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ZLO/WLO系列有鐵芯式綫性馬達驅動 / ZLO-WLO Series Linear Motor Driven Type With Iron Core

- 超高定位精度
 - 高加速
 - 高推力
 - 長行程
 - 多樣化的選配及彈性的客制化
 - 長壽命
- Ultrahigh positional accuracy
 - High accelerated speed
 - High thrust
 - Long stroke
 - Various choice of components and personalized customization
 - Long service life

ZLO 17系列 / ZLO17 Series

P 1 - 4



ZLO 22系列 / ZLO22 Series

P 5 - 8



WLO 14系列 / WLO14 Series

P 9 - 11



WLO 17系列 / WLO17 Series

P 12 - 14



WLO 22系列 / WLO22 Series

P 15 - 17



YA系列有鐵芯式綫性馬達 / YA Series-Linear Motor With Iron Core

- 近零頓振強化低速穩定度及定位整定，降低曲綫跟隨誤差
 - 鎖付面為高導熱鋁板，散熱佳高推力，減輕重量
 - 全金屬包覆，避免對附近光學讀頭產生電磁幹擾
 - 強制冷却套件，取代大推力無鐵芯綫性馬達，具有更小體積更佳散熱的優勢
- Nearly zero cogging force to enhance low-speed stability, settling of positioning, and following error.
 - Built-in aluminum mounting plate for excellent heat dissipation and lighter weight
 - Fully covered by metal shielding for eliminating EMI to nearby encoder head
 - Ironless linear motor could be replaced for smaller size and better heat dissipation

YA 10系列 / YA 10 Series

P 21



YA 20系列 / YA 20 Series

P 22



YA 35系列 / YA 35 Series

P 23



YA 49系列 / YA 49 Series

P 24



YA 50系列 / YA 50 Series

P 25



YA 75系列 / YA 75 Series

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YA 100系列 / YA 100 Series

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YA 150系列 / YA 150 Series

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YA 200系列 / YA 200 Series

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PSA Series 精密平臺系列 / Precision Platform

PSA 14*14 / 25*25 / 35*35系列 PSA 14*14 / 25*25 / 35*35Series

P 31-33



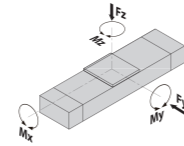
型號訂購碼 Code ZLO 17 C1 500 3L M P RH T P3

ZLO 17D C1 500 3L M P H T P3

本體型號 Item NO.	繞線規格 Coil Size	行程 Stroke	繞線長度 Wire Length	編碼器 Encoder	驅動器 Driver	履帶取出方向 Caterpillar Band Entry Location	安裝方式 Mounting	拖鏈 Drag chain	限位傳感器數量 Photoelectric Sensor
ZLO17 單動子型 Single Carriage	C1:標準型動子 Standard Coil	180-2460, 間隔/Gap120	3L:3m	G:光學尺 Optical Scale	S:高創 Servotronic	RH:水平右側取出 Horizontal,Right	H:水平安裝 Horizontal	T:含拖鏈 With Drag chain	P1: 1祇 1PC
ZLO17D 雙動子型 Double Carriage	C2:加長型動子 Extended Coil		5L:5m	M:磁性尺 Magnetic Scale	P:松下 Panasonic	LH:水平左側取出 Horizontal,Left	W:側掛安裝 Wall-hanging	無T:不含拖鏈 No Drag chain	P2: 2祇 2PCS
	C3:超長型動子 Ultralong Coil		8L:8m			RW:壁掛右側取出 Wall-hanging,Right			P3: 3祇 3PCS
						LW:壁掛左側取出 Wall-hanging,Left			未標記: 無 No Mark: None



最大動態力和力矩 Max Permissible Forces And Torques



規格 Type	ZLO17-C1	ZLO17-C2	ZLO17-C3
■ F(y) (N·m)	7463	9702	11941
■ F(z) (N·m)	7463	9702	11941
■ M(x) (N·m)	339	339	475
■ M(y) (N·m)	167	369	517
■ M(z) (N·m)	696	1186	1660

除了滿足最大負載和力矩外，還必須滿足以下公式：
All forces and torque relate to the following:
$$\frac{F_y}{F_y \max.} + \frac{F_z}{F_z \max.} + \frac{M_x}{M_x \max.} + \frac{M_y}{M_y \max.} + \frac{M_z}{M_z \max.} \leq 1$$

履帶取出方向 Caterpillar Band Entry Location

ZLO-17				ZLO-17D	
RH 水平右側取出 Right & Horizontal	RW 壁掛右側取出 Right & Wall-hanging	LH 水平左側取出 Left & Horizontal	LW 壁掛左側取出 Left & Wall-hanging	H 水平安裝 H Horizontal	W 側掛安裝 W Wall-hanging

搭配驅動器一覽表 Driver

廠牌 Brand	驅動器記號 Mark	驅動器型號 Driver Model	接線訊號 Connection Signal
高創 Servotronic	S	CDHD-AP1	脉冲
		CDHD-EC1	EtherCAT
松下 Panasonic	P	MBDLN-SL	脉冲
		MBDLN-BL	EtherCAT

注：請務必按導線槽方向圖和各規格圖規定的方向進行設置。規定以外的安裝會導致故障發生，請務必加以注意。
Note: Be sure to set up according to the metallic channel directional diagram and each specification diagram specified, or it will occur some malfunction. So please pay more attention about this.

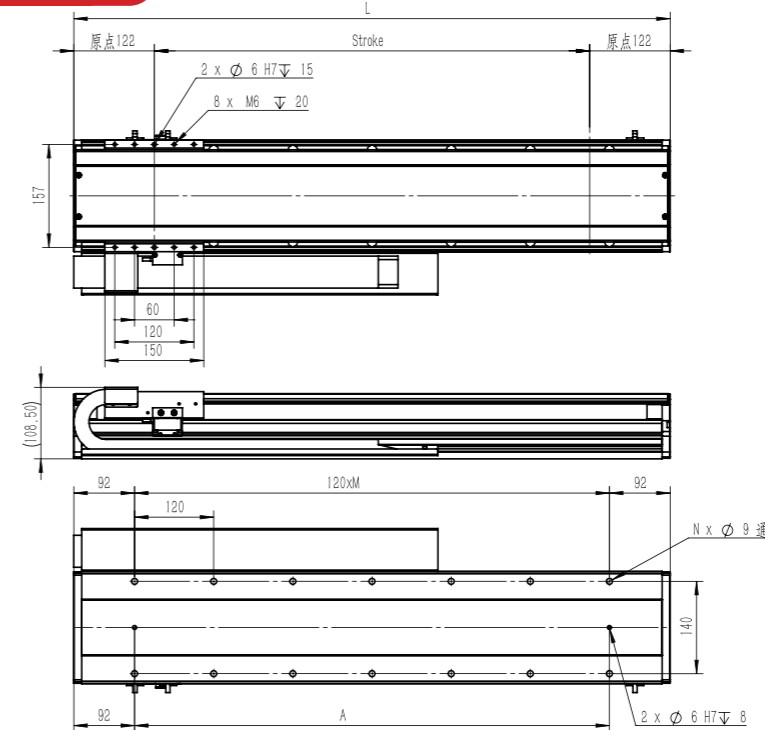
基本規格 Basic Specification

機型 Type	ZLO17-C1	ZLO17-C2	ZLO17-C3
技術參數 Technical Parameters	有鐵芯平板綫性馬達 Linear Motor Driven Type With Iron Core		
位置重複精度(μ) Repetitive Accuracy	5 #1		
持續推力(N) Continuous Thrust(N)	100	180	270
最大推力(N) Max Thrust(N)	280	504	756
最大加速度(M/S ²) Max Accelerated Speed	4G		
最大速度(MM/S) Max Speed	4000		
標準行程(mm) Standard Stroke	180-2460 mm / 120 pitch		
主機截面最大外形: Max Outline of Main Engine's Cross Section	183*102		
高剛性直綫滑軌(mm) High Stiffness Linear Guide	20型導軌 2支 / 20 Guide 2 PCS		
履帶內部容積: Internal Capacity of Caterpillar Band	17*25		
原點感應器 Home Sensor	EE-SX672(NPN)		

- 注#1:
1. 最高速度隨最小分辨率而變化。
2. 動作速度、加速度等規格受負載的限制。
3. 加速度為2G動作時的負載，所到達速度，受推力和速度特性的限制。
4. 反覆運動0背隙。

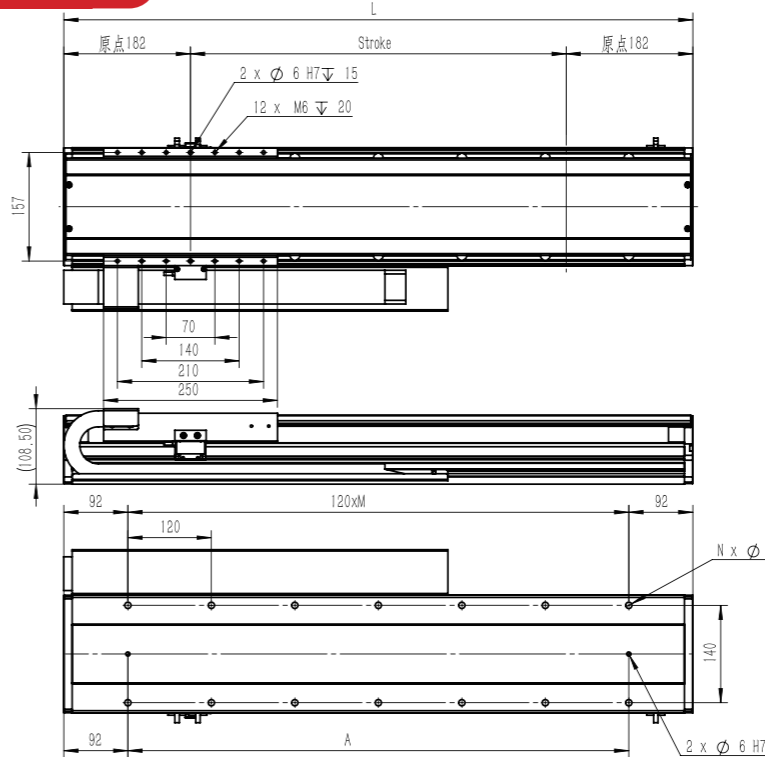
- Note #1:
1. The max speed depends on the minimum resolution.
2. Movement speed and accelerated speed are restricted by the load.
3. The load that when the accelerated speed is 2G, and then speed reached is restricted by the thrust and its speed characteristics.
4. Repetitive movement with zero back clearance.

ZLO 17-C1

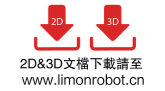


行程 Stroke (mm)	180	300	420	540	660	780	900	1020	1140	1260	1380	1500	1620	1740	1860	1980	2100	2220	2340	2460
總長 Length (L)	424	544	664	784	904	1024	1144	1264	1384	1504	1624	1744	1864	1984	2104	2224	2344	2464	2584	2704
M	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
A	240	360	480	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400	2520
N	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44
重量 Weight (kg)	14	16.3	18.6	20.9	23.2	25.5	27.8	30.1	32.4	34.7	37	39.3	41.6	43.9	46.2	48.5	50.8	53.1	55.4	57.7

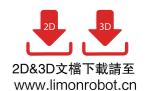
ZLO 17-C2



行程 Stroke (mm)	180	300	420	540	660	780	900	1020	1140	1260	1380	1500	1620	1740	1860	1980	2100	2220	2340	2460
總長 Length (L)	544	664	784	904	1024	1144	1264	1384	1504	1624	1744	1864	1984	2104	2224	2344	2464	2584	2704	2824
M	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	360	480	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400	2520	2640
N	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
重量 Weight (kg)	15.8	18.1	20.4	22.7	25	27.3	29.6	31.9	34.2	36.5	38.8	41.1	43.4	45.7	48	50.3	52.6	54.9	57.2	59.5

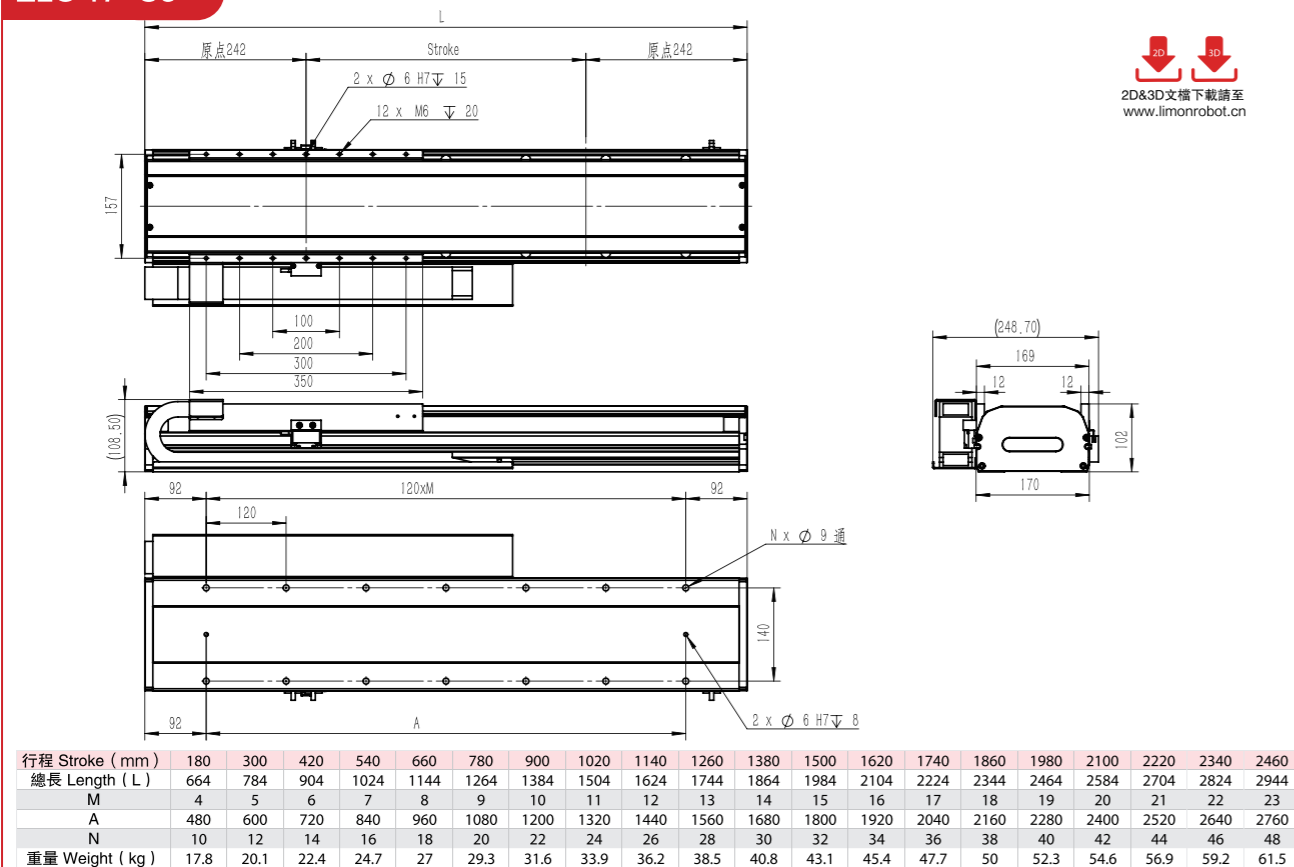


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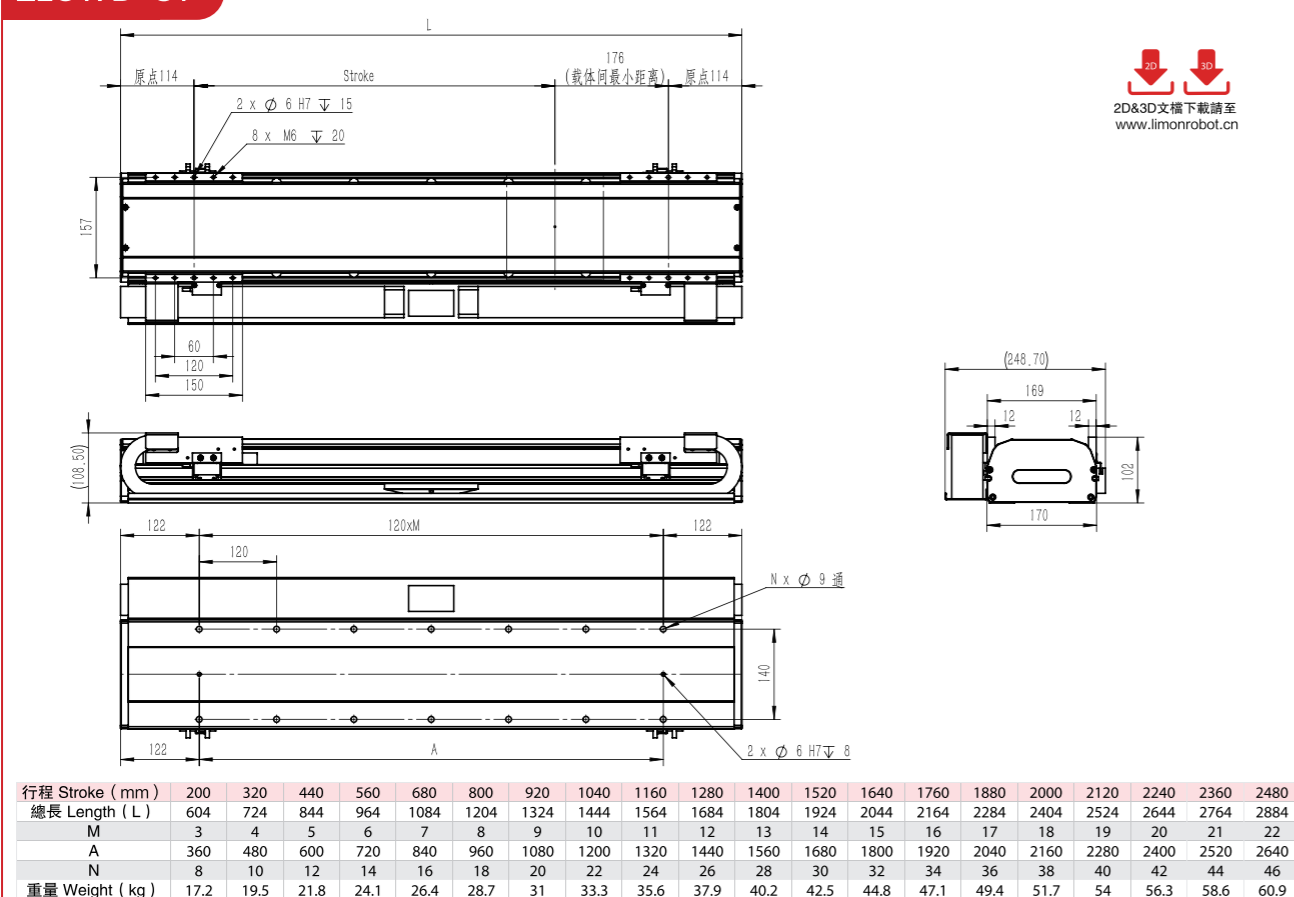


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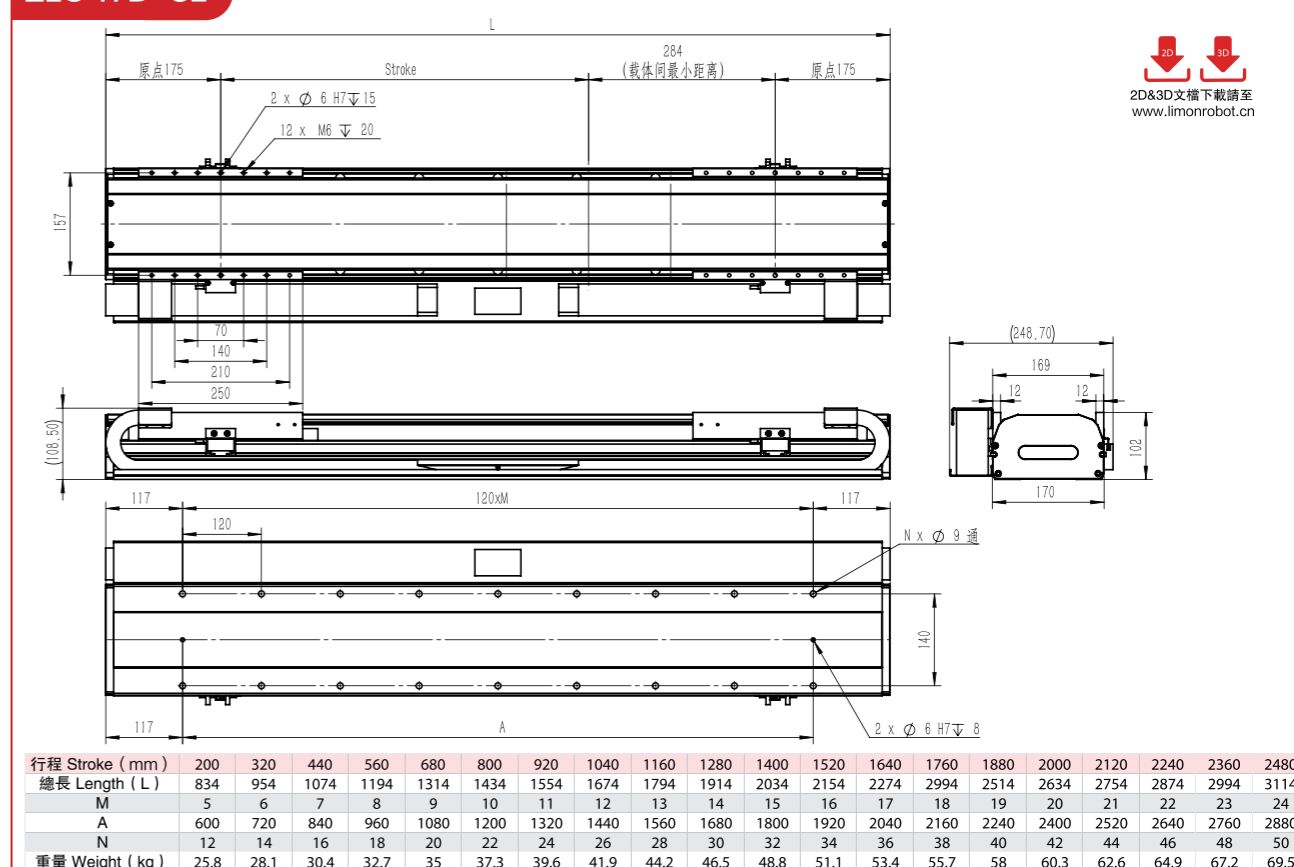
ZLO 17-C3



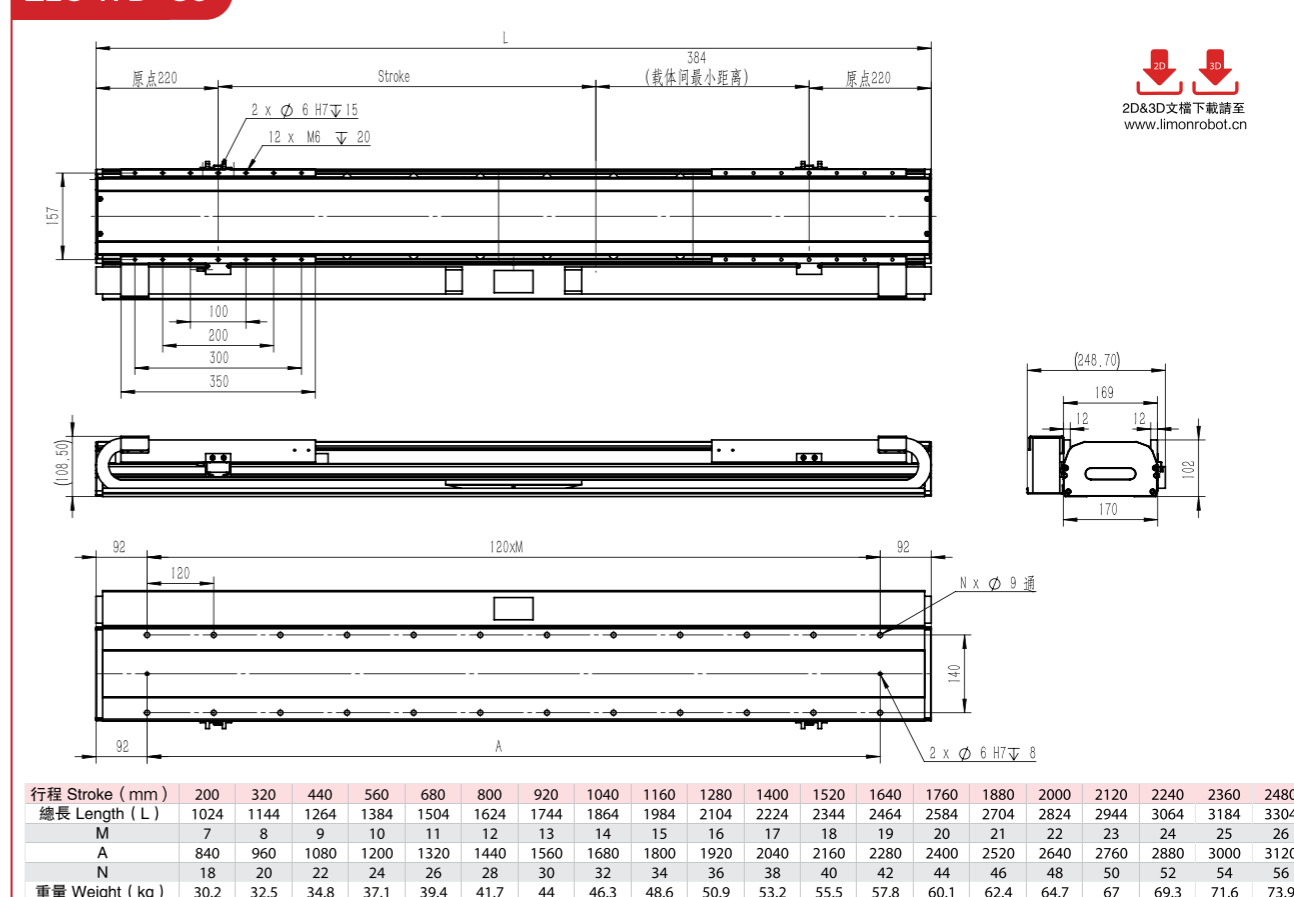
ZLO17D-C1



ZLO 17D-C2



ZLO 17D-C3



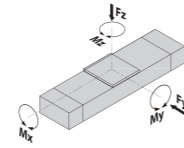
型號訂購碼 Code ZLO 22 C1 500 3L M P RH T P3

ZLO 22D C1 500 3L M P H T P3

本體型號 Item NO.	繞圈規格 Coil Size	行程 Stroke	線纜長度 Wire Length	編碼器 Encoder	驅動器 Driver	履帶取出方向 Caterpillar Band Entry Location	安裝方式 Mounting	拖鏈 Drag chain	限位傳感器數量 Photoelectric Sensor
ZLO 22 單動子型 Single Carriage	C1:標準型動子 Standard Coil	180-2460, 間隔/Gap120	3L:3m	G:光學尺 Optical Scale	S:高創 Servotronics	RH:水平右側取出 Horizontal,Right	H:水平安裝 Horizontal	T:含拖鏈 With Drag chain	P1: 1祇 1PC
ZLO 22D 雙動子型 Double Carriage	C2:加長型動子 Extended Coil		5L:5m	M:磁性尺 Magnetic Scale	P:松下 Panasonic	LH:水平左側取出 Horizontal,Left	W:側掛安裝 Wall-hanging	無T:不含拖鏈 No Drag chain	P2: 2祇 2PCS
	C3:超長型動子 Ultralong Coil		8L:8m			RW:壁掛右側取出 Wall-hanging,Right			P3: 3祇 3PCS
						LW:壁掛左側取出 Wall-hanging,Left			未標記: 無 No Mark: None



最大動態力和力矩 Max Permissible Forces And Torques



規格 Type	ZLO22-C1	ZLO22-C2	ZLO22-C3
■ F(y) (N · m)	12916	12916	15119
■ F(z) (N · m)	12916	12916	15119
■ M(x) (N · m)	650	650	650
■ M(y) (N · m)	344	672	1008
■ M(z) (N · m)	672	700	1050

除了滿足最大負載和力矩外，還必須滿足以下公式：
All forces and torque relate to the following:
$$\frac{F_y}{F_y \max.} + \frac{F_z}{F_z \max.} + \frac{M_x}{M_x \max.} + \frac{M_y}{M_y \max.} + \frac{M_z}{M_z \max.} \leq 1$$

履帶取出方向 Caterpillar Band Entry Location



搭配驅動器一覽表 Driver

ZLO-22		ZLO-22D		廠牌 Brand	驅動器記號 Mark	驅動器型號 Driver Model	接線訊號 Connection Signal
RH 水平右側取出 Right & Horizontal	RW 壁掛右側取出 Right & Wall-hanging	LH 水平左側取出 Left & Horizontal	LW 壁掛左側取出 Left & Wall-hanging	高創 Servotronics	S	CDHD-AP1	脈沖
						CDHD-EC1	EtherCAT
				松下 Panasonic	P	MBDLN-SL	脈沖
						MBDLN-BL	EtherCAT

注：請務必按導線槽方向圖和各規格圖規定的方向進行設置。規定以外的安裝會導致故障發生，請務必加以注意。
Note: Be sure to set up according to the metallic channel directional diagram and each specification diagram specified, or it will occur some malfunction. So please pay more attention about this.

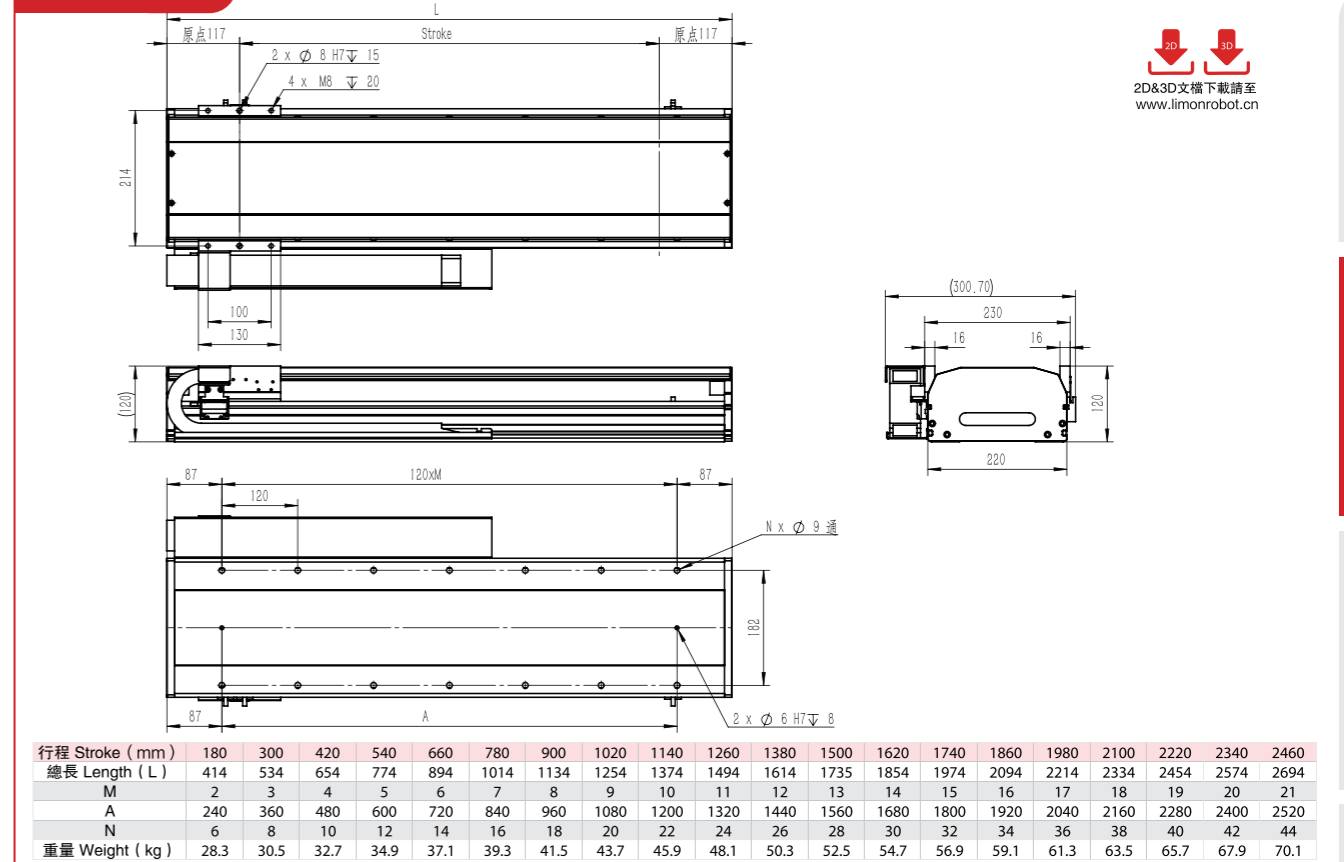
基本規格 Basic Specification

技術參數 Technical Parameters	機型 Type	ZLO22-C1	ZLO22-C2	ZLO22-C3
	驅動方式 Driving Method	有鐵芯平板綫性馬達 Linear Motor Driven Type With Iron Core		
位置重複精度(μ) Repetitive Accuracy		5 #1		
持續推力 (N) Continuous Thrust(N)		160	288	432
最大推力 (N) Max Thrust(N)		448	806	1210
最大加速度(M/S ²) Max Accelerated Speed		4G		
最大速度(MM/S) Max Speed		4000		
標準行程 (mm) Standard Stroke		180-2460 mm / 120 pitch		
主機截面最大外形: Max Outline of Main Engine's Cross Section		183*102		
高剛性直綫滑軌 (mm) High Stiffness Linear Guide		25型導軌 2支 / 25 Guide 2 PCS		
履帶內部容積: Internal Capacity of Caterpillar Band		17*25		
原點感應器 Home Sensor		EE-SX672(NPN)		

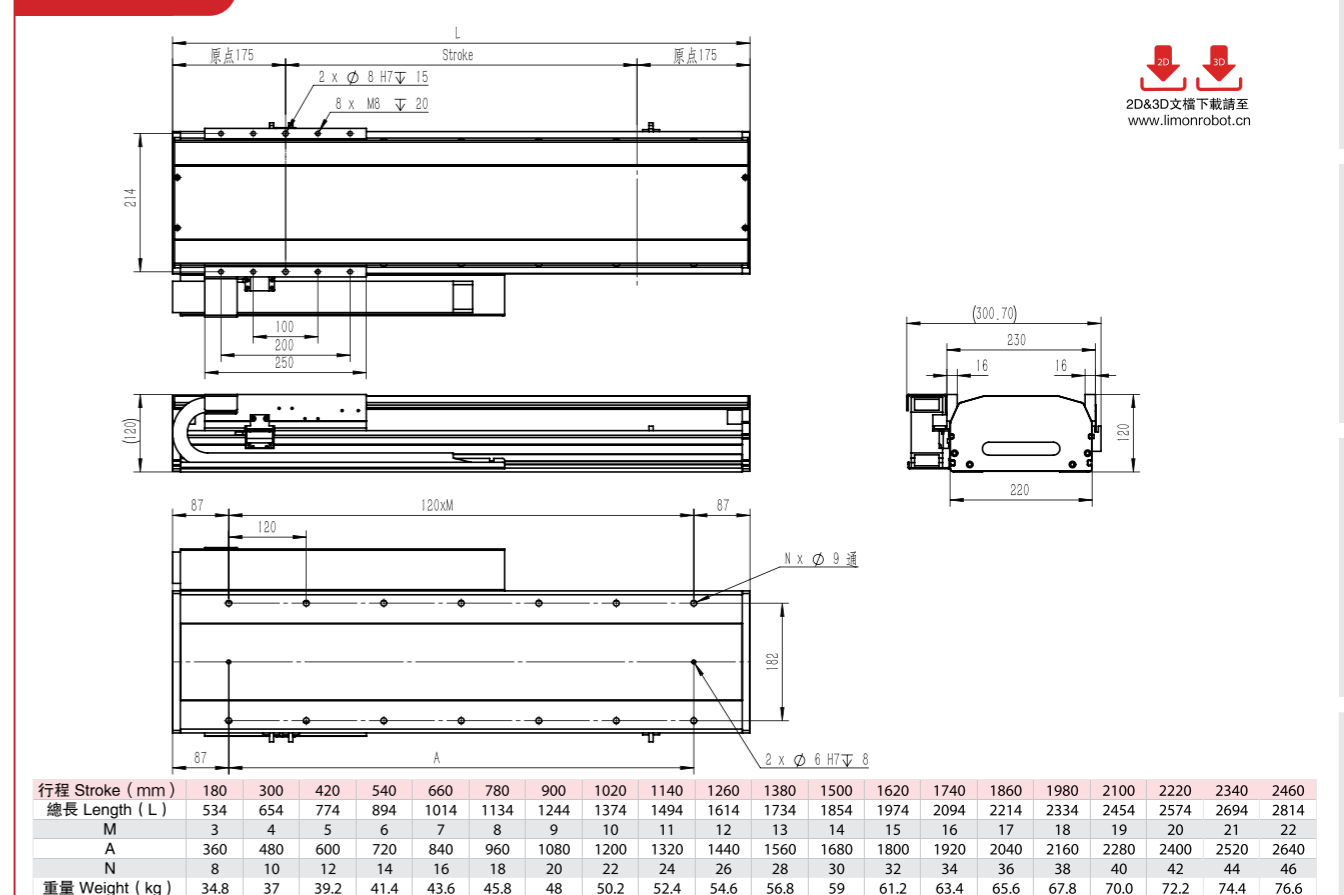
- 注#1:
1. 最高速度隨最小分辨率而變化。
2. 動作速度、加速度等規格受負載的限制。
3. 加速度為2G動作時的負載，所到達速度，受推力和速度特性的限制。
4. 反復運動0背隙。

- Note #1:
1. The max speed depends on the minimum resolution.
2. Movement speed and accelerated speed are restricted by the load.
3. The load that when the accelerated speed is 2G, and then speed reached is restricted by the thrust and its speed characteristics.
4. Repetitive movement with zero back clearance.

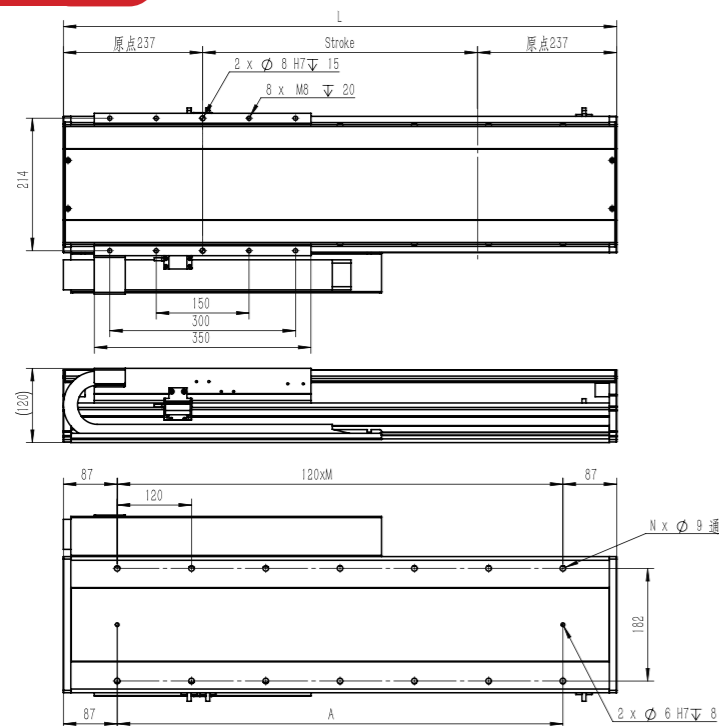
ZLO 22-C1



ZLO 22-C2



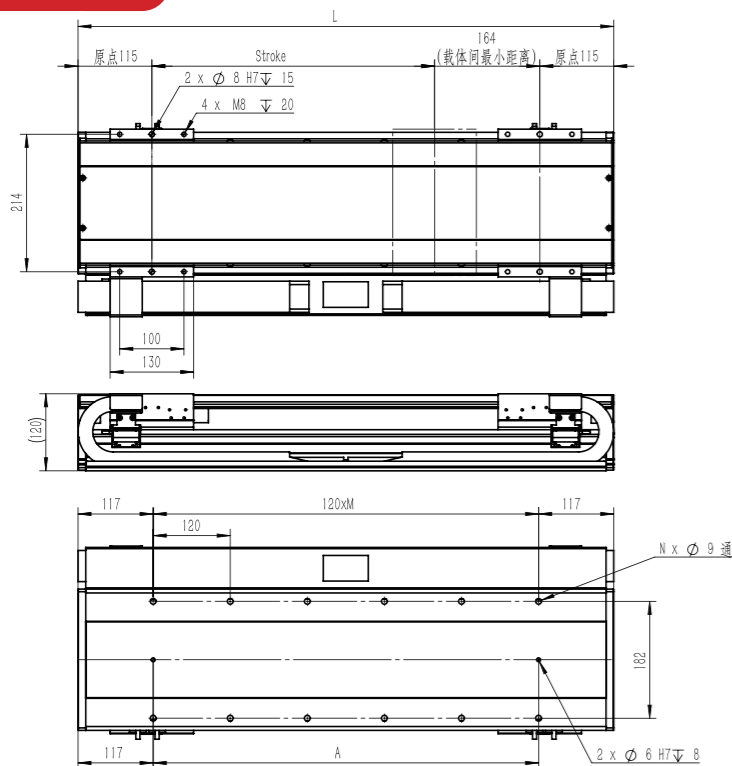
ZLO 22-C3



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行程 Stroke (mm)	180	300	420	540	660	780	900	1020	1140	1260	1380	1500	1620	1740	1860	1980	2100	2220	2340	2460
總長 Length (L)	654	774	894	1014	1134	1254	1374	1494	1614	1734	1854	1974	2094	2214	2334	2454	2574	2694	2814	2934
M	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A	480	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400	2520	2640	2760
N	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
重量 Weight (kg)	42.3	44.5	46.7	48.9	51.1	53.3	55.5	57.7	59.9	62.1	64.3	66.5	68.7	70.9	73.1	75.3	77.5	79.7	81.9	84.1

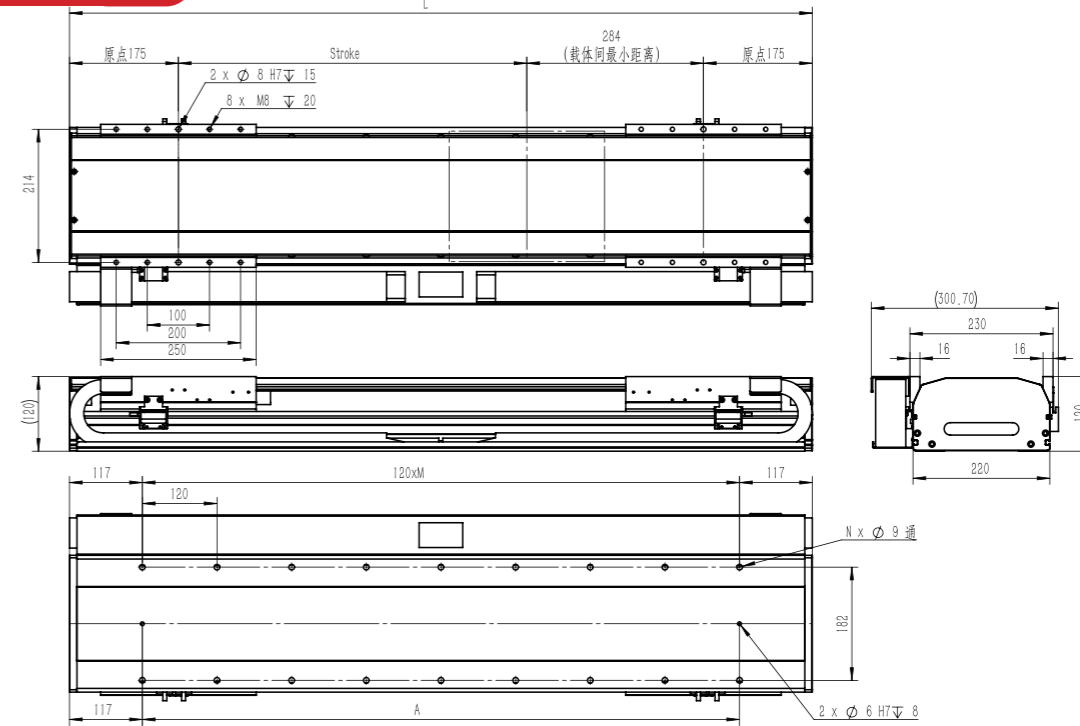
ZLO 22D-C1



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行程 Stroke (mm)	200	320	440	560	680	800	920	1040	1160	1280	1400	1520	1640	1760	1880	2000	2120	2240	2360	2480
總長 Length (L)	594	714	834	954	1074	1194	1314	1434	1554	1674	1794	1914	2034	2154	2274	2394	2514	2634	2754	2874
M	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	480	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400	2520	2640	2760
N	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
重量 Weight (kg)	36.3	38.5	40.7	42.9	45.1	47.3	49.5	51.7	53.9	56.1	58.3	60.5	62.7	64.9	67.1	69.3	71.5	73.7	75.9	78.1

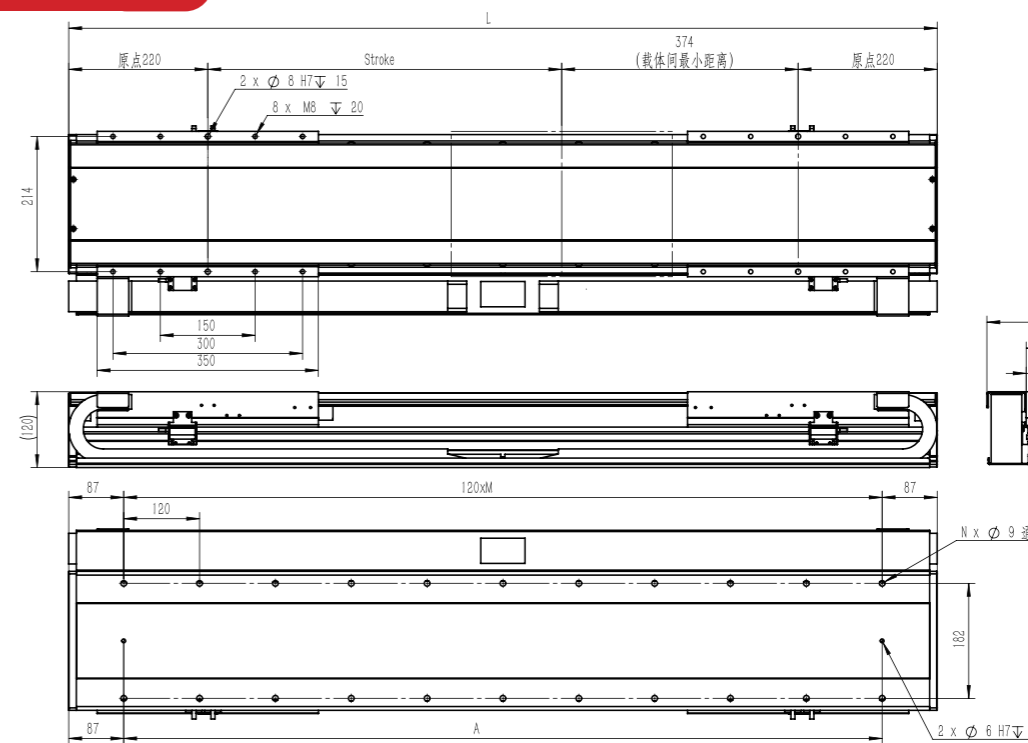
ZLO 22D-C2



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行程 Stroke (mm)	200	320	440	560	680	800	920	1040	1160	1280	1400	1520	1640	1760	1880	2000	2120	2240	2360	2480
總長 Length (L)	834	954	1074	1194	1314	1434	1554	1674	1794	1914	2034	2154	2274	2394	2514	2634	2754	2874	2994	3114
M	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400	2520	2640	2760	2880
N	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
100.4重量 Weight (kg)	43.6	45.8	48	50.2	52.4	54.6	56.8	59	61.2	63.4	65.6	67.8	70.0	72.2	74.4	76.6	78.8	81.0	83.2	85.4

ZLO 22D-C3



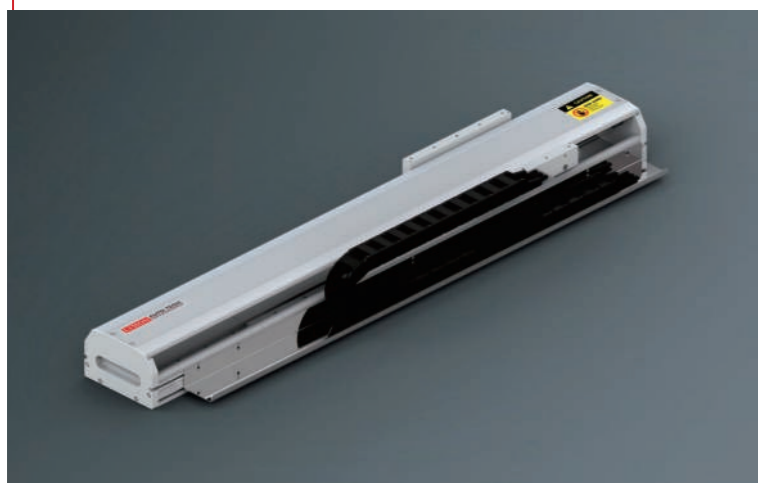
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行程 Stroke (mm)	200	320	440	560	680	800	920	1040	1160	1280	1400	1520	1640	1760	1880	2000	2120	2240	2360	2480
總長 Length (L)	1014	1134	1254	1374	1494	1614	1734	1854	1974	2094	2214	2334	2454	2574	2694	2814	2934	3054	3174	3294
M	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
A	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2040	2160	2280	2400	2520	2640	2760	2880	3000	3120
N	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56
重量 Weight (kg)	58.6	60.8	63	65.2	67.4	69.6	71.8	74	76.2	78.4	80.6	82.8	85	87.2	89.4	91.6	93.8	96	98.2	100.4

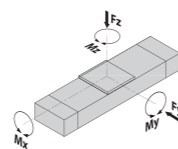
型號訂購碼 Code: WLO 14 C1 500 3L M P RH [] T P3

WLO 14D C1 500 3L M P [] H T P3

本體型號 Item NO.	綫圈規格 Coil Size	行程 Stroke	綫圈長度 Wire Length	編碼器 Encoder	驅動器 Driver	履帶取出方向 Caterpillar Band Entry Location	安裝方式 Mounting	拖鏈 Drag chain	限位傳感器數量 Photoelectric Sensor
WLO14 單動子型 Single Carriage	C1:標準型動子 Standard Coil	143-2303, 間隔/Gap108	3L:3m	G:光學尺 Optical Scale	S:高創 Servotronic P:松下 Panasonic	RH:水平右側取出 Horizontal,Right LH:水平左側取出 Horizontal,Left RW:壁掛右側取出 Wall-hanging,Right LW:壁掛左側取出 Wall-hanging,Left	H:水平安裝 Horizontal W:側掛安裝 Wall-hanging	T:含拖鏈 With Drag chain 無T:不含拖鏈 No Drag chain	P1: 1祇 1PC P2: 2祇 2PCS P3: 3祇 3PCS 未標記: 無 No Mark: None
WLO14D 雙動子型 Double Carriage	C2:加長型動子 Extended Coil		5L:5m 8L:8m	M:磁性尺 Magnetic Scale B:編碼器 Encoder					



最大動態力和力矩 Max Permissible Forces And Torques



規格 Type	WLO14-C1	WLO14-C2
■ F(y) (N·m)	5370	6980
■ F(z) (N·m)	5370	6980
■ M(x) (N·m)	142	142
■ M(y) (N·m)	104	180
■ M(z) (N·m)	346	582

除了滿足最大負載和力矩外，還必須滿足以下公式：
All forces and torque relate to the following:
$$\frac{F_y}{F_y \max.} + \frac{F_z}{F_z \max.} + \frac{M_x}{M_x \max.} + \frac{M_y}{M_y \max.} + \frac{M_z}{M_z \max.} \leq 1$$

履帶取出方向 Caterpillar Band Entry Location

WLO-14				WLO-14D		廠牌 Brand	驅動器記號 Mark	驅動器型號 Driver Model	接線訊號 Connection Signal
RH 水平右側取出 Right & Horizontal	RW 壁掛右側取出 Right & Wall-hanging	LH 水平左側取出 Left & Horizontal	LW 壁掛左側取出 Left & Wall-hanging	H 水平安裝 H Horizontal	W 側掛安裝 W Wall-hanging	高創 Servotronic	S	CDHD-AP1 CDHD-EC1	脉冲 EtherCAT
						松下 Panasonic	P	MBDLN-SL MBDLN-BL	脉冲 EtherCAT

注：請務必按導線槽方向圖和各規格圖規定的方向進行設置。規定以外的安裝會導致故障發生，請務必加以注意。
Note: Be sure to set up according to the metallic channel directional diagram and each specification diagram specified, or it will occur some malfunction. So please pay more attention about this.

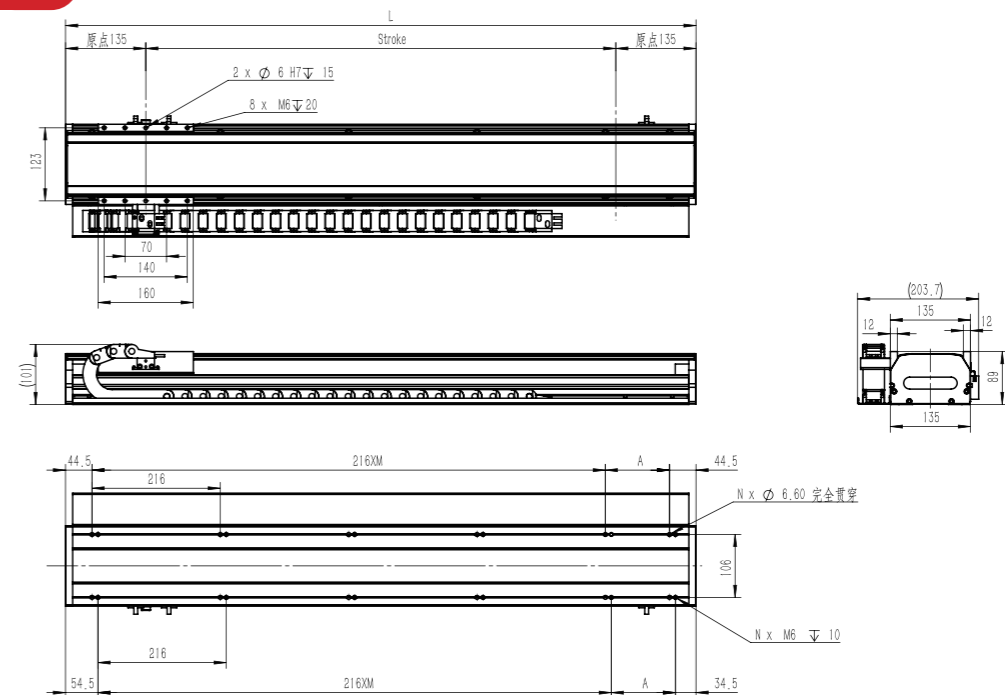
基本規格 Basic Specification

技術參數 Technical Parameters	機型 Type	WLO14-C1	WLO14-C2
	驅動方式 Driving Method	有鐵芯平板綫性馬達 Linear Motor Driven Type With Iron Core	
位置重複精度(μ) Repetitive Accuracy	5 #1		
持續推力 (N) Continuous Thrust(N)	40		80
最大推力 (N) Max Thrust(N)	120		240
最大加速度(M/S ²) Max Accelerated Speed	4G		
最大速度(MM/S) Max Speed	4000		
標準行程 (mm) Standard Stroke	143-2303 mm / 108 pitch		
主機載面最大外形: Max Outline of Main Engine's Cross Section	148*89		
高剛性直綫滑軌 (mm) High Stiffness Linear Guide	15型導軌 2支 / 15 Guide 2PCS		
履帶內部容積: Internal Capacity of Caterpillar Band	17*25		
原點感應器 Home Sensor	EE-SX672(NPN)		

- 注#1:
1. 最高速度隨最小分辨率而變化。
 2. 動作速度、加速度等規格受負載的限制。
 3. 加速度為2G動作時的負載，所到達速度，受推力和速度特性的限制。
 4. 反覆運動0背隙。

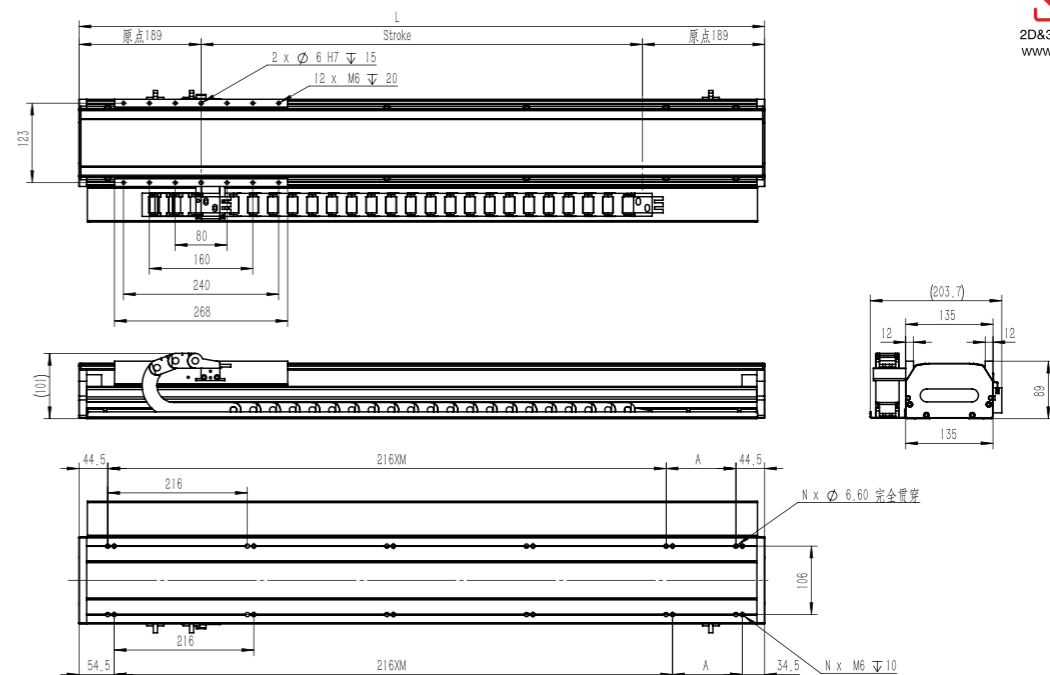
- Note #1:
1. The max speed depends on the minimum resolution.
 2. Movement speed and accelerated speed are restricted by the load.
 3. The load that when the accelerated speed is 2G, and then speed reached is restricted by the thrust and its speed characteristics.
 4. Repetitive movement with zero back clearance.

WLO14-C1

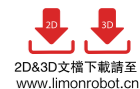


行程 Stroke (mm)	143	251	359	467	575	683	791	899	1007	1115	1223	1331	1439	1547	1655	1763	1871	1979	2087	2195	2303	
總長 Length (L)	413	521	629	737	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573	
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	
A	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	108
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	
重量 Weight (kg)	8.3	9.0	9.8	10.5	11.3	12.0	12.8	13.5	14.3	15.0	15.8	16.5	17.3	18.0	18.8	19.5	20.3	21.0	21.8	22.5	23.3	

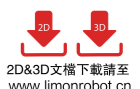
WLO14-C2



行程 Stroke (mm)	143	251	359	467	575	683	791	899	1007	1115	1223	1331	1439	1547	1655	1763	1871	1979	2087	2195	
總長 Length (L)	521	629	737	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573	
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	
A	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	108
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	
重量 Weight (kg)	10.4	11.1	11.9	12.6	13.4	14.1	14.9	15.6	16.4	17.1	17.9	18.6	19.4	20.1	20.9	21.6	22.4	23.1	23.9	24.6	

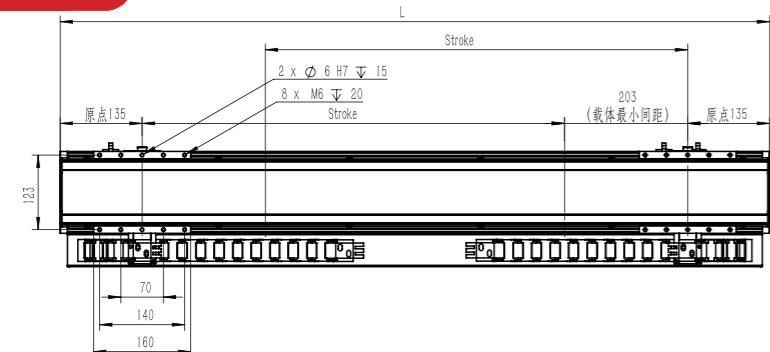


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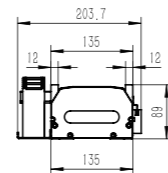
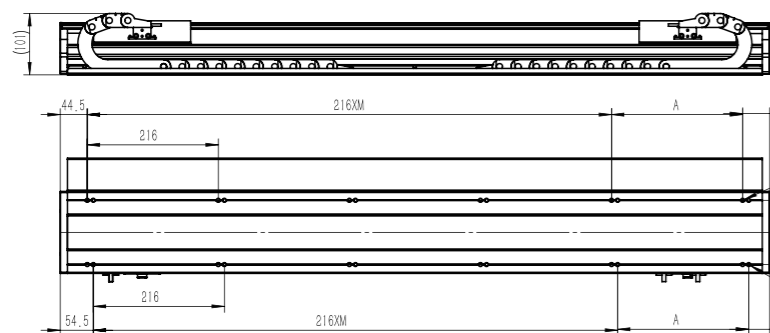


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WLO14D-C1

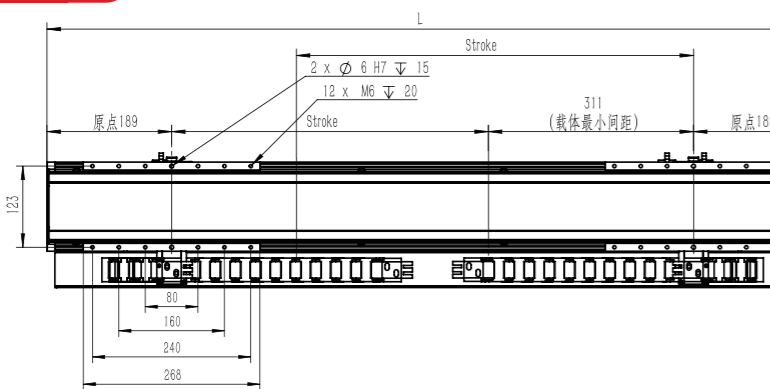


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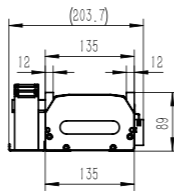
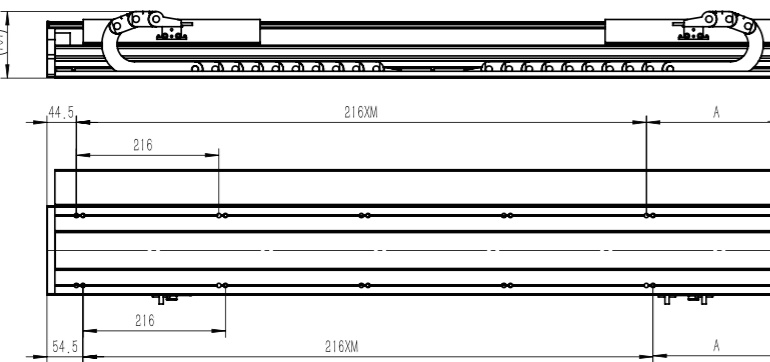


行程 Stroke (mm)	156	264	372	480	588	696	804	912	1020	1128	1236	1344	1452	1560	1668	1776	1884	1992	2100
總長 Length (L)	629	737	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573
M	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
A	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108
N	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
重量 Weight (kg)	11.5	12.3	13.0	13.8	14.5	15.3	16.0	16.8	17.5	18.3	19.0	19.8	20.5	21.3	22.0	22.8	23.5	24.3	25.0

WLO14D-C2



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行程 Stroke (mm)	156	264	372	480	588	696	804	912	1020	1128	1236	1344	1452	1560	1668	1776	1884
總長 Length (L)	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
A	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
重量 Weight (kg)	14.0	14.7	15.5	16.2	17.0	17.7	18.5	19.2	20.0	20.7	21.5	22.2	23.0	23.7	24.5	25.2	26.0

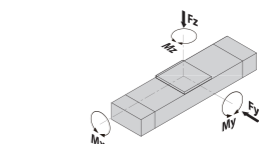
型號訂購碼 Code

WLO 17	C1	500	3L	M	P	RH		T	P3
WLO 17D	C1	500	3L	M	P		H	T	P3

本體型號 Item NO.	綫圈規格 Coil Size	行程 Stroke	綫圈長度 Wire Length	編碼器 Encoder	驅動器 Driver	履帶取出方向 Caterpillar Band Entry Location	安裝方式 Mounting	拖鏈 Drag chain	限位傳感器數量 Photoelectric Sensor
WLO17 單動子型 Single Carriage	C1:標準型動子 Standard Coil	143-2303, 間隔/Gap108	3L:3m	G:光學尺 Optical Scale	S:高創 Servotronic	RH:水平右側取出 Horizontal,Right	H:水平安裝 Horizontal	T:含拖鏈 With Drag chain	P1: 1祇 1PC
WLO17D 雙動子型 Double Carriage	C2:加長型動子 Extended Coil		5L:5m	M:磁性尺 Magnetic Scale	P:松下 Panasonic	LH:水平左側取出 Horizontal,Left	W:側掛安裝 Wall-hanging	無T:不含拖鏈 No Drag chain	P2: 2祇 2PCS
			8L:8m	B:編碼器 Encoder		RW:壁掛右側取出 Wall-hanging,Right			P3: 3祇 3PCS
						LW:壁掛左側取出 Wall-hanging,Left			未標記: 無 No Mark: None



最大動態力和力矩 Max Permissible Forces And Torques



規格 Type	WLO17-C1	WLO17-C2
■F(y) (N·m)	7463	9702
■F(z) (N·m)	7463	9702
■M(x) (N·m)	339	339
■M(y) (N·m)	178	396
■M(z) (N·m)	742	1271

除了滿足最大負載和力矩外，還必須滿足以下公式：
All forces and torque relate to the following:
$$\frac{F_y}{F_y \max.} + \frac{F_z}{F_z \max.} + \frac{M_x}{M_x \max.} + \frac{M_y}{M_y \max.} + \frac{M_z}{M_z \max.} \leq 1$$

履帶取出方向 Caterpillar Band Entry Location



搭配驅動器一覽表 Driver

廠牌 Brand	驅動器記號 Mark	驅動器型號 Driver Model	接線訊號 Connection Signal
高創 Servotronic	S	CDHD-AP1	脈衝
		CDHD-EC1	EtherCAT
松下 Panasonic	P	MBDLN-SL	脈衝
		MBDLN-BL	EtherCAT

注：請務必按導線槽方向圖和各規格圖規定的方向進行設置。規定以外的安裝會導致故障發生，請務必加以注意。
Note: Be sure to set up according to the metallic channel directional diagram and each specification diagram specified, or it will occur some malfunction. So please pay more attention about this.

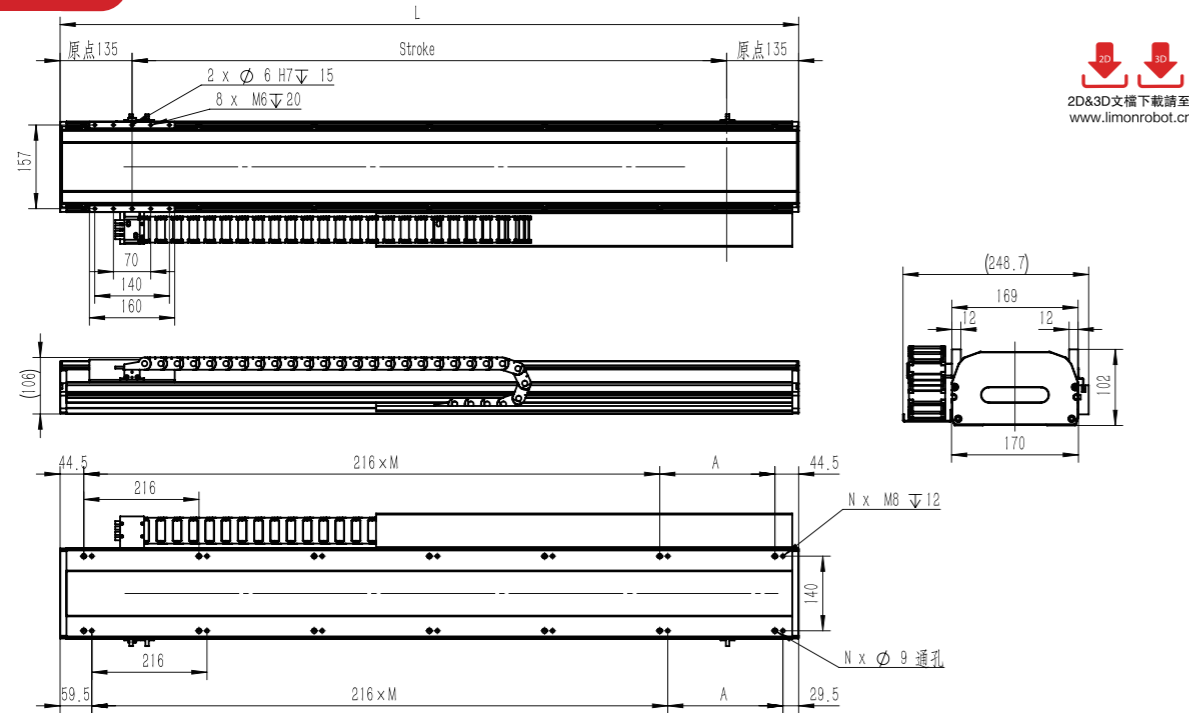
基本規格 Basic Specification

技術參數 Technical Parameters	機型 Type	WLO17-C1	WLO17-C2
	驅動方式 Driving Method	有鐵芯平板綫性馬達 Linear Motor Driven Type With Iron Core	
位置重複精度 (μ) Repetitive Accuracy	5 ^{#1}		
持續推力 (N) Continuous Thrust(N)	80	160	
最大推力 (N) Max Thrust(N)	240	480	
最大加速度(M/S ²) Max Accelerated Speed	4G		
最大速度(MM/S) Max Speed	4000		
標準行程 (mm) Standard Stroke	143-2303 mm / 108 pitch		
主機截面最大外形: Max Outline of Main Engine's Cross Section	183*102		
高剛性直綫滑軌 (mm) High Stiffness Linear Guide	20型導軌 2支 / 20 Guide 2PCS		
履帶內部容積: Internal Capacity of Caterpillar Band	17*25		
原點感應器 Home Sensor	EE-SX672(NPN)		

注#1:
1. 最高速度隨最小分辨率而變化。
2. 動作速度、加速度等規格受負載的限制。
3. 加速度為2G動作時的負載，所到達速度，受推力和速度特性的限制。
4. 反覆運動0背隙。

Note #1:
1. The max speed depends on the minimum resolution.
2. Movement speed and accelerated speed are restricted by the load.
3. The load that when the accelerated speed is 2G, and then speed reached is restricted by the thrust and its speed characteristics.
4. Repetitive movement with zero back clearance.

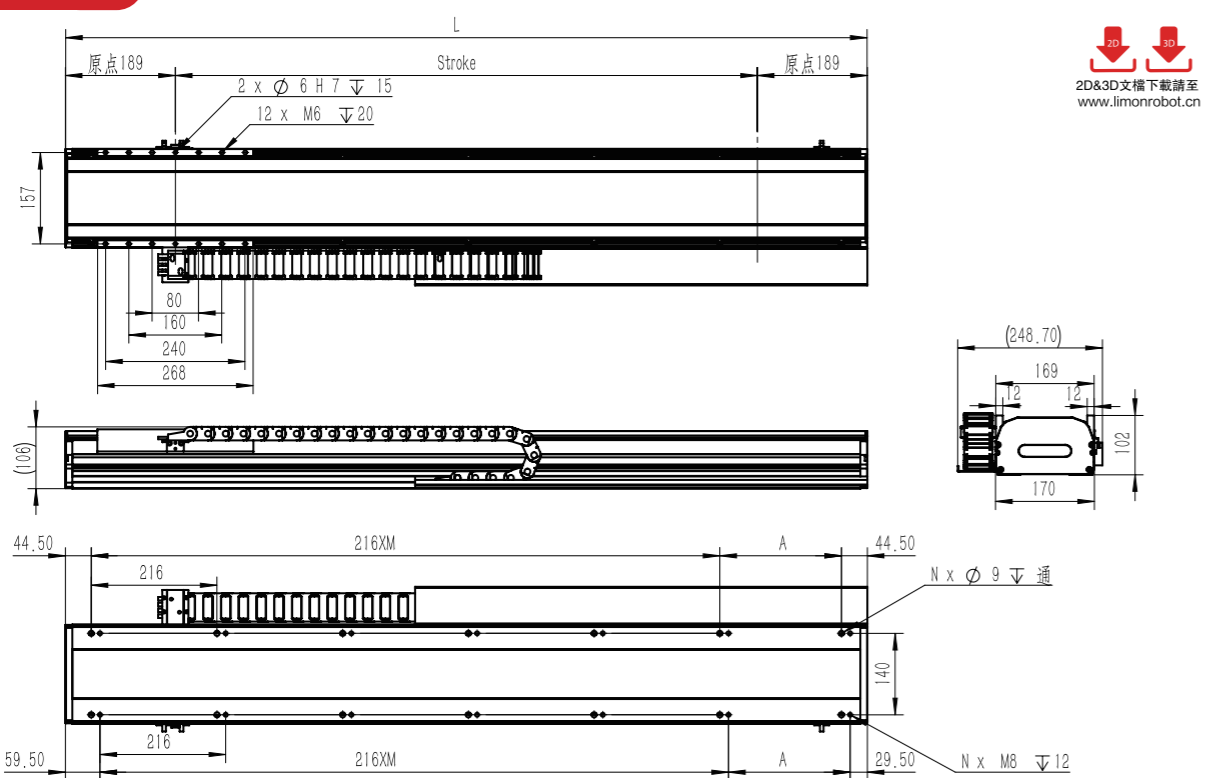
WLO17-C1



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行程 Stroke (mm)	143	251	359	467	575	683	791	899	1007	1115	1223	1331	1439	1547	1655	1763	1871	1979	2087	2195	2303
總長 Length (L)	413	521	629	737	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
A	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
重量 Weight (kg)	13.8	15.9	18.0	20.1	22.2	24.2	26.3	28.4	30.5	32.6	34.6	36.7	38.8	40.9	43.0	45.0	47.1	49.2	51.3	53.4	55.4

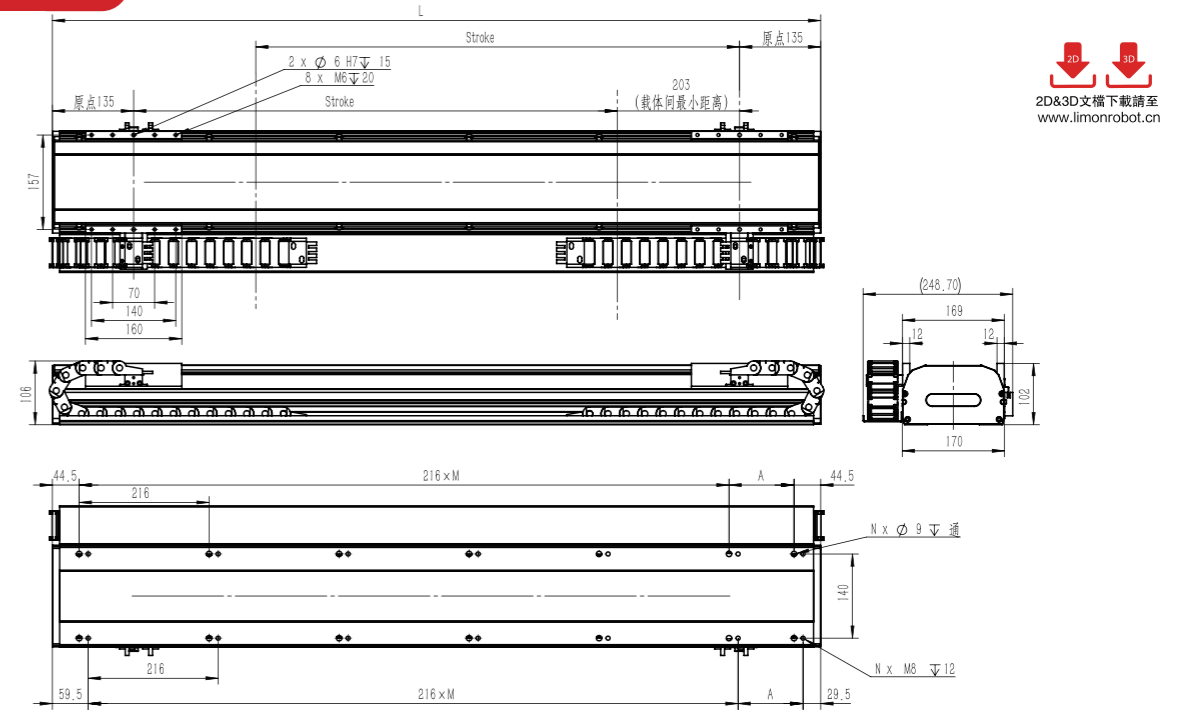
WLO17-C2



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行程 Stroke (mm)	143	251	359	467	575	683	791	899	1007	1115	1223	1331	1439	1547	1655	1763	1871	1979	2087	2195
總長 Length (L)	521	629	737	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
A	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
重量 Weight (kg)	17.7	19.8	21.9	24.0	26.0	28.1	30.2	32.3	34.4	36.4	38.5	40.6	42.7	44.8	46.8	48.9	51.0	53.1	55.2	57.2

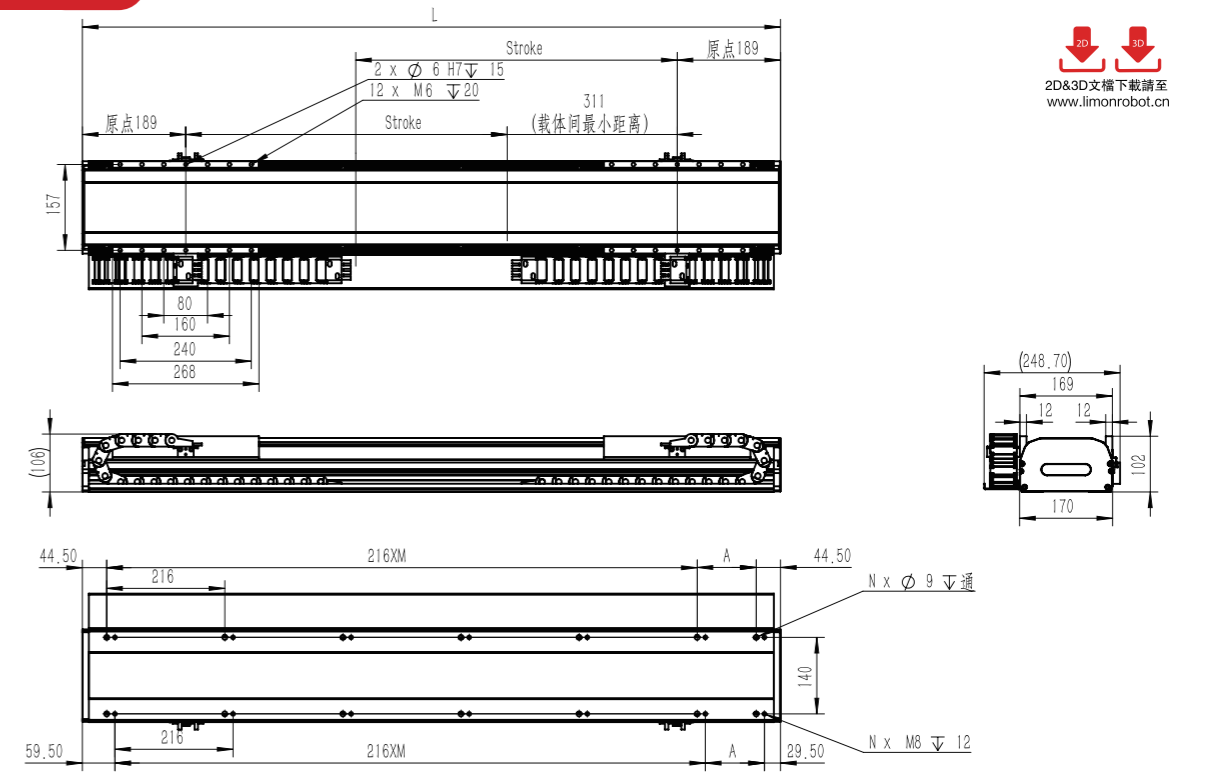
WLO17D-C1



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行程 Stroke (mm)	156	264	372	480	588	696	804	912	1020	1128	1236	1344	1452	1560	1668	1776	1884	1992	2100
總長 Length (L)	629	737	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573
M	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
A	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108
N	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
重量 Weight (kg)	17.0	19.1	21.2	23.3	25.3	27.4	29.5	31.6	33.7	35.7	37.8	39.9	42.0	44.1	46.1	48.2	50.3	52.4	54.5

WLO17D-C2



2D&3D文檔下載請至
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行程 Stroke (mm)	156	264	372	480	588	696	804	912	1020	1128	1236	1344	1452	1560	1668	1776	1884
總長 Length (L)	845	953	1061	1169	1277	1385	1493	1601	1709	1817	1925	2033	2141	2249	2357	2465	2573
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
A	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108	216	108
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
重量 Weight (kg)	21.9	24.0	26.0	28.1	30.2	32.3	34.4	36.4	38.5	40.6	42.7	44.8	46.8	48.9	51.0	53.1	55.2

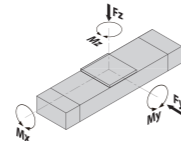
型號訂購碼 Code: WLO 22 C1 500 3L M P RH [] T P3

WLO 22D C1 500 3L M P [] H T P3

本體型號 Item NO.	綫圈規格 Coil Size	行程 Stroke 間隔/Gap135	綫圈長度 Wire Length	編碼器 Encoder	驅動器 Driver	履帶取出方向 Caterpillar Band Entry Location	安裝方式 Mounting	拖鏈 Drag chain	限位傳感器數量 Photoelectric Sensor
WLO22 單動子型 Single Carriage	C1:標準型動子 Standard Coil	122-2147	3L:3m	G: 光學尺 Optical Scale	S: 高創 Servotronics P: 松下 Panasonic	RH:水平右側取出 Horizontal,Right LH:水平左側取出 Horizontal,Left RW:壁掛右側取出 Wall-hanging,Right LW:壁掛左側取出 Wall-hanging,Left	H:水平安裝 Horizontal W:側掛安裝 Wall-hanging	T: 含拖鏈 With Drag chain 無T:不含拖鏈 No Drag chain	P1: 1祇 1PC P2: 2祇 2PCS P3: 3祇 3PCS 未標記: 無 No Mark: None
WLO22D 雙動子型 Double Carriage	C2:加長型動子 Extended Coil		5L:5m 8L:8m	M: 磁性尺 Magnetic Scale B: 編碼器 Encoder					



最大動態力和力矩 Max Permissible Forces And Torques



規格 Type	WLO22-C1	WLO22-C2
■ F(y) (N·m)	12916	12916
■ F(z) (N·m)	12916	12916
■ M(x) (N·m)	650	650
■ M(y) (N·m)	615	1200
■ M(z) (N·m)	1200	1250

除了滿足最大負載和力矩外，還必須滿足以下公式：
All forces and torques relate to the following:

$$\frac{F_y}{F_y \max.} + \frac{F_z}{F_z \max.} + \frac{M_x}{M_x \max.} + \frac{M_y}{M_y \max.} + \frac{M_z}{M_z \max.} \leq 1$$

履帶取出方向 Caterpillar Band Entry Location

WLO-22				WLO-22D		廠牌 Brand	驅動器記號 Mark	驅動器型號 Driver Model	接線訊號 Connection Signal
RH 水平右側取出 Right & Horizontal	RW 壁掛右側取出 Right & Wall-hanging	LH 水平左側取出 Left & Horizontal	LW 壁掛左側取出 Left & Wall-hanging	H 水平安裝 H Horizontal	W 側掛安裝 W Wall-hanging	高創 Servotronics	S	CDHD-AP1 CDHD-EC1	脈沖 EtherCAT
						松下 Panasonic	P	MBDLN-SL MBDLN-BL	脈沖 EtherCAT

注：請務必按導線槽方向圖和各規格圖規定的方向進行設置。規定以外的安裝會導致故障發生，請務必加以注意。
Note: Be sure to set up according to the metallic channel directional diagram and each specification diagram specified, or it will occur some malfunction. So please pay more attention about this.

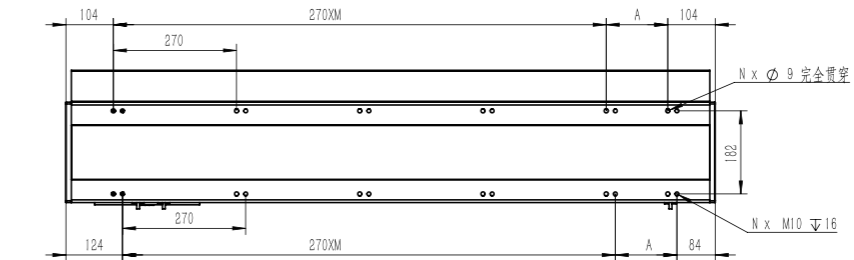
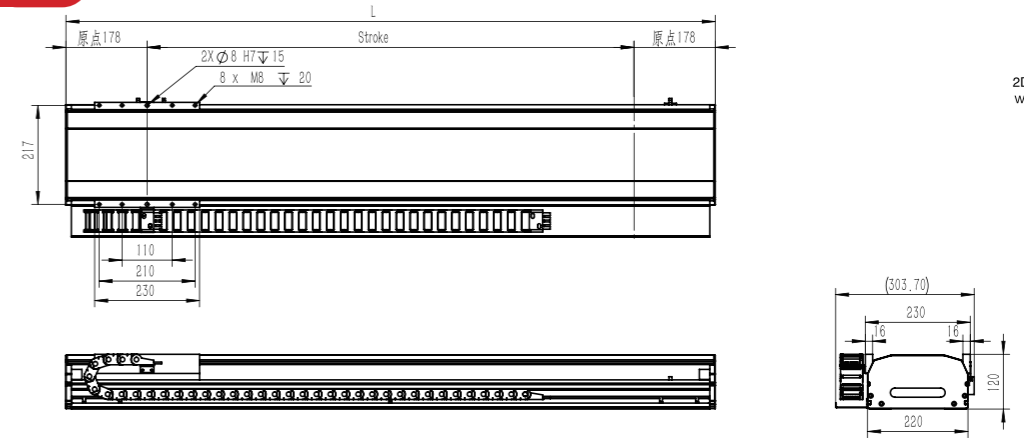
基本規格 Basic Specification

技術參數 Technical Parameters	機型 Type	WLO22-C1	WLO22-C2
	驅動方式 Driving Method	有鐵芯平板綫性馬達 Linear Motor Driven Type With Iron Core	
位置重複精度(μ) Repetitive Accuracy	5 #1		
持續推力(N) Continuous Thrust(N)	280 / 560		
最大推力(N) Max Thrust(N)	840 / 1680		
最大加速度(M/S²) Max Accelerated Speed	4G		
最大速度(MM/S) Max Speed	4000		
標準行程 (mm) Standard Stroke	143-2303 mm / 135 pitch		
主機截面最大外形: Max Outline of Main Engine's Cross Section	233*120		
高剛性直綫滑軌 (mm) High Stiffness Linear Guide	25型導軌 2支 / 25 Guide 2PCS		
履帶內部容積: Internal Capacity of Caterpillar Band	17*25		
原點感應器 Home Sensor	EE-SX672(NPN)		

- 注#1:
1. 最高速度隨最小分辨率而變化。
2. 動作速度、加速度等規格受負載的限制。
3. 加速度為2G動作時的負載，所到達速度，受推力和速度特性的限制。
4. 反復運動0背隙。

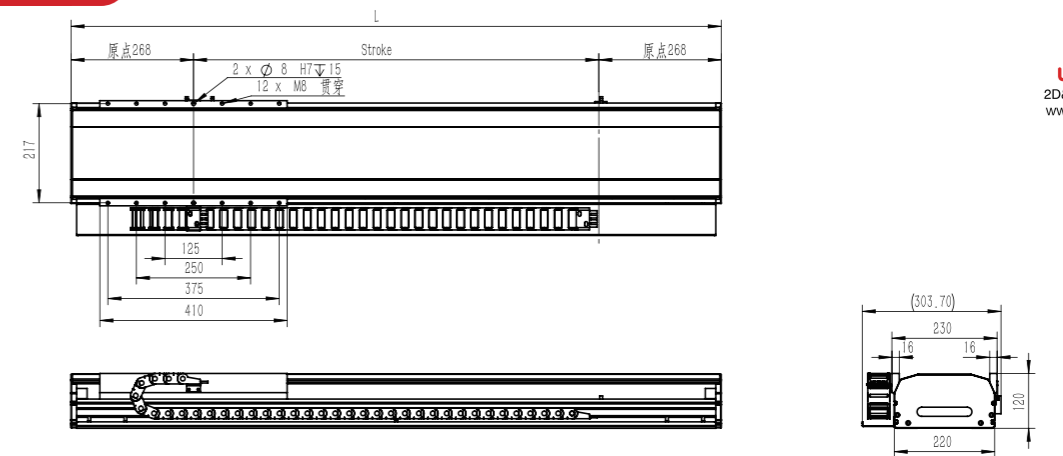
- Note1:
1. The max speed depends on the minimum resolution.
2. Movement speed and accelerated speed are restricted by the load.
3. The load that when the accelerated speed is 2G, and then speed reached is restricted by the thrust and its speed characteristics.
4. Repetitive movement with zero back clearance.

WLO 22-C1



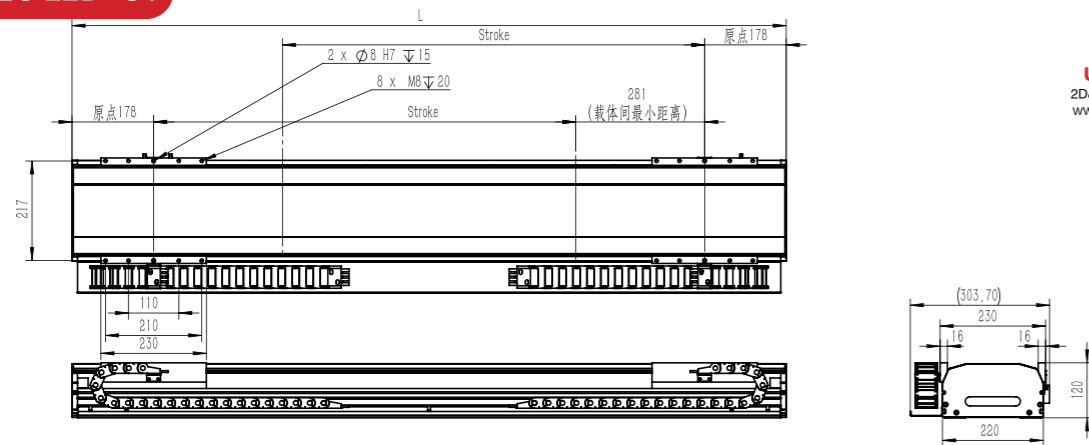
行程 Stroke (mm)	122	257	392	527	662	797	932	1067	1202	1337	1472	1607	1742	1877	2012	2147
總長 Length (L)	478	613	748	883	1017	1153	1288	1423	1558	1693	1828	1963	2098	2233	2368	2503
M	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8
A	270	135	270	135	270	135	270	135	270	135	270	135	270	135	270	135
N	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
重量 Weight (kg)	29.1	31.3	33.6	35.8	38.0	40.2	42.5	44.7	46.9	49.2	51.4	53.6	55.9	58.1	60.3	62.5

WLO 22-C2

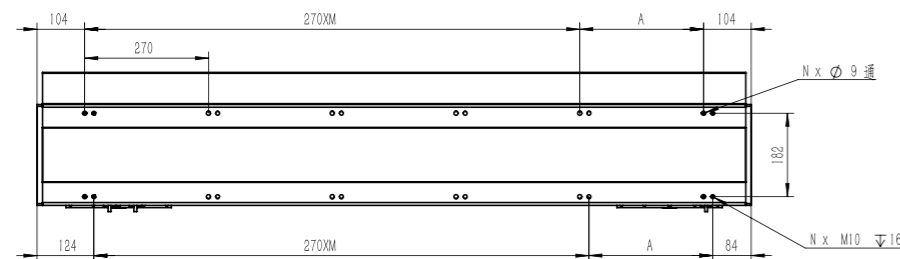


行程 Stroke (mm)	212	347	482	617	752	887	1022	1157	1292	1427	1562	1697	1832	1967
總長 Length (L)	748	883	1018	1153	1288	1423	1558	1693	1828	1963	2098	2233	2368	2503
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8
A	270	135	270	135	270	135	270	135	270	135	270	135	270	135
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20
重量 Weight (kg)	46.8	49.0	51.2	53.4	55.7	57.9	60.1	62.4	64.6	66.8	69.1	71.3	73.5	75.7

WLO 22D-C1

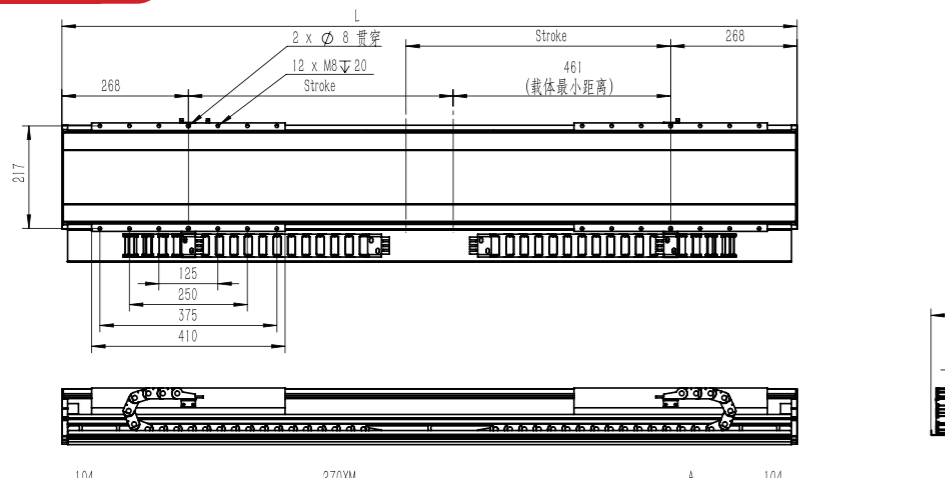


2D 3D
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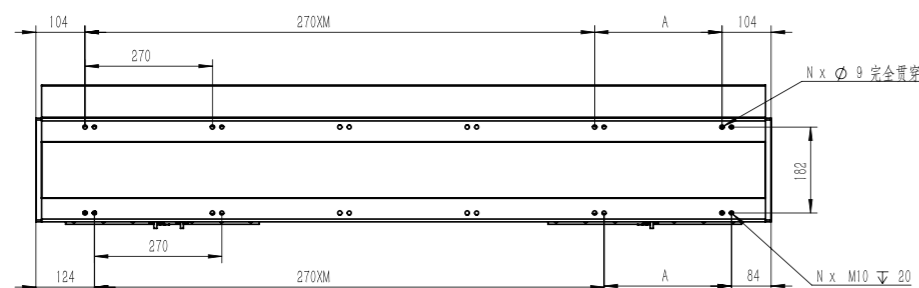


行程 Stroke (mm)	111	246	381	516	651	786	921	1056	1191	1326	1461	1596	1731	1866	2001	2136	2271	2406
總長 Length (L)	748	883	1018	1153	1288	1423	1558	1693	1828	1963	2096	2233	2368	2503	2638	2773	2908	3043
M	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10
A	270	135	270	135	270	135	270	135	270	135	270	135	270	135	270	135	270	135
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
重量 Weight (kg)	42.3	44.5	46.8	49.0	51.2	53.5	55.7	57.9	60.1	62.4	64.6	66.8	69.1	71.3	73.5	75.8	78.0	80.2

WLO 22D-C2



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行程 Stroke (mm)	156	291	426	561	696	831	966	1101	1236	1371	1506	1641	1776	1911	2046
總長 Length (L)	1153	1288	1423	1558	1693	1828	1963	2098	2233	2368	2503	2638	2773	2908	3043
M	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10
A	135	270	135	270	135	270	135	270	135	270	135	270	135	270	135
N	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
重量 Weight (kg)	70.0	72.3	74.5	76.7	79.0	81.2	83.4	85.7	87.9	90.1	92.3	94.6	96.8	99.0	101.3

ZLO17 有鐵芯式綫性馬達驅動
ZLO22 有鐵芯式綫性馬達驅動
WLO14 有鐵芯式綫性馬達驅動
WLO17 有鐵芯式綫性馬達驅動
WLO22 有鐵芯式綫性馬達驅動
YA Series 有鐵芯式綫性馬達驅動
PSA Series 轉磁字盤系列

零頓振 鐵芯式直線電機 (高性能 YA Series)

Zero Cogging Force Iron-core Linear Motor (High Performance YA Series)



特點 Features

近零頓振強化低速穩定度及定位精度
Nearly zero cogging force to enhance low-speed stability and settling of positioning
鎖付面為高導熱鋁板，散熱佳高推力，減輕重量
Built-in aluminum mounting plate for excellent heat dissipation and lighter weight
全金屬包覆，避免對附近光學讀頭產生電磁干擾
Fully covered by metal shielding for eliminating EMI to nearby encoder head
取代大推力的無鐵心線性馬達，具有更小體積更佳散熱的優勢
Ironless linear motor could be replaced for smaller size and better heat dissipation



用途 Application

半導體製造設備
Semiconductor Equipment
LCD/LED 製造設備
LCD/LED Manufacturing Equipment
原物料搬運設備
Material Handling Equipment
放電加工
Electric Discharge Machine
雷射加工機
Laser Cutting & Engraving Machines
CNC 加工機
CNC Machining Center
等等.....
etc.,.....

頓振波形圖 Cogging Graphic



Y 社實測頓振波形

本社實測頓振波形

強制冷卻提升推力 Forced cooling lifting thrust



電機測試標準及使用環境 Test Standard and Application Environment

線圈耐熱等級 Thermal Endurance Class of Winding	H (180°C,UL)
直流絕緣電阻 DC Insulation Resistance Test	DC1000V, >500Mohm
交流絕緣耐壓 AC Dielectric Voltage Withstand Test	AC 1800V,1 minute
層間絕緣 Layer Short Impulse Test	<2%
保證結構 Production Structure	IP65
使用環境溫度°C Operation Temp	0 ~ 40
使用環境濕度% Operation Humidity	20%RH ~ 80%RH(不結露 no condense)
安裝場所 Operation Environment	使用於海拔高度1000m以下 Under 1000m above sea level 使用於無腐蝕性或爆炸性氣體的場所 No corrosion and no explosion

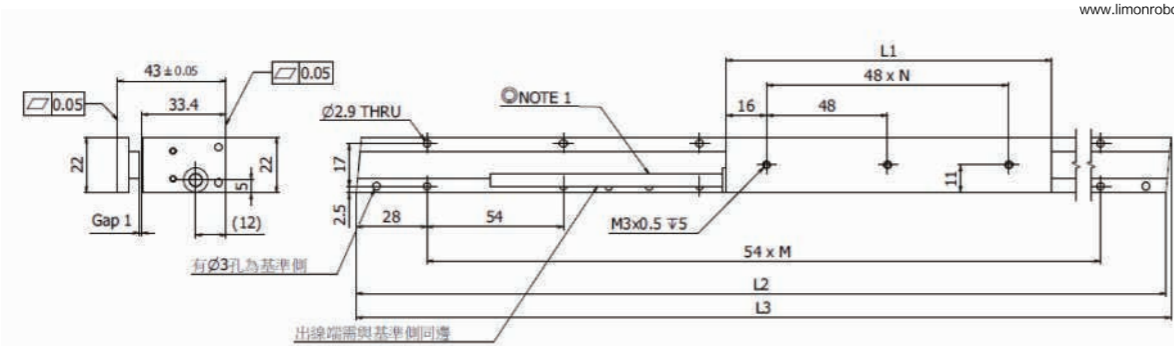
動子繞圈 訂購代碼 Moving Coil Model Designation

YA	050	C1	S	03	T	V1	H1
馬達型式 Model Type	框號 Frame No.	動子長度 Coil Length	冷卻方式 Cooling Type	馬達出線長 Cable Length	溫度開關 Thermostat	使用電壓 Voltage	霍爾感測器 Hall Sensor
	010 020 035 049 050 075 100 150 200	C1: Standard length C2: Double length	S: Self Cooling A: Air Cooling W: Water Cooling	03: 300 mm 05: 500 mm 10: 1000mm 30: 3000mm 50: 5000mm	N: None T: With thermostat	V0: 220V V1: 400V	H0: None H1: With Hall

定子磁板 Magnet Track Model Designation

YA	050	M	405	A
馬達型式 Model Type	框號 Frame No.	磁板 Magnet Track	動子長度 Track Length	護蓋 Track Cover
	010 020 035 049 050 075 100 150 200		Frame No. Length 010/020/035/049 108 216 324 050/075/100/150/200 135 270 405	A: None B: With cover

YA-010



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 010-C1	129	2	/	/	/
	YA 010-C2	237	5	/	/	/
定子型號 Stator Item No.	YA 010-M108	/	/	108	110	1
	YA 010-M216	/	/	216	218	3
	YA 010-M324	/	/	324	326	5



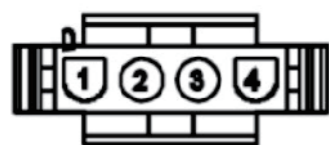
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force Const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 010-C1	18	54	0.4	1.2	3.4	5	43.8	122	50.4	157	0.51	27
YA 010-C2	36	108	0.8	2.4	3.4	5	21.9	61	50.4	315	1	27

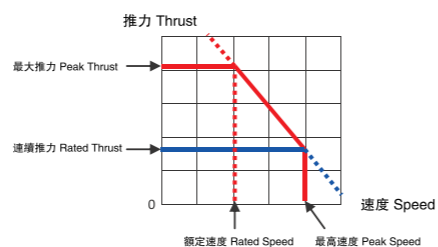
插針編號Pin no.	信號源Signal	纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 5.5mm Outer diameter (mm):5.5mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

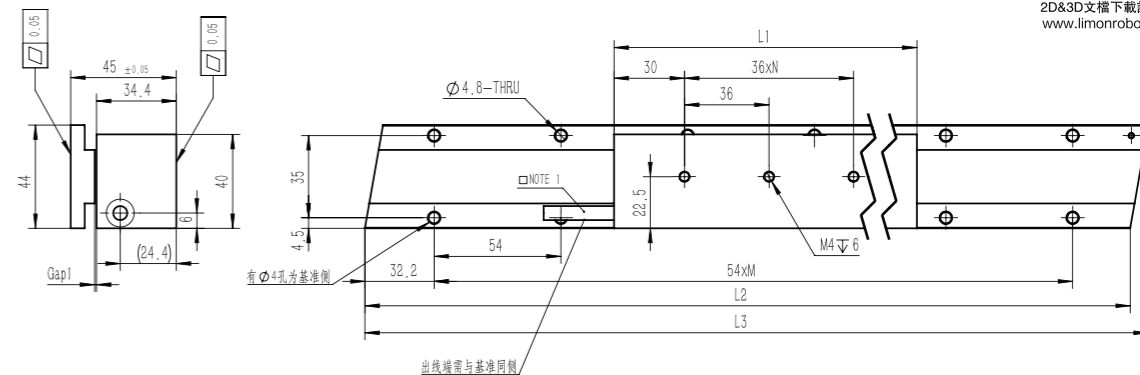


配套連接器The Mating Connector
端蓋 Cap : 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由Tyco電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

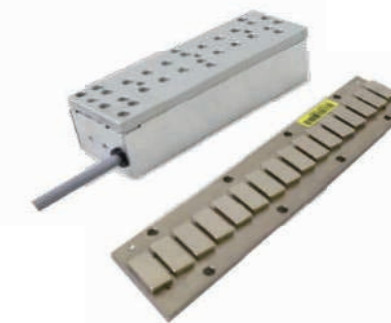
YA-020



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 020-C1	127	2	/	/	/
	YA 020-C2	235	5	/	/	/
定子型號 Stator Item No.	YA 020-M108	/	/	108	115.7	1
	YA 020-M216	/	/	216	223.7	3
	YA 020-M324	/	/	324	331.7	5



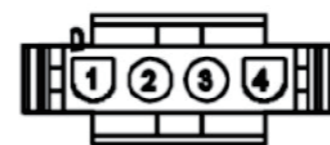
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force Const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 020-C1	40	120	0.8	2.4	3.5	5.3	17.4	66.1	52.5	315	0.75	27
YA 020-C2	80	240	1.6	4.8	3.5	5.3	8.7	33.1	52.5	460	1.45	27

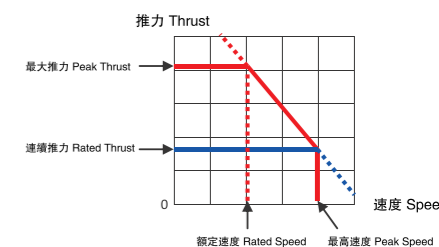
插針編號Pin no.	信號源Signal	纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 5.5mm Outer diameter (mm):5.5mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

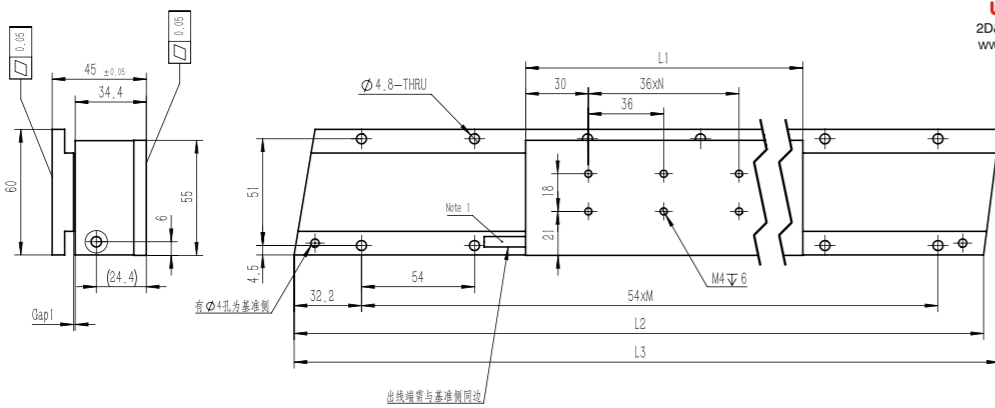


配套連接器The Mating Connector
端蓋 Cap : 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由Tyco電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

YA-035



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 035-C1	127	2	/	/	/
	YA 035-C2	235	5	/	/	/
定子型號 Stator Item No.	YA 035-M108	/	/	108	118.5	1
	YA 035-M216	/	/	216	226.5	3
	YA 035-M324	/	/	324	334.5	5



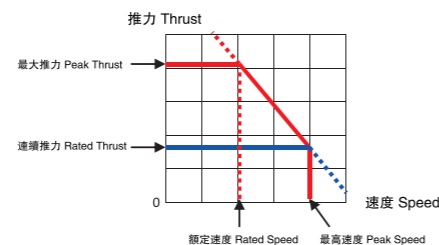
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force Const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 035-C1	80	240	1.4	4.2	3.2	5	9.7	43.3	57.2	810	1.1	27
YA 035-C2	160	480	2.8	8.4	3.2	5	4.9	21.6	57.2	1600	2	27

插針編號Pin no.	信號源Signal	綫纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

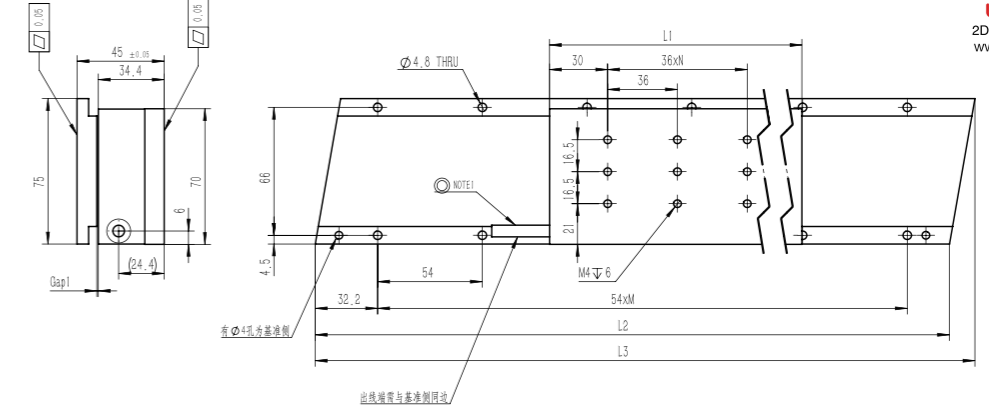
◎ Note 1
電機電纜規格 Specification of motor cable
外徑尺寸: 5.5mm Outer diameter (mm):5.5mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

配套連接器The Mating Connector
端蓋 Cap: 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由Tyco電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

YA-049



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 049-C1	127	2	/	/	/
	YA 049-C2	235	5	/	/	/
定子型號 Stator Item No.	YA 049-M108	/	/	108	121.1	1
	YA 049-M216	/	/	216	229.1	3
	YA 049-M324	/	/	324	337.1	5

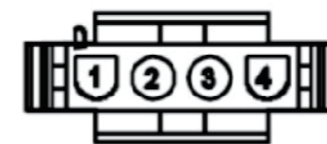


性能參數 Performance Parameter

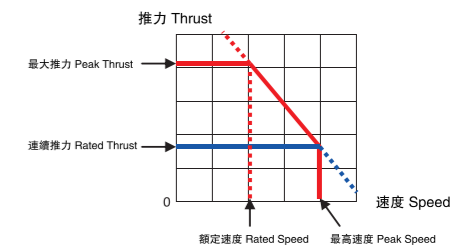
動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force Const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 049-C1	110	330	2.5	7.5	4.2	6.6	4.1	20.1	42	1055	1.35	45
YA 049-C2	220	660	5	15	4.2	6.6	2.1	10.1	42	2040	2.6	45

插針編號Pin no.	信號源Signal	綫纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

◎ Note 1
電機電纜規格 Specification of motor cable
外徑尺寸: 5.5mm Outer diameter (mm):5.5mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

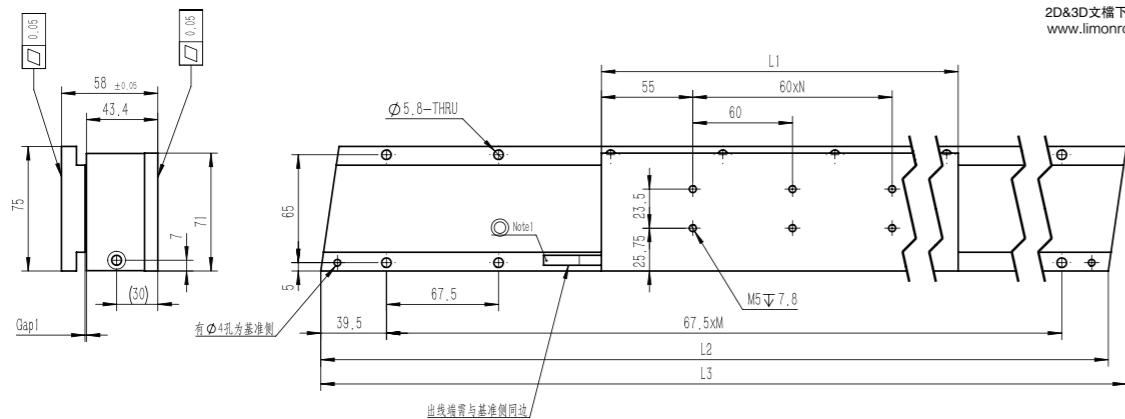


配套連接器The Mating Connector
端蓋 Cap: 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由Tyco電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

YA-050



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 050-C1	213	2	/	/	/
	YA 050-C2	393	5	/	/	/
定子型號 Stator Item No.	YA 050-M135	/	/	135	146.3	1
	YA 050-M270	/	/	270	281.3	3
	YA 050-M405	/	/	405	416.3	5



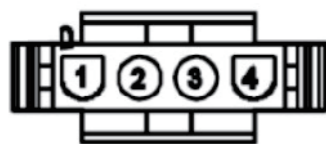
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force const (N/Ams)	最高速度 Peak Speed (m/s)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 050-C1	280	840	4.2	12.6	2.6	3.2	31.3	67.6	4.1	1700	3.2	45
YA 050-C2	560	1680	8.4	25.2	2.6	1.6	15.6	67.6	4.1	3300	6.2	45

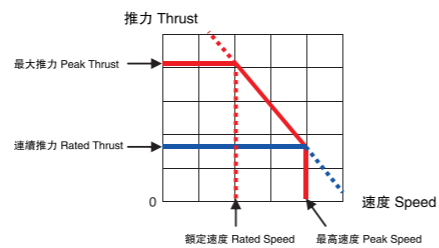
插針編號Pin no.	信號源Signal	綫纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 9mm Outer diameter (mm):9mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

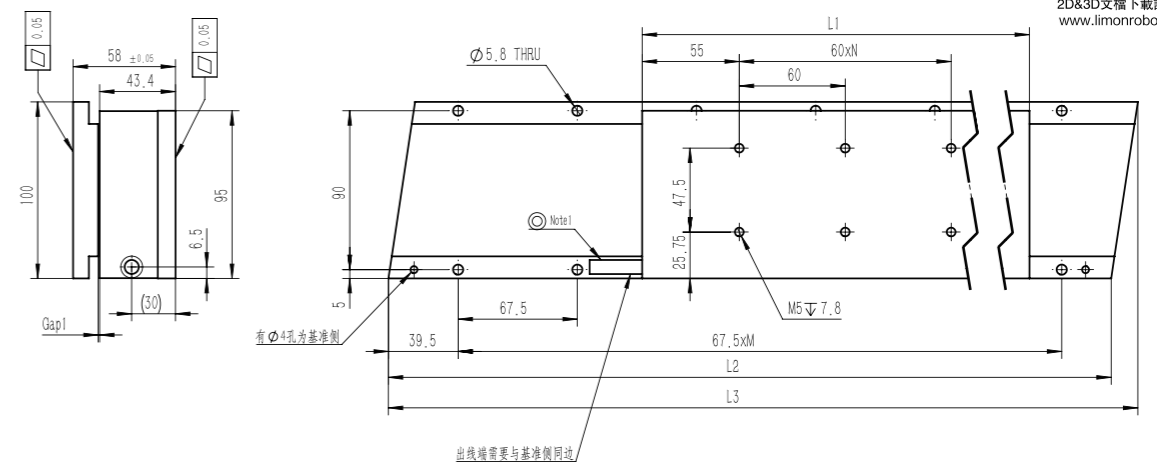


配套連接器The Mating Connector
端蓋 Cap : 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
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推力速度曲綫定義圖
Definition diagram of thrust speed curve

YA-075



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 075-C1	213	2	/	/	/
	YA 075-C2	393	5	/	/	/
定子型號 Stator Item No.	YA 075-M135	/	/	135	150.1	1
	YA 075-M270	/	/	270	285.1	3
	YA 075-M405	/	/	405	420.1	5



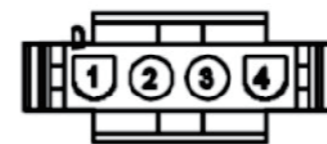
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force Const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 075-C1	440	1320	5.8	17.4	2.6	3.7	2.2	19.9	77.2	2320	3.95	45
YA 075-C2	880	2640	11.6	34.8	2.6	3.7	1.1	9.9	77.2	4300	7.8	45

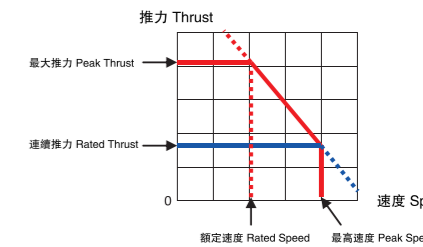
插針編號Pin no.	信號源Signal	綫纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 9mm Outer diameter (mm):9mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

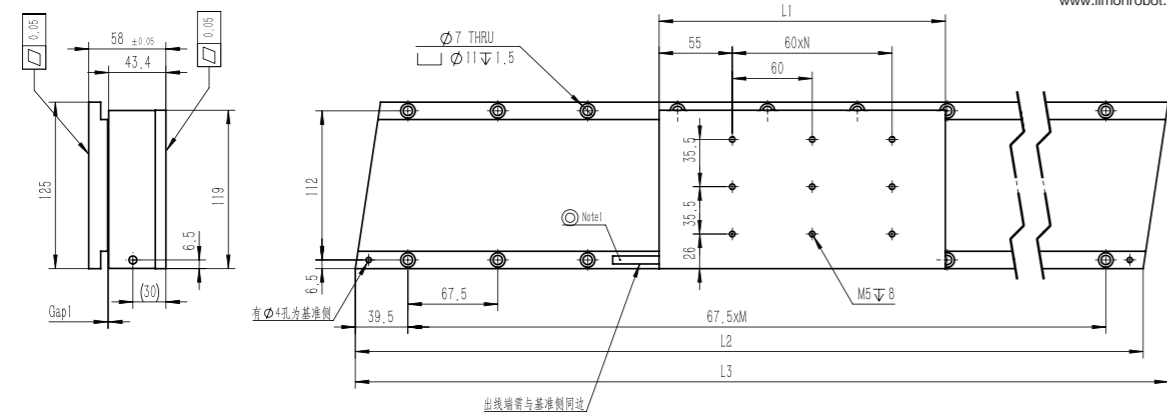


配套連接器The Mating Connector
端蓋 Cap : 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
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推力速度曲綫定義圖
Definition diagram of thrust speed curve

YA-100



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 100-C1	213	2	/	/	/
	YA 100-C2	393	5	/	/	/
	YA 100-C3	573	8	/	/	/
	YA 100-C4	753	11	/	/	/
定子型號 Stator Item No.	YA 100-M135	/	/	135	153.9	1
	YA 100-M270	/	/	270	288.9	3
	YA 100-M405	/	/	405	423.9	5



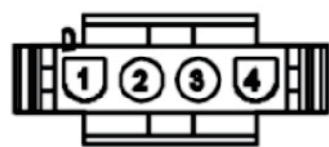
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force const (N/Ams)	最高速度 Peak Speed (m/s)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 100-C1	560	1680	11.8	35.4	3.9	0.72	7.8	47.7	5.9	3310	5.1	45
YA 100-C2	1120	3360	23.6	70.8	3.9	0.36	3.9	47.7	5.9	6520	9.8	45
YA 100-C3	1680	5040	35.4	106	3.9	0.24	2.6	47.7	5.9	9830	14.5	45
YA 100-C4	2240	6720	47.2	141	3.9	0.18	1.9	47.7	5.9	13100	19.2	45

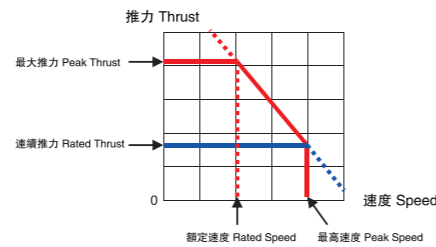
插針編號Pin no.	信號源Signal	纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 9mm Outer diameter (mm):9mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

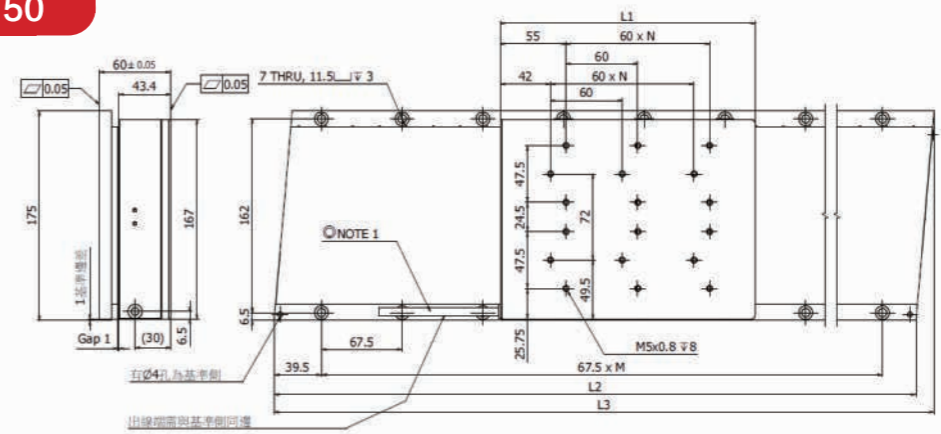


配套連接器The Mating Connector
端蓋 Cap: 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由Tyco電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

YA-150



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 150-C1	213	2	/	/	/
	YA 150-C2	393	5	/	/	/
	YA 150-C3	573	8	/	/	/
定子型號 Stator Item No.	YA 150-M135	/	/	135	150.1	1
	YA 150-M270	/	/	270	285.1	3
	YA 150-M405	/	/	405	420.1	5



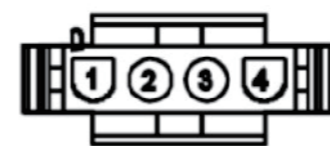
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 150-C1	840	2520	11.8	35.4	2.7	4	0.49	11.6	71.2	4640	8.2	45
YA 150-C2	1680	5040	23.6	70.8	2.7	4	0.25	5.8	71.2	8600	15.8	45
YA 150-C3	2520	7560	35.4	106	2.7	4	0.16	3.9	71.2	13320	23.4	45

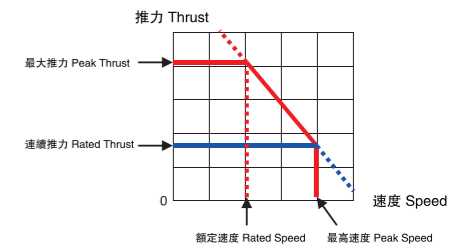
插針編號Pin no.	信號源Signal	纜編號Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 9mm Outer diameter (mm):9mm
偶發彎曲Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter

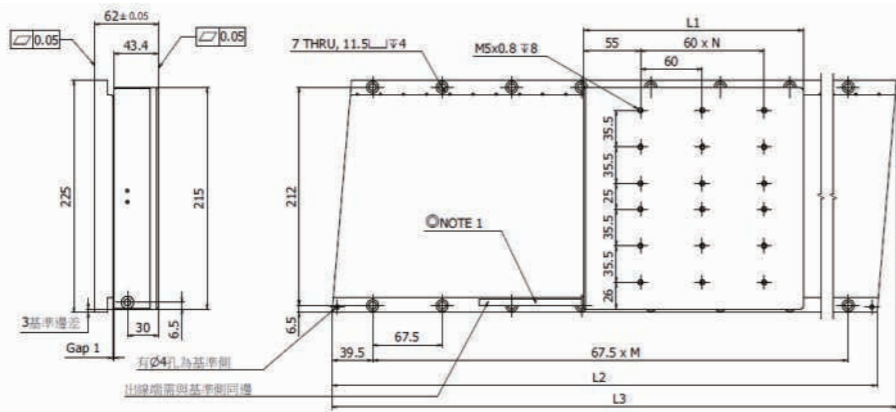


配套連接器The Mating Connector
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插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由Tyco電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

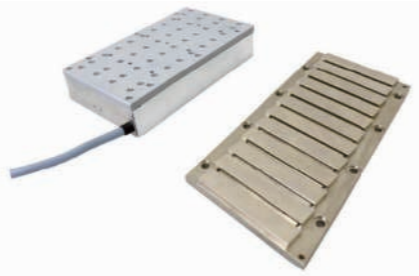
YA-200



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尺寸參數 Dimension Parameter

電機型號 Electric Motor Item No.		L1	N	L2	L3	M
動子型號 Coil Item No.	YA 200-C1	213	2	/	/	/
	YA 200-C2	393	5	/	/	/
	YA 200-C3	573	8	/	/	/
定子型號 Stator Item No.	YA 200-M135	/	/	135	288.9	1
	YA 200-M270	/	/	270	423.9	3
	YA 200-M405	/	/	405	693.9	5



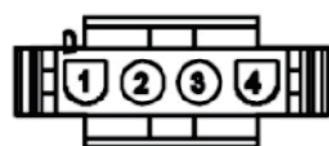
性能參數 Performance Parameter

動子型號 Coil Item No.	連續推力 Rated Thrust (N)	最大推力 Peak Thrust (N)	連續電流 Rated Current (Arms)	最大電流 Peak Current (Arms)	額定速度 Rated Speed (m/s)	最高速度 Peak Speed (m/s)	電阻 Resistance L to L (ohm)	電感 Inductance L to L (mH)	推力常數 Force const (N/Ams)	相互吸力 Attractive Force (N)	動子質量 Coil Mass (kg)	極距 Pole Pitch (mm)
YA 200-C1	1120	3360	11.8	35.4	2	3.1	0.38	15.5	94.5	6620	10.1	45
YA 200-C2	2240	6720	23.6	70.8	2	3.1	0.19	7.7	94.5	13040	20.7	45
YA 200-C3	3360	10080	35.4	106	2	3.1	0.13	5.1	94.5	19260	30.4	45

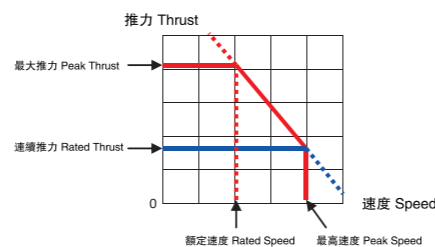
插針編號 Pin no.	信號源 Signal	綫纜編號 Wire no.
1	Phase U	1
2	Phase V	2
3	Phase W	3
4	FG	Green

Note 1

電機電纜規格 Specification of motor cable
外徑尺寸: 9mm Outer diameter (mm):9mm
偶發彎曲 Occasional flexing: 7.5 x outer diameter
固定安裝: Fixed installation: 4 x outer diameter



配套連接器 The Mating Connector
端蓋 Cap: 350780-1
插座 Socket: 350536-3
插頭 Plug: 350779-1
插針 Pin: 350218-3
由 Tyco 電子提供
By Tyco Electronics AMP K.K.



推力速度曲綫定義圖
Definition diagram of thrust speed curve

綫性馬達選型就是根據所需的峰值推力和持續推力選擇適合的馬達。
我們通過如下公式(1)和(2)來確定峰值推力和持續推力:

Sizing of linear motor is to select a motor according to the required peak force and Continuous force
A safety factor of at least 20~30% should be considered, especially if the friction and external opposing force are assumed to be zero.
We can determined the peak force and the Continuous force as the below formulas(1)and(2):

$$(1) F_{peak} = M * A + F_{friction} + F_{opp} \quad (F_{peak} = \text{Max}(F_{ar}, F_{cr}, F_{dr}, F_w))$$

F_{peak} - 峰值推力 (Peak force)

M - 質量 (Mass)

A - 加速度 (Acceleration)

$F_{friction}$ - 摩擦力 (Friction force)

F_{opp} - 外部反向力 (External opposing force)

$$(2) F_{con} = \sqrt{\frac{F_a^2 * T_a + F_c^2 * T_c + F_d^2 * T_d + F_w^2 * T_w}{T_a + T_c + T_d + T_w}}$$

F_{con} - 持續推力 (Continuous force)

F_a - 加速力 (Acceleration force)

T_a - 加速時長 (Acceleration time)

F_c - 恆速推力 (Cruise force)

T_c - 恆速時長 (Cruise time)

F_d - 減速力 (Deceleration force)

T_d - 減速時長 (Deceleration time)

F_w - 駐留力 (Dwell force)

T_w - 駐留時長 (Dwell time)

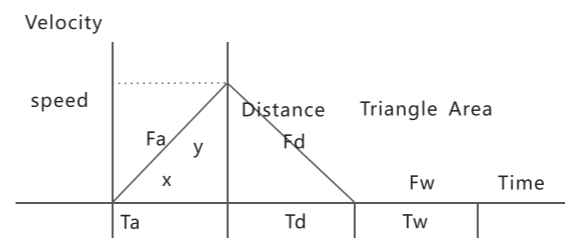
根據運動速度輪廓要求計算加速度(同理可計算減速度):

Calculate the Acceleration according to the designed motion profiles (Similar calculation for Deceleration):

(1) 短行程運動, 可採用三角形速度輪廓

Short distance, a Triangle-shape velocity profile is applied

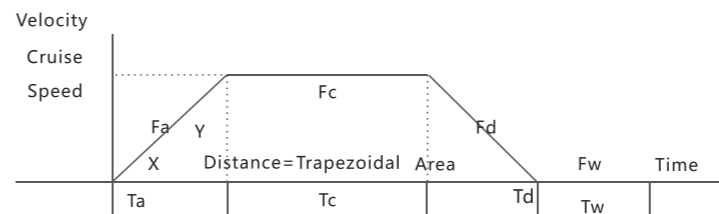
$$\text{Acceleration} = y / x = 4 * \text{Distance} / (T_a + T_d)^2$$



(2) 長行程運動, 可採用梯形速度輪廓

Long Travel distance, a Trapezoidal-Shape velocity profile is applied

$$\text{Acceleration} = y / x = \text{Cruise_Speed} / ((T_a + T_c + T_d) / \text{Cruise_Speed})$$



型號訂購碼 Code

PSA

14*14

1

P

平臺負載 Load

有效行程 Effective Stroke

光柵分辨率
Grating Resolution Ratio

驅動器
Driver

A:平臺負載為15kg, 加速度為1G的工況;
A:Platform load is 15kg, Working environment
of the acceleration speed is 1G.

14*14: 有效行程140*140mm
14*14: Effective Stroke140*140mm

0.1 : 0.1μ

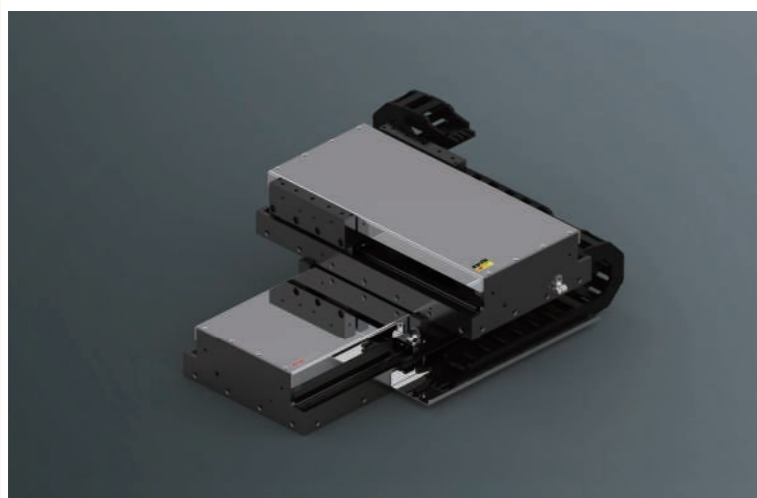
S: 高創 Servotronix

0.5 : 0.5μ

P: 松下 Panasonic

1 : 1μ

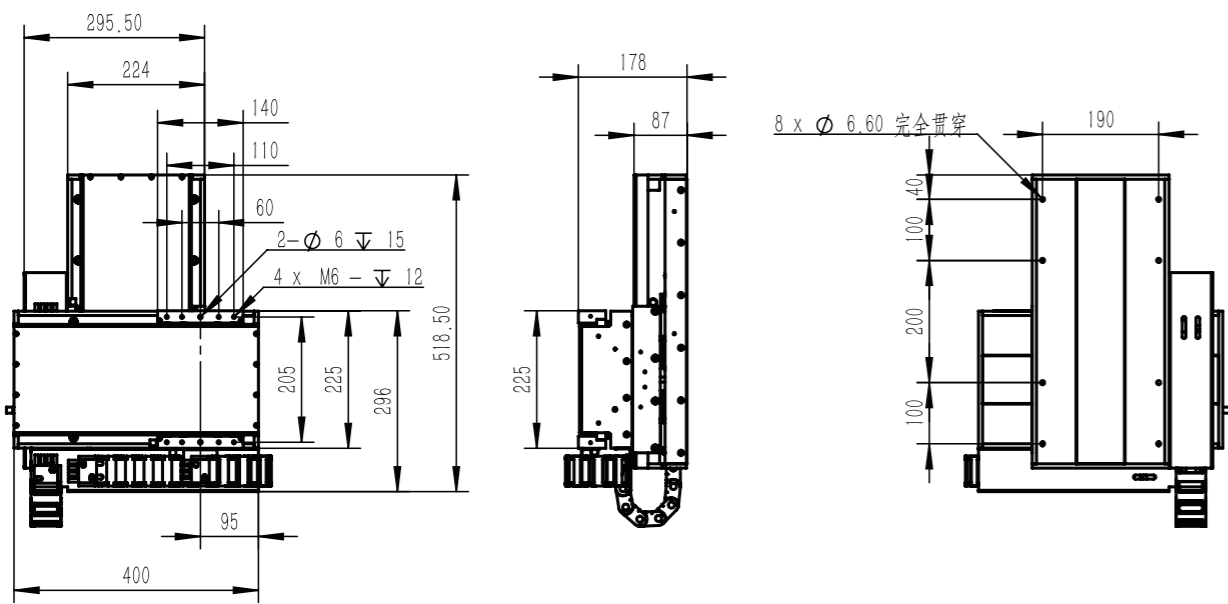
D: 臺達 Delta



參數 Parameter

負載 Load	15kg
平面度/直線度 Flatness/Straightness	±0.01mm/±0.005mm
速度 Speed	1m/s
加速度 Accelerated Speed	1G
行程 Stroke	140*140mm
重複定位精度 Repetitive Positioning Accuracy	±2 μ
絕對定位精度 Absolute Positioning Accuracy	≤5 μ

PSA14×14



型號訂購碼 Code

PSA

25*25

1

P

平臺負載 Load

有效行程 Effective Stroke

光柵分辨率
Grating Precision

驅動器
Driver

A:平臺負載為15kg, 加速度為1G的工況;
A:Platform load is 15kg, Working environment
of the acceleration speed is 1G.

25*25: 有效行程250*250mm
25*25: Effective Stroke250*250mm

0.1 : 0.1μ

S: 高創 Servotronix

0.5 : 0.5μ

P: 松下 Panasonic

1 : 1μ

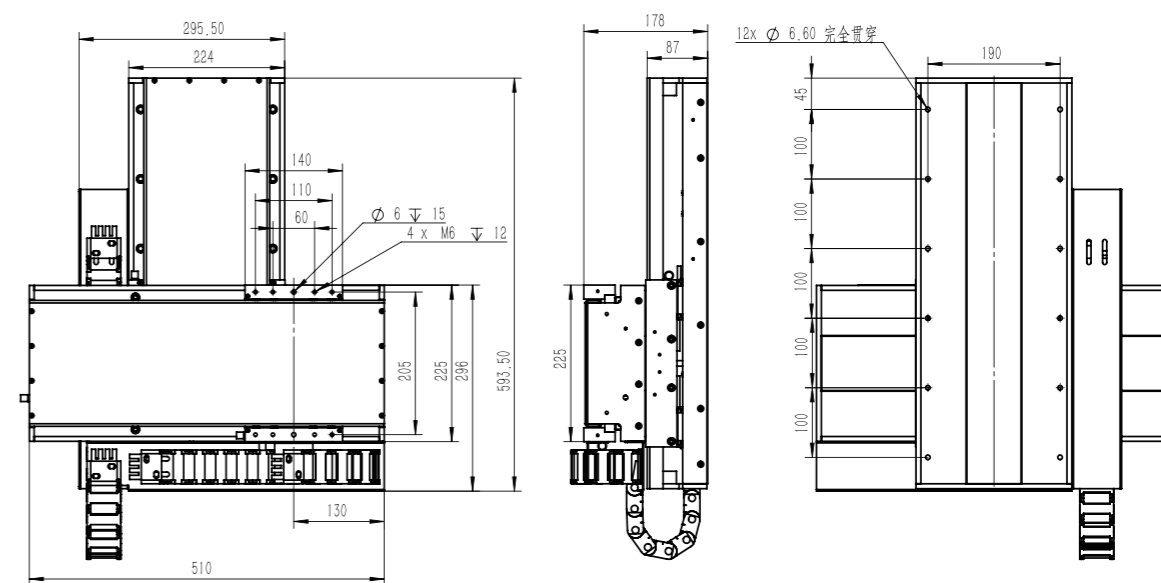
D: 臺達 Delta



參數 Parameter

負載 Load	15kg
平面度/直線度 Flatness/Straightness	±0.01mm/±0.005mm
速度 Speed	1m/s
加速度 Accelerated Speed	1G
行程 Stroke	250*250mm
重複定位精度 Repetitive Positioning Accuracy	±2 μ
絕對定位精度 Absolute Positioning Accuracy	≤5 μ

PSA25×25



ZL017
有線式式機性馬達驅動

ZL022
有線式式機性馬達驅動

WLO14
有線式式機性馬達驅動

WLO17
有線式式機性馬達驅動

WLO22
有線式式機性馬達驅動

YA Series
有線式式機性馬達驅動

PSA Series
精密平臺系列

ZL017
有線式式機性馬達驅動

ZL022
有線式式機性馬達驅動

WLO14
有線式式機性馬達驅動

WLO17
有線式式機性馬達驅動

WLO22
有線式式機性馬達驅動

YA Series
有線式式機性馬達驅動

PSA Series
精密平臺系列

型號訂購碼 Code

PSA

平臺負載 Load

A: 平臺負載為15kg, 加速度為1G的工况;
A: Platform load is 15kg, Working environment of the acceleration speed is 1G.

35*35

有效行程 Effective Stroke

35*35: 有效行程350*350mm
35*35: Effective Stroke 350*350mm

1

光柵分辨率
Grating Precision

0.1 : 0.1μ
0.5 : 0.5μ
1 : 1μ

P

驅動器
Driver

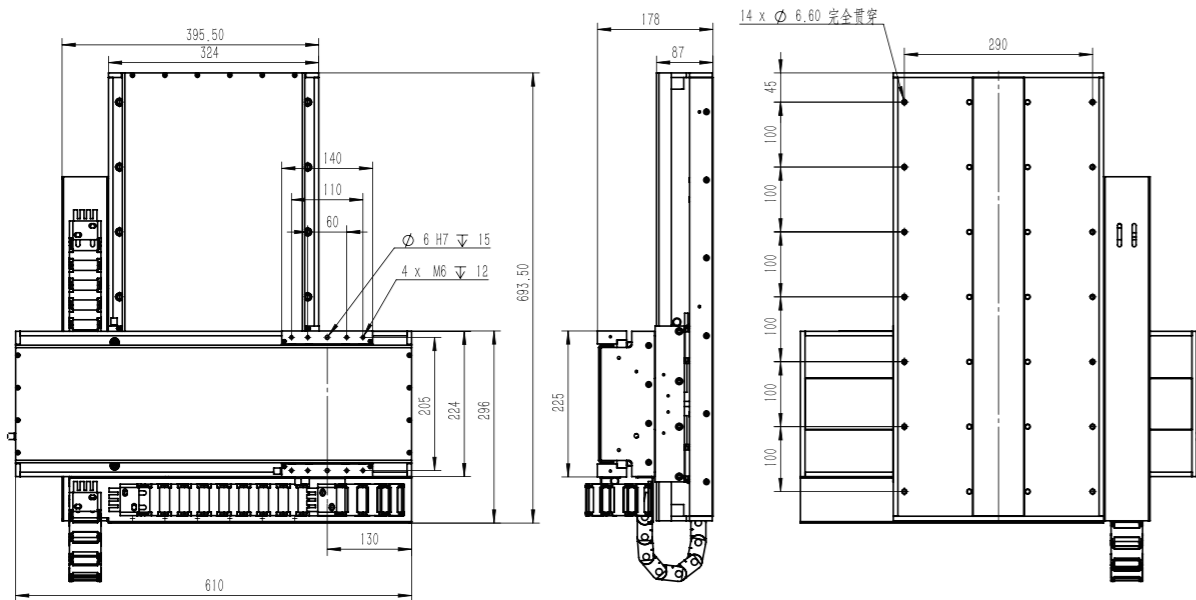
S: 高創 Servotronics
P: 松下 Panasonic
D: 臺達 Delta



參數 Parameter

負載 Load	15kg
平面度/直線度 Flatness/Straightness	±0.01mm/±0.005mm
速度 Speed	1m/s
加速度 Accelerated Speed	1G
行程 Stroke	350*350mm
重複定位精度 Repetitive Positioning Accuracy	±2 μ
絕對定位精度 Absolute Positioning Accuracy	≤5 μ

PSA35×35



→ Note

Blank area for notes with horizontal dashed lines.