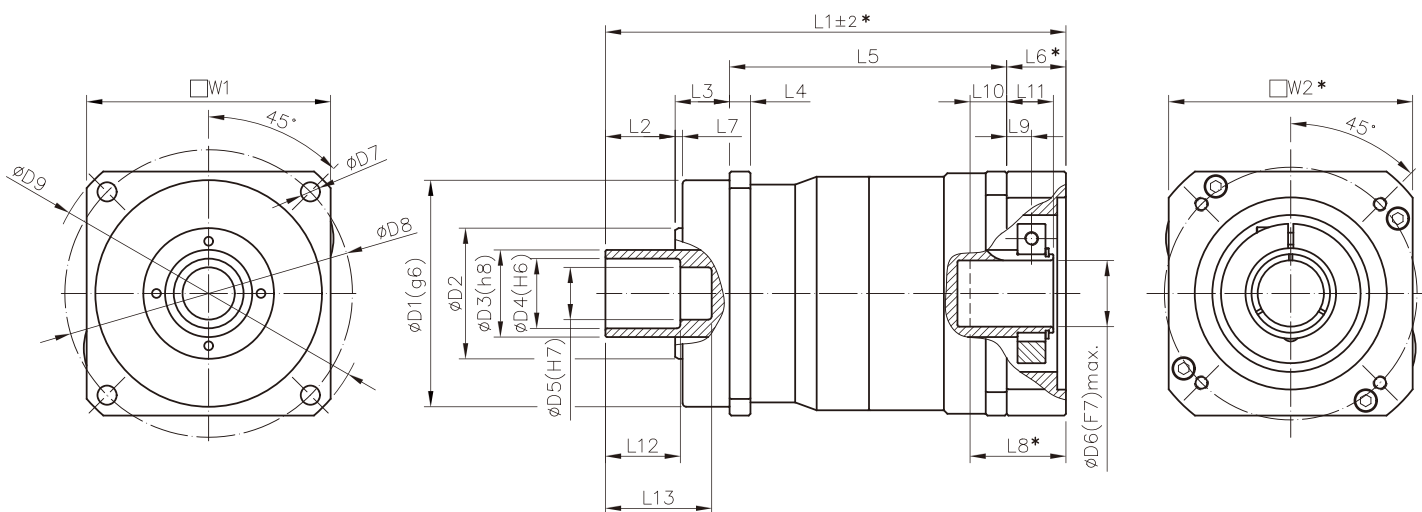
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Note (4) Noise is inspected under the condition of ratio 5; input speed 3000 rpm; 1-meter distance and free load operation.

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規 格 Size	HG100	HG120	HG140	HG160	HG180	HG210	HG240
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※ W2 min.	118	130	140	140	140	190	190
D1(g6)	90	110	130	145	160	180	200
D2	60	65	75	85	95	125	140
D3(h8)	36	44	50	55	62	75	90
D4(H6)	29	35	40	45	50	60	70
D5(H7)	24	30	30	36	40	50	60
D6(F7) max.	32	35	38	38	38	48	48
D7	9	9	11	13	13	17	17
D8	120	130	165	190	215	250	290
D9	135	155	185	215	240	279	320
※ L1	222	237.5	264.5	269.5	281	338.5	366
L2	36	35	40	42	45	48	56
L3	32	30	31	30	30	38	40
L4	10	11	12	13.5	15	17	20
L5	136	144	159	163	171.5	204.5	222
※ L6	28	28.5	34.5	34.5	34.5	48	48
L7	4	3	4	3	3	3	3
※ L8	52	52	60	60	60	82	82
L9	11.5	12.8	14.3	14.3	14.3	17.8	17.8
L10	24	24	25.5	25.5	25.5	34	34
L11	22	24.5	27	27	27	33.5	33.5
L12	30	42	43	50	55	66	76
L13	45	62	63	75	85	100	112

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規 格 Size			HP111	HP131	HP151	HP171	HP191	HP221	HP251	
最大加速扭矩 $T_{2B(1)}$ Output Torque	Nm	減速比 i								
		3	208	338	450	750	1080	1800	3690	
		4/5	280	362	530	850	1360	2720	4295	
		6	260	350	455	745	1205	2210	3870	
		7	247	320	450	720	1160	1730	3610	
		8	220	295	420	668	1055	1645	3400	
緊急停止扭矩 $T_{2Not(2)}$ Emergency Stop Torque	Nm	3	630	800	1100	1700	3000	6200	9000	
		4/5	710	900	1260	1850	3250	6480	9500	
		6	650	800	1120	1700	2880	5500	8950	
		7	625	780	1100	1600	2800	5000	8650	
		8	550	690	1025	1470	2560	4600	7200	
		10	500	650	900	1250	2220	3900	6800	
額定輸出扭矩 T_{2N} Nominal output Torque	Nm	3	138	200	322	515	900	1230	2060	
		4/5	192	250	355	580	1150	1990	2720	
		6	158	215	325	470	865	1620	2315	
		7	130	185	320	443	843	1080	1750	
		8	125	180	300	420	775	1025	1700	
		10	118	165	226	360	670	970	1588	
減速比 i		單段 1-Stage	3/4/5/6/7/8/10							
額定輸入轉速 n_{1N} Nominal Input Speed	rpm	3/4/5	2600	2300	2200	1800	1500	1200	1100	
		6/7/8/10	2900	2700	2700	2500	2400	1700	1600	
最大輸入轉速 n_{1Max}	rpm	3~10	4500	4000	3600	3200	3000	2500	2200	
徑向負荷力 $Fr_{Max(3)}$ Radial Load	N	3~10	9600	12000	14400	18400	22400	28800	43200	
軸向負荷力 $Fa_{Max(3)}$ Axial Load	N	3~10	5400	6700	9000	11300	14000	18000	27000	
超精密背隙 Micro Backlash	arcmin	3~10	≤1	≤1	≤1	≤1	≤1	≤1	≤1	
精密背隙 Reduced Backlash	arcmin	3~10	≤3	≤3	≤3	≤3	≤2	≤2	≤2	
標準背隙 Standard Backlash	arcmin	3~10	≤5	≤5	≤5	≤5	≤4	≤4	≤4	
扭轉剛性 Torsional Rigidity	Nm/ arcmin	3~10	23	35	50	95	150	220	355	
滿載時使用效率 Efficiency with Full Load	%	3~10	≥97							
使用壽命 L_{h2} Service Life	h	3~10	20000							
重量 Weight	kg	3~10	10	15	18.5	26	36	62	91	
噪音值 (4) Noise Level	dB		≤62	≤65			≤66	≤68		
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	3	4.73	5.90	10.50	16.22	37.40	72.10	140.80	
		4	4.22	5.09	9.10	12.90	29.80	50.50	97.10	
		5	4.13	4.93	8.85	12.30	28.43	45.20	87.40	
		6	4.08	4.89	8.63	11.88	27.67	44.10	84.50	
		7	4.05	4.83	8.50	11.83	27.55	42.60	81.40	
		8	4.04	4.83	8.48	11.80	27.47	42.20	80.10	
		10	4.04	4.81	8.46	11.70	27.45	41.90	79.80	

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。

註(3)輸出轉速100rpm作用於輸出軸中心。

註(4)噪音值測量於5比/輸入轉速3000rpm/距離1公尺/無負載運轉。

- 如您所需之減速比，非表內所有，請與本公司洽詢。
- 若為連續運轉使用，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.

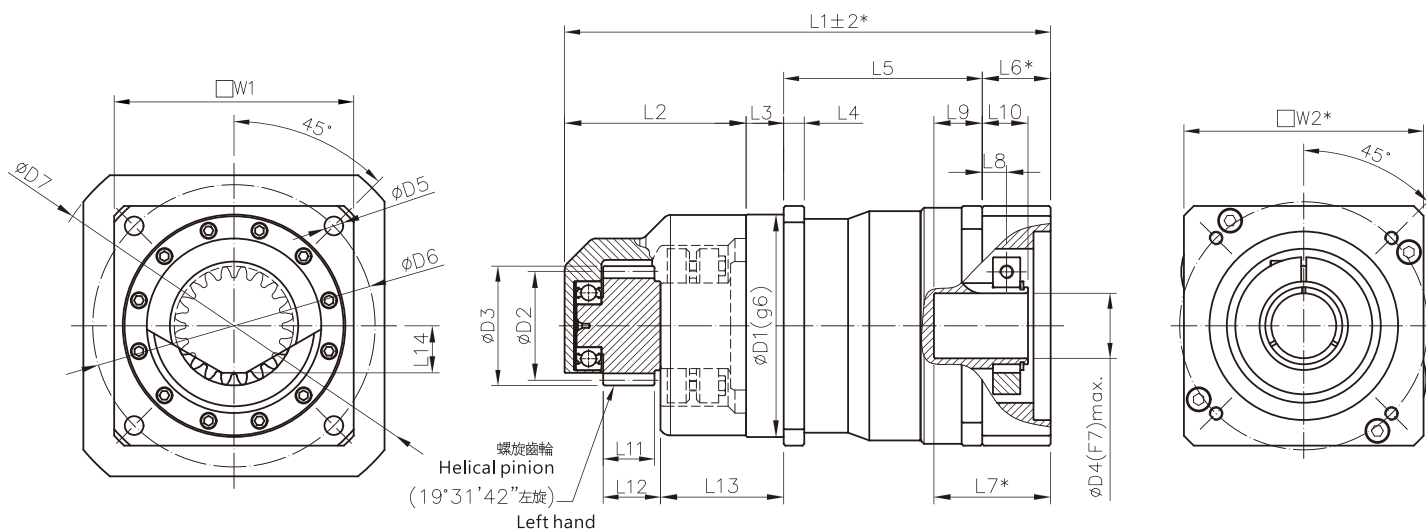
Note (2) Operation can be up 1000 times in product life.

Note (3) Act at the center of output shaft in 100 rpm.

Note (4) Noise is inspected under the condition of ratio 5; input speed 3000 rpm; 1-meter distance and free load operation.

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

HP 尺寸 [mm] Dimensions [mm]



HP

規格 Size	HP111			HP131			HP151			HP171			HP191			HP221			HP251		
模數 Module	2			2			3			4			4			5			6		
齒數 Numbers of teeth	18	21	24	24	27	30	20	22	25	15	18	21	15	18	21	15	18	21	15	18	20
移位係數 X Addendum modification coefficient	-	-	-	-	-	-	-	-	-	0.355	-	-	0.355	-	-	0.3723	-	-	0.3756	-	-
W1	100			120			140			160			182			210			240		
※W2min	118			130			140			175			190			190			240		
D1(g6)	90			110			130			145			160			180			200		
D2	38.2	44.56	50.93	50.93	57.29	63.66	63.66	70.03	79.58	63.66	76.39	89.13	63.66	76.39	89.13	79.58	95.49	111.41	95.49	114.59	127.32
D3	42.2	48.56	54.93	54.93	61.29	67.66	69.66	76.03	85.58	74.5	84.39	97.13	74.5	84.39	97.13	93.3	105.49	121.41	112	126.59	139.32
D4(F7)	32			35			38			42			48			55			60		
D5	9			9			11			13			13			17			17		
D6	120			130			165			190			215			250			290		
D7	135			155			185			215			240			279			320		
※L1	225.5			243			277.5			291			325.5			372.5			439		
L2	75			87.5			105			114.5			118.5			136			156		
L3	25			23			22			22			22			30			31		
L4	10			11			12			13.5			15			17			20		
L5	97.5			104			116			120			137			156.5			174		
※L6	28			28.5			34.5			34.5			48			50			78		
※L7	52			52			60			60			82			82			110		
L8	11.5			12.8			14.3			14.3			17.8			18.5			22.5		
L9	24			24			25.5			25.5			34			32			32		
L10	22			24.5			27			27			33.5			34.5			41		
L11	25			25			30			40			40			50			60		
L12	28.5			28.5			33.5			43.5			45.5			55.5			68		
L13	58			64.75			72			71.75			72.75			86			91.5		
L14	16.2			22.5			27.5			27.5			27.5			34.5			41		

規 格 Size			HP112	HP132	HP152	HP172	HP192	HP222	HP252
最大加速扭矩 $T_{2B(1)}$ Output Torque	Nm	減速比 i							
		12/15	208	338	450	750	1080	1800	3690
		16/20/25/40/50	280	362	530	850	1360	2720	4295
		30/60	260	350	455	745	1205	2210	3870
		28/35/70	247	320	450	720	1160	1730	3610
		80	220	295	420	668	1055	1645	3400
緊急停止扭矩 $T_{2Not(2)}$ Emergency Stop Torque	Nm	12/15	630	800	1100	1700	3000	6200	9000
		16/20/25/40/50	710	900	1260	1850	3250	6480	9500
		30/60	650	800	1120	1700	2880	5500	8950
		28/35/70	625	780	1100	1600	2800	5000	8650
		80	550	690	1025	1470	2560	4600	7200
		100	500	650	900	1250	2220	3900	6800
額定輸出扭矩 T_{2N} Nominal output Torque	Nm	12/15	138	200	322	515	900	1230	2060
		16/20/25/40/50	192	250	355	580	1150	1990	2720
		30/60	158	215	325	470	865	1620	2315
		28/35/70	130	185	320	443	843	1080	1750
		80	125	180	300	420	775	1025	1700
		100	118	165	226	360	670	970	1588
減速比 i		雙段 2-Stage	12/15/16/20/25/28/30/35/40/50/60/70/80/100						
額定輸入轉速 n_{1N} Nominal Input Speed	rpm	12~40	3200	3000	3000	2900	2800	2200	2000
		50~60	3600	3300	3200	3100	3000	2400	2200
		70~100	4200	3900	3500	3300	3200	2800	2400
最大輸入轉速 n_{1Max} Max. Input Speed	rpm	12~100	4500	4000	3600	3600	3600	3000	3000
徑向負荷力 $Fr_{Max(3)}$ Radial Load	N	12~100	9600	12000	14400	18400	22400	28800	43200
軸向負荷力 $Fa_{Max(3)}$ Axial Load	N	12~100	5400	6700	9000	11300	14000	18000	27000
超精密背隙 Micro Backlash	arcmin	12~100	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
精密背隙 Reduced Backlash	arcmin	12~100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4
標準背隙 Standard Backlash	arcmin	12~100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6
扭轉剛性 Torsional Rigidity	Nm/ arcmin	12~100	23	35	50	95	150	220	355
滿載時使用效率 Efficiency with Full Load	%	12~100	≥ 94						
使用壽命 L_{h2} Service Life	h	12~100	20000						
重量 Weight	kg	12~100	11.2	18.2	22.8	26.7	38.5	65	93
噪音值 (4) Noise Level	dB		≤ 62	≤ 65			≤ 66	≤ 68	
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	12	4.73	5.90	10.50	10.50	11.00	37.50	37.70
		15	4.73	5.90	10.50	10.50	11.00	37.50	37.70
		16	4.20	5.09	9.00	9.30	9.30	30.00	31.30
		20	4.20	5.07	9.00	9.20	9.30	30.00	31.00
		25	4.12	4.91	8.83	9.00	9.05	28.70	30.10
		28	4.20	5.07	9.00	9.20	9.20	29.90	31.00
		30	4.08	4.90	8.63	8.65	8.65	27.70	29.05
		35	4.12	4.91	8.82	8.90	9.03	28.80	30.08
		40	4.04	4.80	8.45	8.50	8.52	27.70	28.70
		50	4.04	4.80	8.45	8.49	8.52	27.70	28.70
		60	4.04	4.80	8.45	8.49	8.52	27.70	28.55
		70	4.04	4.80	8.45	8.49	8.50	27.70	28.50
80	4.04	4.80	8.45	8.48	8.50	27.70	28.50		
100	4.04	4.80	8.45	8.48	8.50	27.70	28.50		

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。

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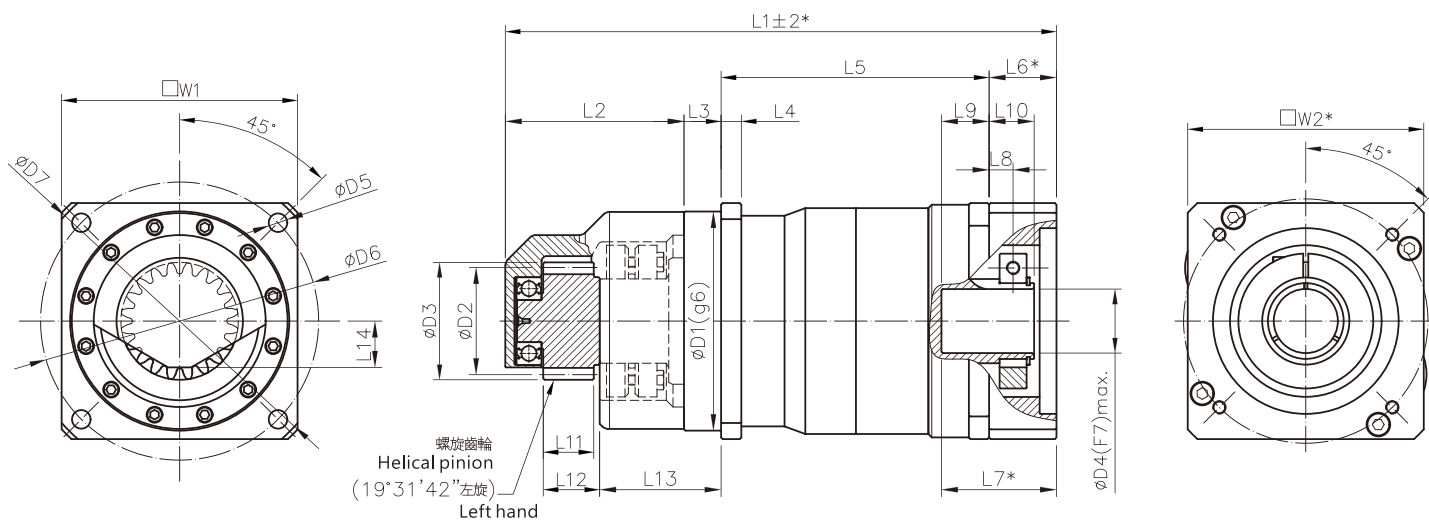
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HP 尺寸 [mm] Dimensions [mm]



HP

規格 Size	HP112			HP132			HP152			HP172			HP192			HP222			HP252		
模數 Module	2			2			3			4			4			5			6		
齒數 Numbers of teeth	18	21	24	24	27	30	20	22	25	15	18	21	15	18	21	15	18	21	15	18	20
移位 X Addendum 係數 modification coefficient	-	-	-	-	-	-	-	-	-	0,355	-	-	0,355	-	-	0,3723	-	-	0,3756	-	-
W1	100			120			140			160			182			210			240		
※W2min	118			130			140			140			140			190			190		
D1(g6)	90			110			130			145			160			180			200		
D2	38.2	44.56	50.93	50.93	57.29	63.66	63.66	70.03	79.58	63.66	76.39	89.13	63.66	76.39	89.13	79.58	95.49	111.41	95.49	114.59	127.32
D3	42.2	48.56	54.93	54.93	61.29	67.66	69.66	76.03	85.58	74.5	84.39	97.13	74.5	84.39	97.13	93.3	105.49	121.41	112	126.59	139.32
D4(F7)	32			35			38			38			38			48			48		
D5	9			9			11			13			13			17			17		
D6	120			130			165			190			215			250			290		
D7	135			155			185			215			240			279			320		
※L1	264			283			320.5			334			360			420.5			487		
L2	75			87.5			105			114.5			118.5			136			156		
L3	25			23			22			22			22			30			31		
L4	10			11			12			13.5			15			17			20		
L5	136			144			159			163			171.5			204.5			222		
※L6	28			28.5			34.5			34.5			48			50			78		
※L7	52			52			60			60			82			82			82		
L8	11.5			12.8			14.3			14.3			14.3			17.8			17.8		
L9	24			24			25.5			25.5			25.5			34			34		
L10	22			24.5			27			27			27			33.5			33.5		
L11	25			25			30			40			40			50			60		
L12	28.5			28.5			33.5			43.5			45.5			55.5			68		
L13	58			64.75			72			71.75			72.75			86			91.5		
L14	16.2			22.5			27.5			27.5			27.5			34.5			41		

免鍵軸套尺寸

Dimensions of shrink disc



件號 Part No.	減速機規格 Reducer Type	d	dw	D	L1	L2	L3	螺絲數量 # Locking screws quantity required	螺絲規格 G Locking screws	鎖緊扭力值 TA Tightening (Nm)
HY-036	HG100 / HP111 / HP112	36	29	72	18	23.5	27.5	5	M6	12
HY-044	HG120 / HP131 / HP132	44	35	80	20	25.5	29.5	7	M6	12
HY-050	HG140 / HP151 / HP152	50	40	90	22	27.5	31.5	8	M6	12
HY-055	HG160 / HP171 / HP172	55	45	100	23	30.5	34.5	8	M6	12
HY-062	HG180 / HP191 / HP192	62	50	110	23	30.5	34.5	10	M6	12
HY-075	HG210 / HP221 / HP222	75	60	138	25	32.5	38	7	M8	30
HY-090	HG240 / HP251 / HP252	90	70	155	30	39	44.5	10	M8	30

軸配合公差 $\varnothing d$: h8

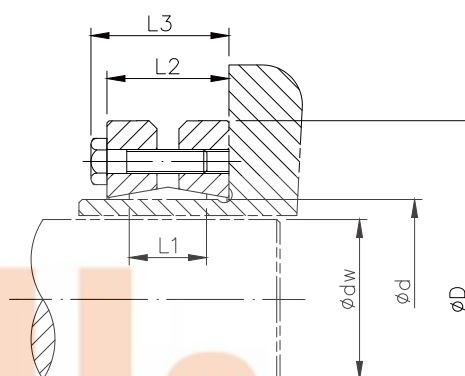
clearance

dw配合公差 $\leq 30\text{mm}$: H6/j6

clearance $30\text{mm} \sim 50\text{mm}$: H6/h6

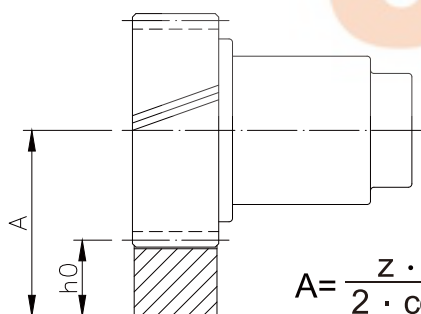
$50\text{mm} \sim 80\text{mm}$: H6/g6

$80\text{mm} \sim 500\text{mm}$: H7/g6



螺旋齒輪和螺旋齒條之中心距計算 A

Helical system calculations



$$A = \frac{z \cdot m}{2 \cdot \cos \beta} + x \cdot m + h_0$$

Z = 齒數 Number of teeth

M = 模數 Module

β = 螺旋角(19°31'42")
helix angle

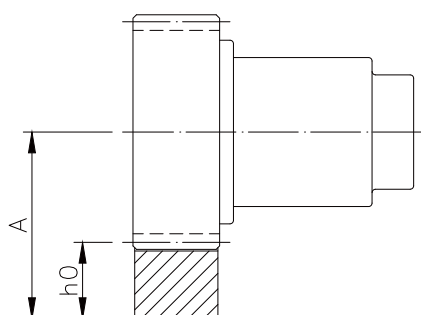
h_0 = 節線高度
height of pitch circle

x = 移位係數
addendum modification coefficient

c = 齒輪節圓周長 = $\varnothing d \times \pi$
circumference of = $\varnothing d \times \pi$

正齒輪和正齒條之中心距計算 A

Spur system calculations



$$A = \frac{z \cdot m}{2} + x \cdot m + h_0$$

Z = 齒數 Number of teeth

M = 模數 Module

h_0 = 節線高度
height of pitch circle

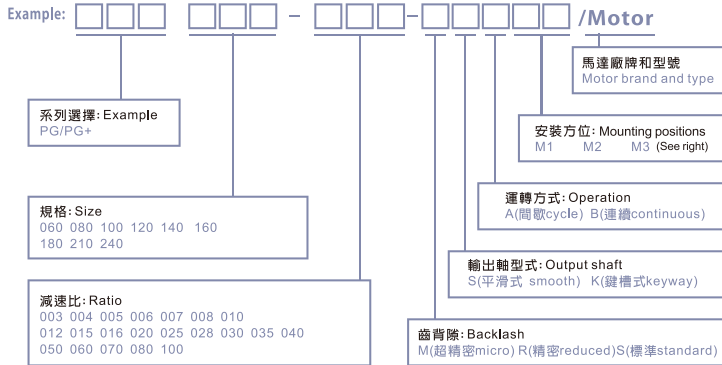
x = 移位係數
addendum modification coefficient

c = 齒輪節圓周長 = $\varnothing d \times \pi$
circumference of = $\varnothing d \times \pi$

高精度通用型行星式減速機

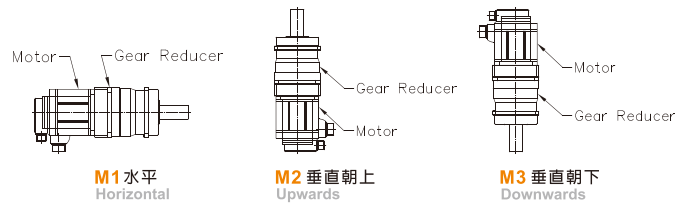
Universal high-precision planetary gear reducers

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

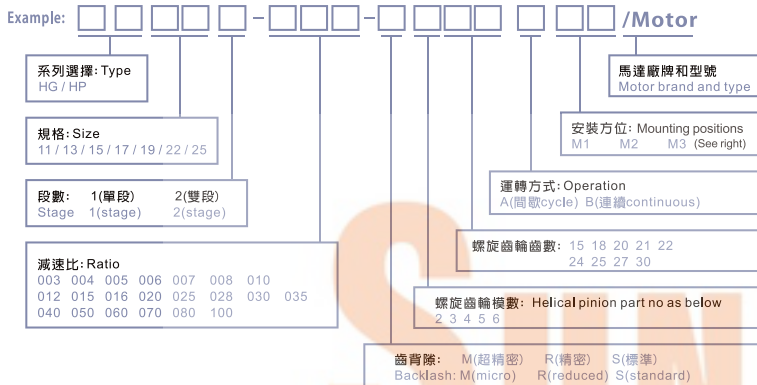


安裝方位

Mounting positions

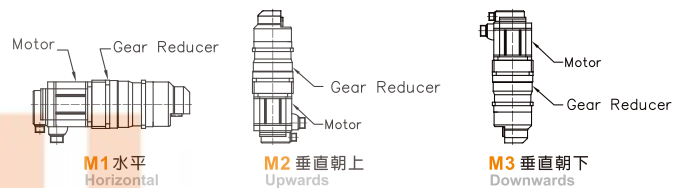


選用範列: **H G 1 1 1 - 0 0 5 - R 2 1 8 A M 1** /MITSUBISHI/HCSF5102

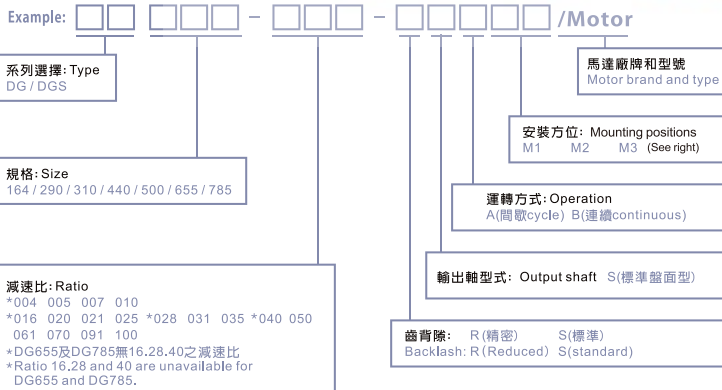


安裝方位

Mounting positions

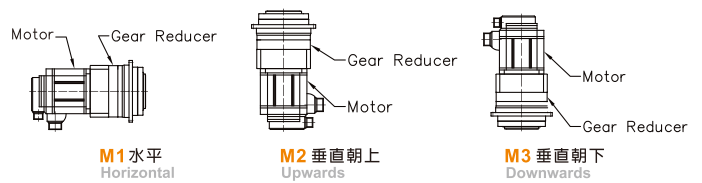


選用範列: **D G 1 6 4 - 0 0 5 - R S A M 1** /MITSUBISHI-HC-KFS43

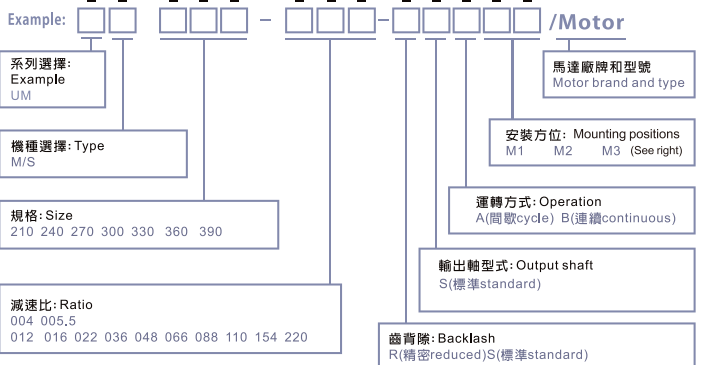


安裝方位

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

