直线模组
Mono stage

产品特点 Product feature:

- **一体化结构 Integrated structure:**

  高精度，体积小重量轻，设计安装容易，规格齐全，维护方便。
  High precision, small size, light weight, creative design, complete specifications, easy maintenance.

- **交期快，现货库存。**
  Fast delivery with inventory.

- **高精度High Precision:**

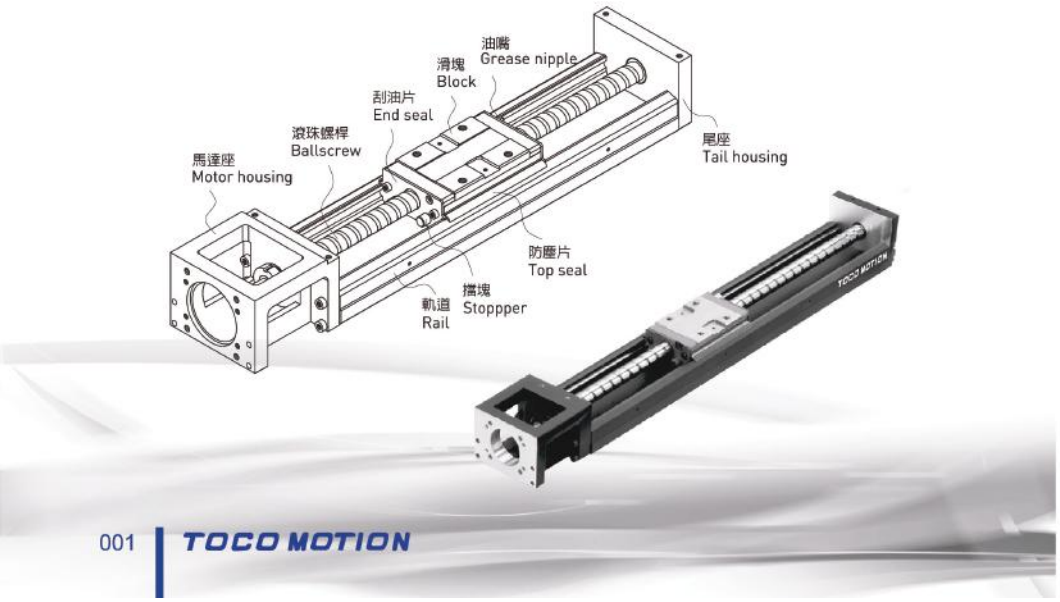
  普通级C精度: ± 0.01
  C: ± 0.01MM
  精密级P精度: ± 0.003
  P: ± 0.003MM

工業機器人 Single-Axis Robot
KT型 Series

TOCO MOTION KT工業機器人主要是透過模組化之設計，將滾珠螺桿和線性滑軌整合在一起，因此可提供具有高精度、快速安裝、選用、高剛性、體積小、節省空間等特性。
藉由高精度之滾珠螺桿做為傳動機構，以及配合最佳化設計之U型軌道做為導引機構，來確保精度與剛性之需求。

TheTOCO MOTION KT single-axis robot is driven by a ballscrew while a guideway slides on an optimized U-rail to achieve higher accuracy and greater stiffness.

- ○ **設計及安裝容易**
  Easy installation and maintenance
- ○ **體積小重量輕**
  Compact and lightweight
- ○ **高精度**
  High accuracy
- ○ **高剛性**
  High stiffness
- ○ **配備齊全**
  Complete line of accessories
- ○ **最適化設計**
  軌道結構由有限元素分析，得到最好剛性與重量，分析如右圖所示：
  An integrated system
  The structure of rail is analyzed by FEA to get the best rigidity and weight. The analysis results are shown as the right figures.

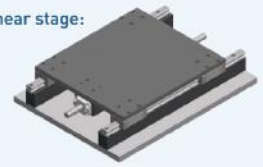


1.1.1 模組化 Modulization

KT工業機器人透過模組化之設計，整合滾珠螺桿和線性滑軌，可節省以往傳統致動平台需經過導引和驅動元件之選用、安裝校驗、體積大、佔空間等缺點。因此KT工業機器人可提供快速選用、安裝、體積精簡、高剛性等特性，可大幅減少客戶端的使用空間與時間。

The KT single-axis robot integrating a ballscrew and guideway forms a modularized product. The modularized design can help customers save time, cost and system inspection. Therefore, installation efficiency and a space-saving design are also promoted.

傳統線性平台
Traditional linear stage:
1平台
1 Table +
2線性滑軌
2 Guideways +
1滾珠螺桿
1 Ballscrew +
1基座
1 Base

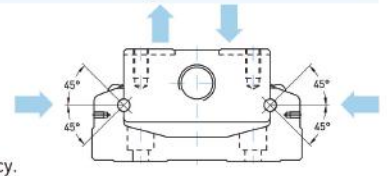


KT工業機器人
KTsingle-axis robot:
1滾珠螺桿
1 Ballscrew +
1導軌
1 Rail

1.1.2 四方向等負荷 Equivalent Load

軌道和滑塊之間的迴流系統，其滾珠與珠槽接觸面採用2列式歌德牙型之設計，具有45度接觸角之特性，該設計可使得KT工業機器人可承受四方向等負荷之能力。

The gothic arch contact design sustains load from all directions and offers high rigidity and accuracy.



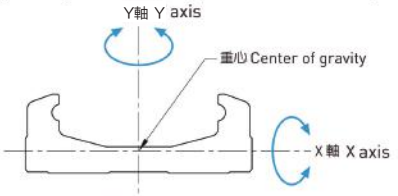
1.1.3 高剛性 High Stiffness

軌道構型採用U型斷面，並透過有限元素分析軟體的設計，在體積與剛性上取得平衡點，使得軌道具有高剛性、體積精簡、重量輕等特性。

Using finite element analysis on the U-shaped cross section allows the volume and rigidity to be made balanced, therefore, a high rigidity rail, compact design and a light weight design are also accomplished simultaneously.

慣性矩Moment of inertia **單位Unit:mm⁴**

型號 Model no.	I_x	I_Y
☆ KT30	7.554×10^2	12.726×10^3
☆ KT40	3.533×10^3	5.317×10^4
KT50	9.6×10^3	1.34×10^5
KT60	2.056×10^4	2.802×10^5
☆ KT80	6.711×10^4	8.444×10^5
KT86	7.445×10^4	1.134×10^6
KT100	1.296×10^5	2.035×10^6
KT130	2.546×10^5	5.073×10^6



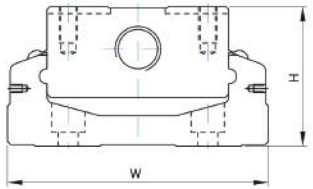
I_X：延著X軸之慣性矩
I_X : Moment of inertia computed about X axis
I_Y延著Y軸之慣性矩
I_Y : Moment of inertia computed about Y axis

1.1.4 規格多樣化 Various Specification

TOCO MOTION 針對各種不同的使用需求，開發出下列多種KT工業機器人，提供客戶依使用需求、空間、負載來選用。

KT single-axis robots of various specifications are developed, providing customers with different choices relating to space and loading conditions.

型號 Model no.	W	H
☆ KT30	30	15
☆ KT40	40	20
KT50	50	26
KT60	60	33
☆ KT80	80	45
KT86	86	46
KT100	100	55
KT130	130	65

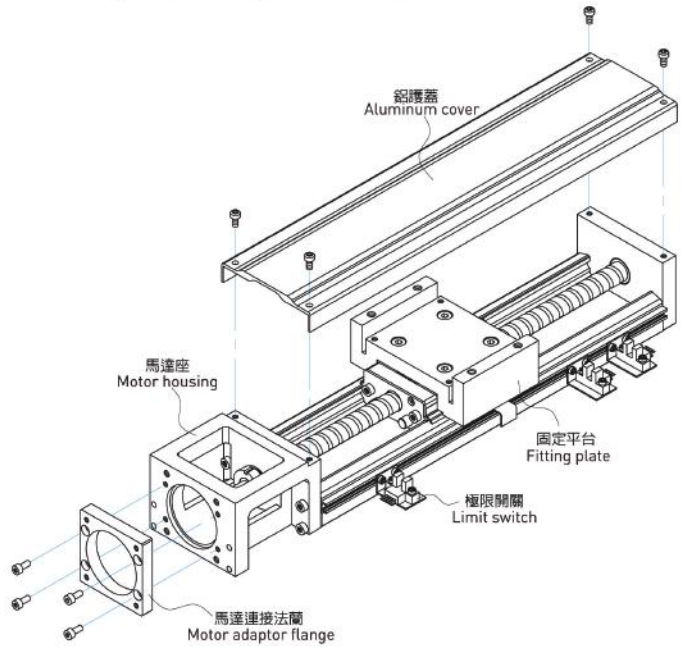


備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

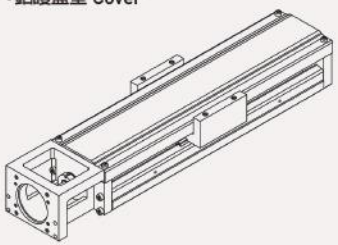
1.2 選購配件 Accessories

為了因應各種的使用需求，KT工業機器人可另外選購鋁護蓋、伸縮護套、馬達連接法蘭、極限開關。
Accessories of KT single-axis robot are also supported for specific demands, such as an aluminum cover, bellows, motor adaptor flange and limit switchs.

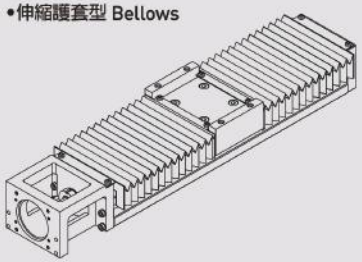
- **鋁護蓋、伸縮護套：可防止異物、雜質進入KT工業機器人之內而影響其使用壽命、精度、順暢度**
  Aluminum cover and bellow: contamination protection
- **馬達連接法蘭：可將各種不同馬達鎖固於KT工業機器人之上**
  Motor adaptor flange: connection for different types of motors
- **極限開關：提供滑塊定位、啓動原點以及防止滑塊超過行程之安全機制**
  Limit switchs: starting point, positioning and other safety matters



•鋁護蓋型 Cover



•伸縮護套型 Bellows

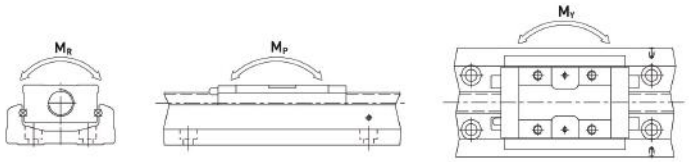


1.3 產品型號 Model Number of KT Series

KT 60 10 P E - 400 E A 2 E - F0 C S0 M

- KT系列 KT Series
- 尺寸：Nominal Width: 50, 60, 86, 100, 130
- 滾珠螺桿(BS)導程：Ballscrew Lead
  - KT 50：2
  - KT 60：5, 10
  - KT 86：10, 20
  - KT 100：20
  - KT 130：25
- 精度等級：Accuracy Grade: P：精密級，C：一般級 P: Precision, C: Normal
- E：滾珠螺桿特殊加工 E: Ballscrew Special Order
  無記號：滾珠螺桿標準型 None: Normal Type
- 軌道長度 (mm) Rail Length (mm)
  - KT50：150, 200, 250, 300
  - KT60：150, 200, 300, 400, 500, 600
  - KT86：340, 440, 540, 640, 740, 940
  - KT100：980, 1080, 1180, 1280, 1380
  - KT130：980, 1180, 1380, 1680
- E：軌道特殊加工 E: Rail Special Order 無記號：軌道標準型 None: Normal Type
- 滑座型式：Block Type: A：標準型 A: Normal S：輕載型 S: Short
- 滑座數量：1, 2 Number of Blocks: 1, 2
- E：滑座特殊加工 E: Block Special Order 無記號：滑座標準型 None: Normal Type
- 馬達連接法蘭 Motor Adaptor Flange: FE：特殊加工 FE：Flange Special Order
- 無記號：無 None: No
- C：鋁護蓋 C: Aluminum Cover B：伸縮護套 B: Bellows 無記號：無護蓋 None: Normal Type
- 包含極限開關：Limit Switch S0：只有極限軌道 S0: Switch Rail Only S1 : TOCO MOTION SX671 S2 : TOCO MOTION SX674 (标配)
- M：附馬達 無記號：無 None: No

1.4 負載規格 Specifications



	型號 Model No.		滾珠螺桿 Ballscrew				線性滑軌 Guideway															
			公稱外徑 Nominal Diameter	導程 Lead	基本動額定負荷(N) Basic Dynamic Load	基本靜額定負荷(N) Basic Static Load	基本動額定負荷(N) Basic Dynamic Load Rating		基本靜額定負荷(N) Basic Static Load Rating		容許靜力矩 Static Rated Moment											
											俯仰 M_P (N-m) Allowable Static Moment M_P (N-m) (pitching)				偏擺 M_Y (N-m) Allowable Static Moment M_Y (N-m) (yawing)				滾動 M_R (N-m) Allowable Static Moment M_R(N-m) (rolling)			
							滑座 Block A	滑座 Block S	滑座 Block A	滑座 Block S	滑座 Block A1	滑座 Block A2	滑座 Block S1	滑座 Block S2	滑座 Block A1	滑座 Block A2	滑座 Block S1	滑座 Block S2	滑座 Block A1	滑座 Block A2	滑座 Block S1	滑座 Block S2
			(mm)	(mm)																		
☆	KT3001	精密級 Precision	6	1	647	1088	2210	-	3510	-	14	73	-	-	14	73	-	-	41	82	-	-
		一般級 Normal			618	1079																
☆	KT4001	精密級 Precision	8	1	735	1538	3920	-	6468	-	33	182	-	-	33	182	-	-	81	162	-	-
		一般級 Normal			676	1284																
	KT5002	精密級 Precision	8	2	2136	3489	8007	-	12916	-	116	545	-	-	116	545	-	-	222	444	-	-
		一般級 Normal			1813	2910																
	KT6005	精密級 Precision	12	5	3744	6243	13230	7173	21462	11574	152	760	72	367	152	760	72	367	419	838	241	482
		一般級 Normal			3377	5625																
	KT6010	精密級 Precision	12	10	2410	3743	13230	7173	21462	11574	152	760	72	367	152	760	72	367	419	838	241	482
		一般級 Normal			2107	3234																
☆	KT8010	精密級 Precision	15	10	7144	12642	31458	-	50764	-	622	3050	-	-	622	3050	-	-	1433	2866	-	-
		一般級 Normal			6429	11387																
	KT8020	精密級 Precision	15	20	4645	7655	31458	-	50764	-	622	3050	-	-	622	3050	-	-	1433	2866	-	-
		一般級 Normal			4175	6889																
	KT8610	精密級 Precision	15	10	7144	12642	31458	21051	50764	29475	622	3050	166	1309	622	3050	166	1309	1507	3014	847	1694
		一般級 Normal			6429	11387																
	KT8620	精密級 Precision	15	20	4645	7655	31458	21051	50764	29475	622	3050	166	1309	622	3050	166	1309	1507	3014	847	1694
		一般級 Normal			4175	6889																
	KT10020	精密級 Precision	20	20	7046	12544	39200	-	63406	-	960	4763	-	-	960	4763	-	-	2205	4410	-	-
		一般級 Normal			4782	9163																
	KT13025	精密級 Precision	25	25	7897	15931	48101	-	84829		1536	7350	-	-	1536	7350	-	-	3885	7770	-	-
		一般級 Normal			7092	14352																

備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

1.5 精度等級 Accuracy Grade

單位Unit : mm

	型號 Model	軌道長度 Rail Length	定位重現性 Repeatability		定位精度 Accuracy		行走平行度 Running Parallelism		最大啓動扭力 (N-cm) Starting Torque(N-cm)	
			精密級 Precision	一般級 Normal	精密級 Precision	一般級 Normal	精密級 Precision	一般級 Normal	精密級 Precision	一般級 Normal
☆	KT30	70	±0.003	±0.004	0.020	0.040	0.010	0.020	1.2	0.8
		100								
		125								
		150								
		175								
		200								
☆	KT40	100	±0.003	±0.01	0.020	-	0.010	-	1.2	0.8
		150								
		200								
	KT50	150	±0.003	±0.01	0.020	-	0.010	-	4	2
		200								
		250								
		300								
	KT60	150	±0.003	±0.01	0.020	-	0.010	-	15	7
		200								
		300								
		400								
		500	±0.003	±0.01	0.025	-	0.015	-	15	7
		600								
☆	KT80	340	±0.003	±0.01	0.025	-	0.015	-	15	10
		440								
		540								
		640								
		740	±0.003	±0.01	0.030	-	0.020	-	17	10
		940	±0.003	±0.01	0.040	-	0.030	-	25	10
	KT86	340	±0.003	±0.01	0.025	-	0.015	-	15	10
		440								
		540								
		640								
		740	±0.003	±0.01	0.030	-	0.020	-	17	10
		940	±0.003	±0.01	0.040	-	0.030	-	25	10
	KT100	980	±0.005	±0.01	0.035	-	0.025	-	17	12
		1080								
		1180	±0.005	±0.01	0.040	-	0.03	-	20	12
		1280	±0.005	±0.01	0.045	-	0.035	-	23	15
		1380			0.05		0.04		25	
	KT130	980	±0.005	±0.01	0.035	-	0.025	-	25	15
		1180			0.04		0.03		25	15
		1380								
		1680	±0.007	±0.012	0.05		0.04		27	18

備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

1.6 最大速度 Maximum Speed Limit

型號 Model	滾珠螺桿導程 Ballscrew Lead (mm)	軌道長度L2 Rail Length L2 (mm)	速度 (mm/sec) Speed (mm/sec) 精密級 Precision	一般級 Normal
☆ KT30	01	75	160	160
		100	160	160
		125	160	160
		150	160	160
		175	160	160
		200	160	160
☆ KT40	01	100	190	190
		150	190	190
		200	190	190
KT50	02	150	270	270
		200	270	270
		250	270	270
		300	270	270
KT60	05	150	550	390
		200	550	390
		300	550	390
		400	550	390
		500	550	390
		600	340	340
	10	150	1100	790
		200	1100	790
		300	1100	790
		400	1100	790
		500	1100	790
		600	670	670
☆ KT80	10	340	740	520
		440	740	520
		540	740	520
		640	740	520
		740	740	520
		940	610	430
	20	340	1480	1050
		440	1480	1050
		540	1480	1050
		640	1480	1050
		740	1480	1050
		940	1220	870
KT86	10	340	740	520
		440	740	520
		540	740	520
		640	740	520
		740	740	520
		940	610	430
	20	340	1480	1050
		440	1480	1050
		540	1480	1050
		640	1480	1050
		740	1480	1050
		940	1220	870
KT100	20	980	1120	800
		1080	980	800
		1180	750	750
		1280	630	630
		1380	530	530
KT130	25	980	1120	800
		1180	1120	800
		1380	830	800
		1680	550	550

備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

1.7 壽命的計算 Life Calculations

1.7.1 壽命 Service Life

當線性滑軌承受負荷並作運動時，珠道表面與鋼珠因不斷地受到循環應力的作用，一但到達滾動疲勞的臨界值，接觸面就會開始產生疲勞破損，並在部份表面發生魚鱗狀薄片的剝落現象，此種現象叫做表面剝離。壽命的定義即為珠道表面及鋼珠因材料疲勞而產生表面剝離時為止的總運行距離。
Under repeated stress between the raceway and the rolling elements, pitting and flaking will occur as it reaches fatigue failure. The service life of the KT single-axis robot is defined as the distanced traveled before any failure of the raceway or rolling elements appear.

1.7.2 額定壽命 Nominal Life (L)

工業機器人的壽命，具有很大的分散性，即使同一批製造的產品，在相同的運動狀態下使用，壽命也會所有不同。因此額定壽命即用來定義KT模組在操作過程中壽命的基準。
The service life varies greatly even when the KT units are manufactured in the same way or operated under the same conditions. For this reason, nominal life is used as the criteria for predicting the service life of a KT unit.

1.7.3KT模組之額定壽命計算 Nominal Life Calculation

工業機器人之壽命計算可分為兩部分進行，包括線性滑軌與滾珠螺桿，並以計算過程中數值較小者為該模組之額定壽命。其計算式分別如下：
The calculating formulas are divided into two parts, guideway and ballscrew. The smaller value of the two would be the recommended nominal life of the KT unit.
Nominal life formulas for both the guideway and ballscrew depend on several parameters and are shown below.

線性滑軌 Guideway

$$L = \left(\frac{f_t}{f_w} \cdot \frac{C}{P_n} \right)^3 \times 50\ km$$

L : 額定壽命 (公里km) Life Rating (km)
f_t : 接觸係數 (參考表格1) Contact Coefficient (ref. Table 1)
f_w : 負荷係數 (參考表格2) Loading Coefficient (ref. Table 2)
C : 基本動額定負荷(N) Basic Dynamic Load Rating (N)
P_n : 工作負荷(N) Calculated Loading (N)

表格 Table 1

滑座型式 Block Type	接觸係數 f_t Contact Coefficient
A1, S1	1.0
A2, S2	0.81

表格 Table 2

工作環境 Operating Condition		負荷係數 f_w Loading Coefficient f_w
負荷狀況 Thrust and Vibration	速度(V) Velocity (V)	
無衝擊力且平滑 No Thrust	低速V<15m/min	1.0 ~ 1.5
普通負荷力 Low Vibration	中速15<V<60m/min	1.5 ~ 2.0
受衝擊力及振動 High Vibration	高速V>60m/min	2.0 ~ 3.5

滾珠螺桿及軸承 Ballscrew and Bearing

$$L = \left(\frac{1}{f_w} \cdot \frac{C_a}{P_{a,n}} \right)^3 \times 10^6\ rev$$

L : 額定壽命 (旋轉數) Life Rating (rev.)
f_w : 負荷係數 (參考表格2) Loading Coefficient (ref. Table 2)
C_a : 基本動額定負荷(N) Basic Dynamic Load Rating (N)
$P_{a,n}$: 軸向工作負荷(N) Axial Loading (N)

1.8 潤滑 Lubrication

KT工業機器人若沒有適當的給予潤滑，滾動部分的摩擦就會增加，長期的使用下來會成為縮短壽命的主要原因。
潤滑劑便提供下列幾種作用：
Insufficient lubrication of the guideway would lead to a reduction of the service life.

- 減少滾動部分的摩擦、防止燒傷並降低磨損。
  Reducing rolling friction and avoiding abrasion
- 在滾動的面與面之間形成油膜，可延長滾動疲勞壽命。
  Providing a lubricating film and extending the service life
- 防止生鏽。
  Anti-rusting

1.8.1 潤滑油脂 Lubricating Grease

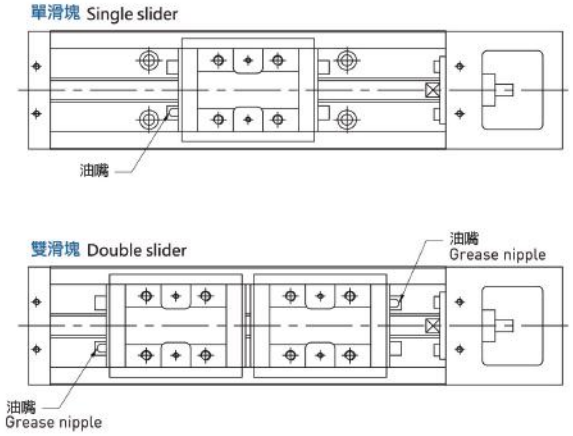
潤滑油脂雖然較不易流失，但為避免因潤滑損耗造成潤滑不足，建議客戶使用距離達100km時，應再補充潤滑油脂一次，此時可用注油槍藉由滑塊上所附油嘴，將油脂打入滑塊中。潤滑油脂適用於速度不超過60m/min，且對冷卻作用無要求的場合。

Re-lubricating the KT single-axis robot every 100km is recommened. Generally, grease is applied for speeds under 60 m/min. For operating speeds over 60 m/min, a grease with a higher viscosity should be used.

$$T = \frac{100 \times 1000}{V_e \times 60}$$

T : 注油頻率 (hour)
Lubricating frequency (hrs)
Ve : 速度 (m/min)
Speed (m/min)

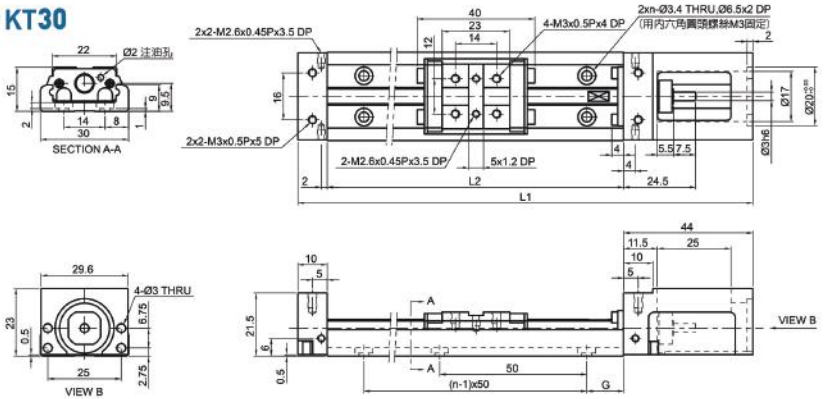
1.8.2 油嘴配置圖 Grease Nipple



1.9 KT產品系列 Series

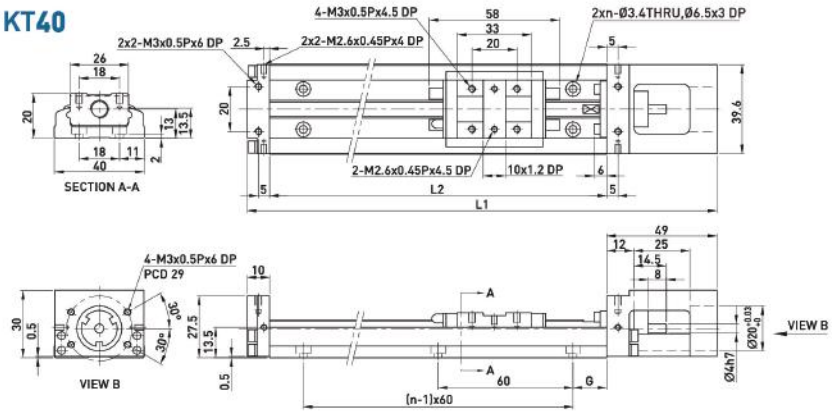
1.9.1 不含護蓋 Without cover

☆KT30



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	n	重量 Mass (kg) A1滑座 Block	A2滑座 Block
75	129	31	-	12.5	2	0.2	-
100	154	56	-	25	2	0.23	-
125	179	81	45	12.5	3	0.26	0.3
150	204	106	70	25	3	0.29	0.33
175	229	131	95	12.5	4	0.32	0.36
200	254	156	120	25	4	0.35	0.39

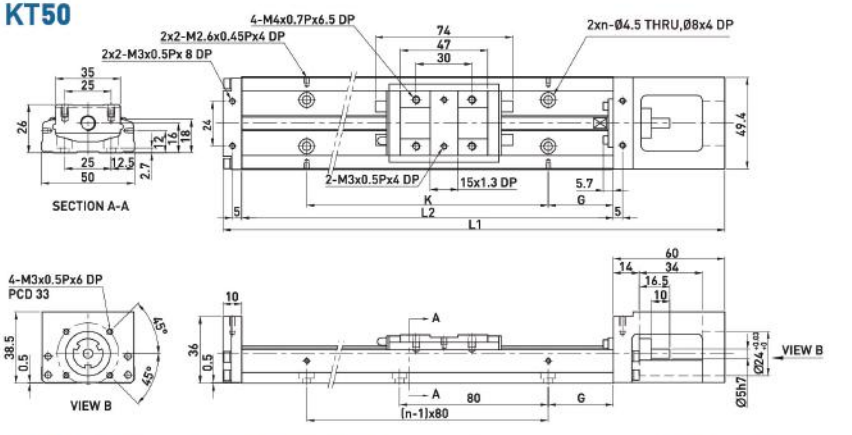
☆KT40



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	n	重量 Mass (kg) A1滑座 Block	A2滑座 Block
100	159	36	-	20	2	0.48	-
150	209	86	34	15	3	0.6	0.67
200	259	136	84	40	3	0.72	0.79

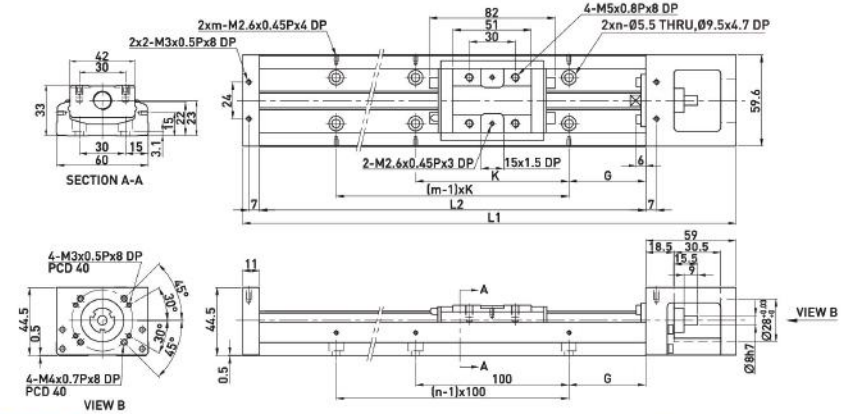
備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

KT50



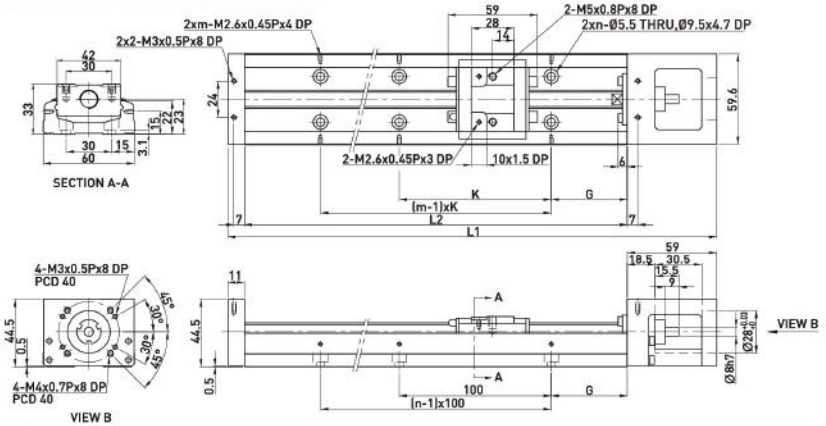
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	K (mm)	n	重量 Mass (kg) A1滑座 Block	A2滑座 Block
150	220	70	-	35	80	2	1	-
200	270	120	55	20	160	3	1.2	1.4
250	320	170	105	45	160	3	1.4	1.6
300	370	220	155	30	240	4	1.6	1.8

KT60 (標準型)(Standard)



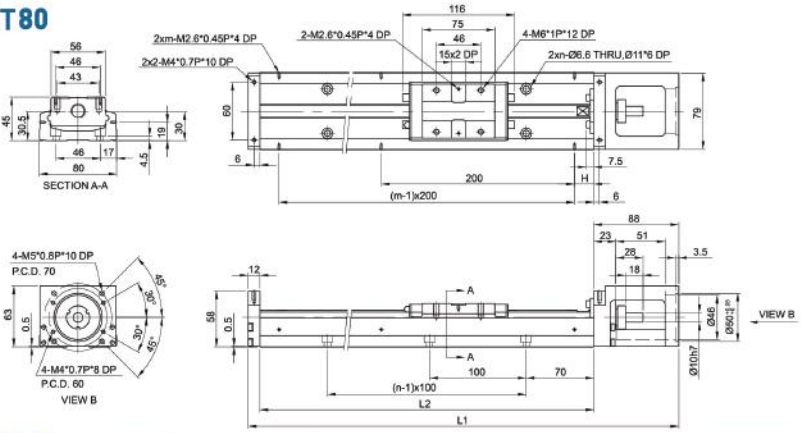
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	K (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
150	220	60	-	25	100	2	2	1.5	-
200	270	110	-	50	100	2	2	1.8	-
300	370	210	135	50	200	3	2	2.4	2.7
400	470	310	235	50	100	4	4	3	3.3
500	570	410	335	50	200	5	3	3.6	3.9
600	670	510	435	50	100	6	6	4.2	4.6

KT60 (輕載型)(Light Duty)



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) S1滑座 Block	S2滑座 Block	G (mm)	K (mm)	n	m	重量 Mass (kg) S1滑座 Block	S2滑座 Block
150	220	85	34	25	100	2	2	1.4	1.6
200	270	135	84	50	100	2	2	1.7	1.9
300	370	235	184	50	200	3	2	2.3	2.5
400	470	335	284	50	100	4	4	2.9	3.1
500	570	435	384	50	200	5	3	3.5	3.7
600	670	535	484	50	100	6	6	4.1	4.3

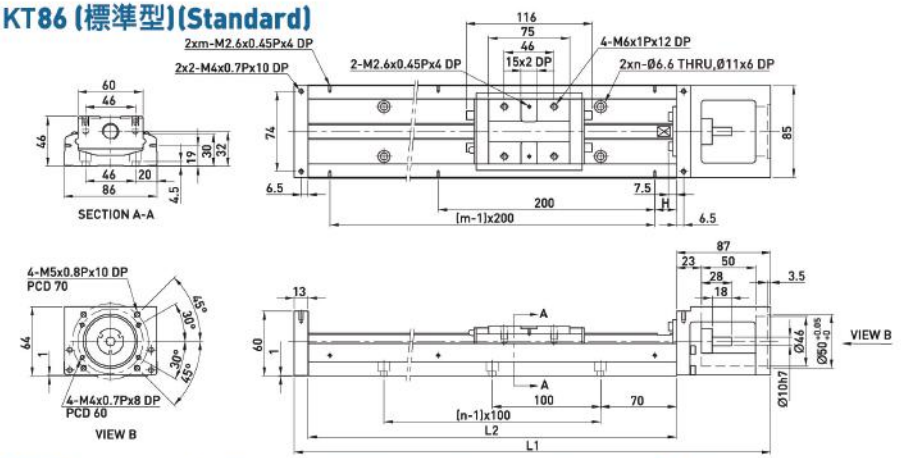
☆KT80



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) S1滑座 Block	S2滑座 Block	H (mm)	n	mm	重量 Mass (kg) S1滑座 Block	S2滑座 Block
340	440	216.5	108.5	70	3	2	5.3	6
440	540	316.5	208.5	20	4	3	6.5	7.2
540	640	416.5	308.5	70	5	3	7.6	8.3
640	740	516.5	408.5	20	6	4	8.8	9.5
740	840	616.5	508.5	70	7	4	10	10.7
940	1040	816.5	708.5	70	9	5	12.4	13.1

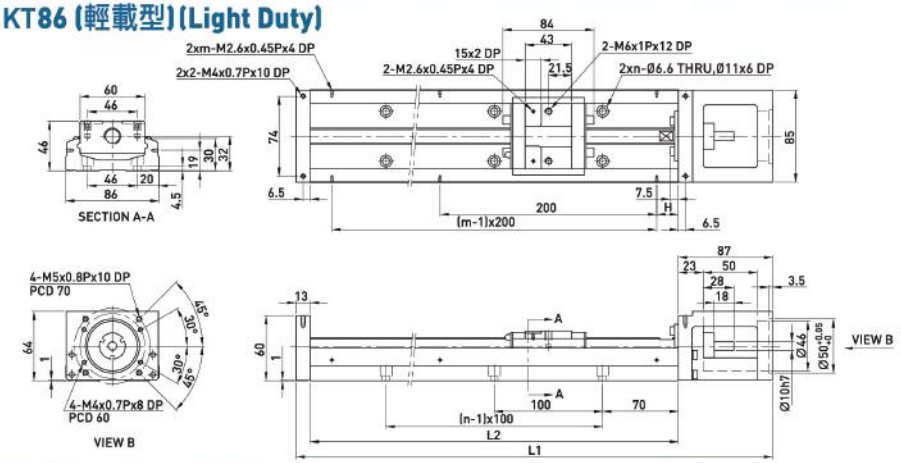
備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

KT86 (標準型)(Standard)



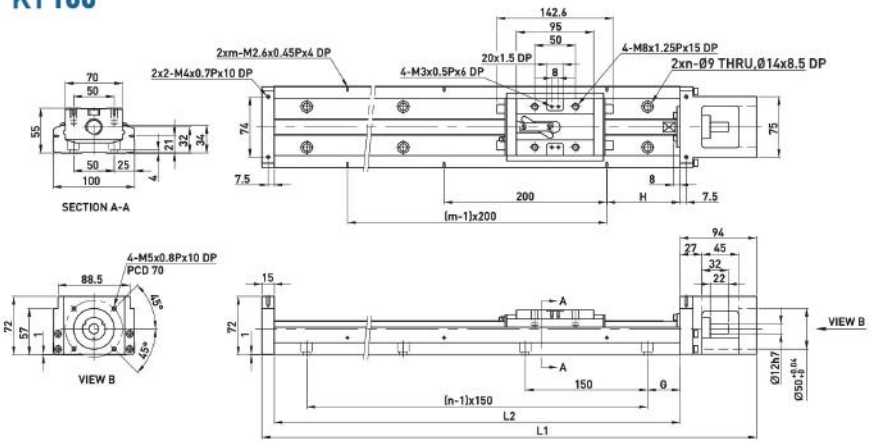
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	H (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
340	440	210	100	70	3	2	5.7	6.5
440	540	310	200	20	4	3	6.9	7.7
540	640	410	300	70	5	3	8.0	8.8
640	740	510	400	20	6	4	9.2	10.0
740	840	610	500	70	7	4	10.4	11.2
940	1040	810	700	70	9	5	11.6	12.4

KT86 (輕載型)(Light Duty)



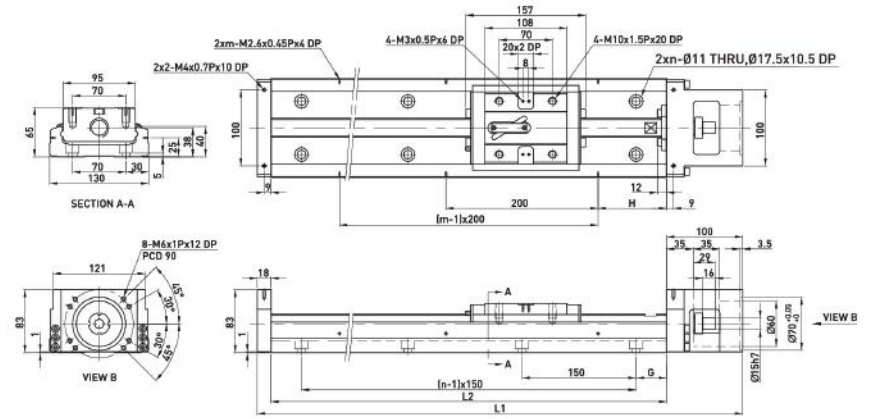
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) S1滑座 Block	S2滑座 Block	H (mm)	n	m	重量 Mass (kg) S1滑座 Block	S2滑座 Block
340	440	246	170	70	3	2	5.4	5.9
440	540	346	270	20	4	3	6.6	7.1
540	640	446	370	70	5	3	7.7	8.2
640	740	546	470	20	6	4	8.9	9.4
740	840	646	570	70	7	4	10.1	10.6
940	1040	846	770	70	9	5	11.3	11.8

KT100



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	H (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
980	1089	828	700	40	90	7	5	18.6	20.3
1080	1189	928	800	15	40	8	6	20.3	22.0
1180	1289	1028	900	65	90	8	6	22.0	23.7
1280	1389	1128	1000	40	40	9	7	23.6	25.3
1380	1489	1228	1100	15	90	10	7	25.3	27.0

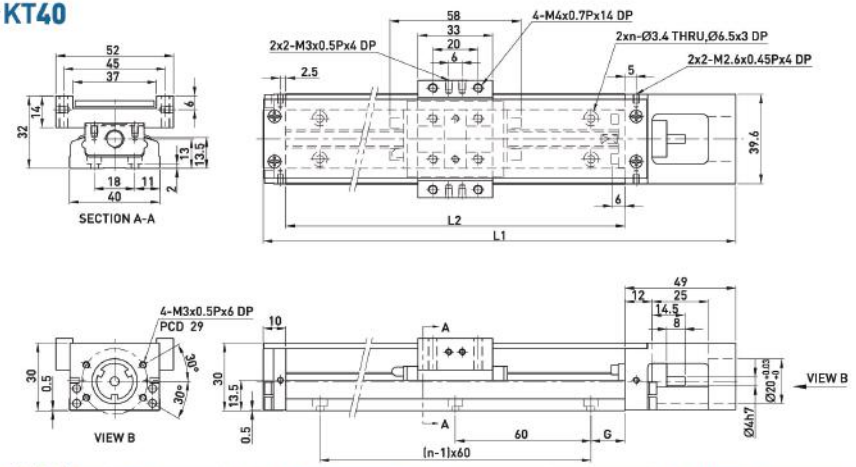
KT130



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	H (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
980	1098	811	659	40	90	7	5	29.4	32.3
1180	1298	1011	859	65	90	8	6	34.3	37.2
1380	1498	1211	1059	90	90	9	7	39.2	42.1
1680	1798	1511	1359	90	40	11	9	46.5	49.4

1.9.2 含護蓋 With cover

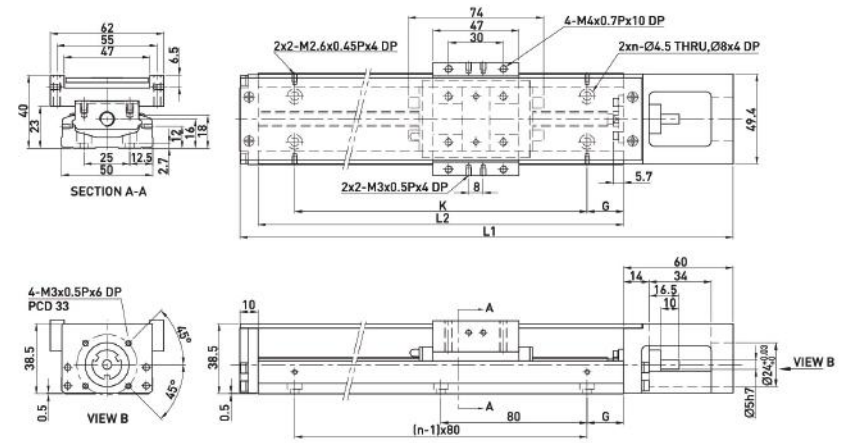
☆KT40



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	n	重量 Mass (kg) S1滑座 Block	S2滑座 Block
100	159	36	-	20	2	0.55	-
150	209	86	34	15	3	0.68	0.76
200	259	136	84	40	3	0.82	0.89

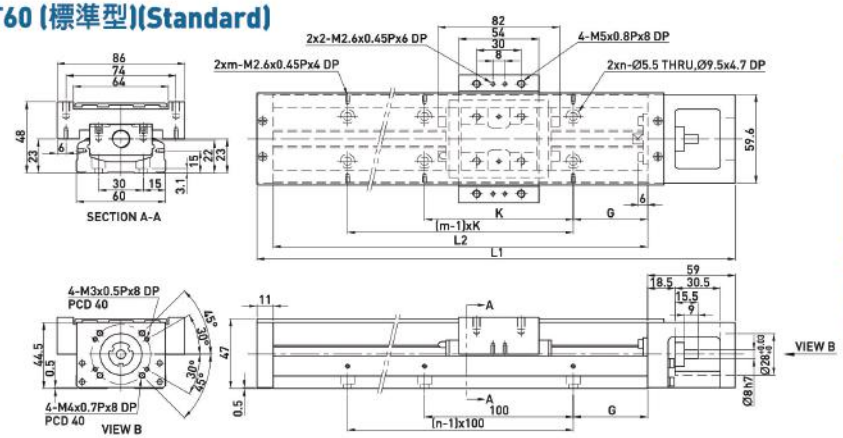
備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

KT50



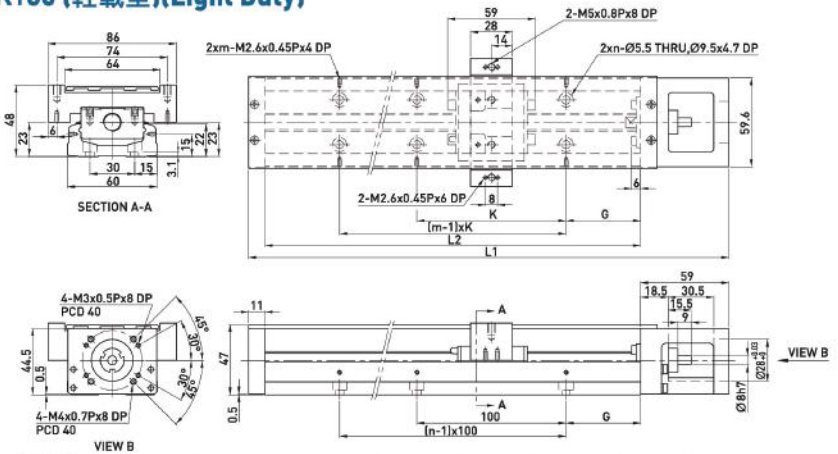
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	K (mm)	n	重量 Mass (kg) S1滑座 Block	S2滑座 Block
150	220	70	-	35	80	2	1.1	-
200	270	120	55	20	160	3	1.3	1.5
250	320	170	105	45	160	3	1.6	1.8
300	370	220	155	30	240	4	1.8	2.0

KT60 (標準型)(Standard)



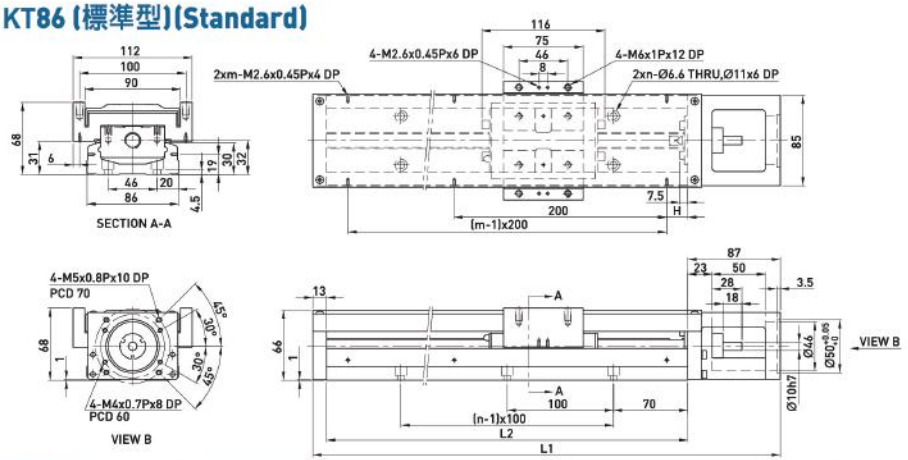
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	K (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
150	220	60	-	25	100	2	2	1.7	-
200	270	110	-	50	100	2	2	2.1	-
300	370	210	135	50	200	3	2	2.7	3.0
400	470	310	235	50	100	4	4	3.3	3.6
500	570	410	335	50	200	5	3	3.9	4.2
600	670	510	435	50	100	6	6	4.6	5.0

KT60 (輕載型)(Light Duty)



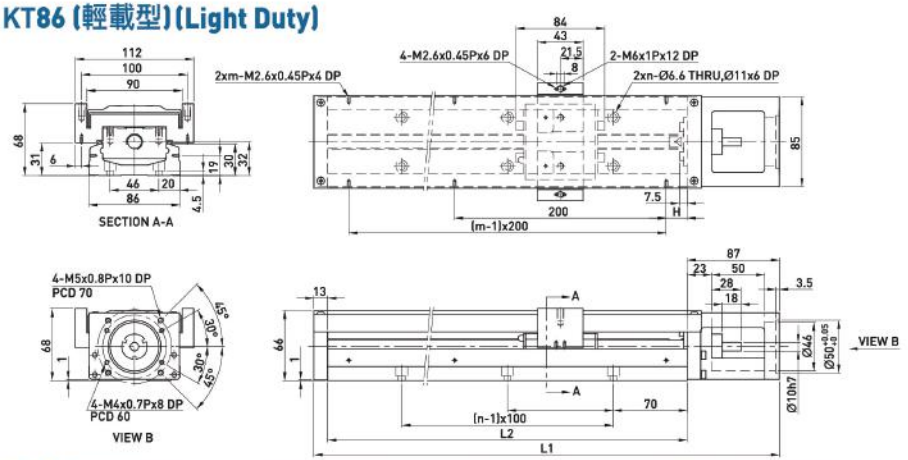
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) S1滑座 Block	S2滑座 Block	G (mm)	K (mm)	n	m	重量 Mass (kg) S1滑座 Block	S2滑座 Block
150	220	85	34	25	100	2	2	1.6	1.8
200	270	135	84	50	100	2	2	1.9	2.1
300	370	235	184	50	200	3	2	2.5	2.7
400	470	335	284	50	100	4	4	3.1	3.3
500	570	435	384	50	200	5	3	3.7	3.9
600	670	535	484	50	100	6	6	4.4	4.6

KT86 (標準型)(Standard)



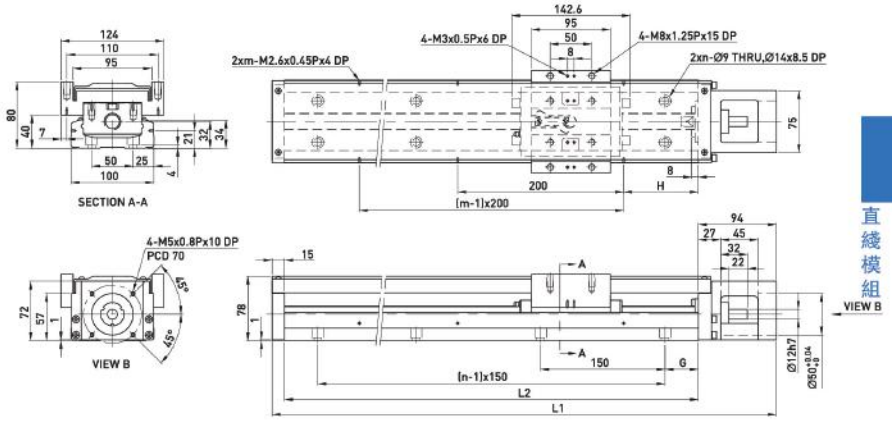
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	H (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
340	440	210	100	70	3	2	6.5	7.3
440	540	310	200	20	4	3	7.8	8.6
540	640	410	300	70	5	3	9.0	9.8
640	740	510	400	20	6	4	10.3	11.3
740	840	610	500	70	7	4	11.6	12.4
940	1040	810	700	70	9	5	13.0	13.8

KT86 (輕載型)(Light Duty)



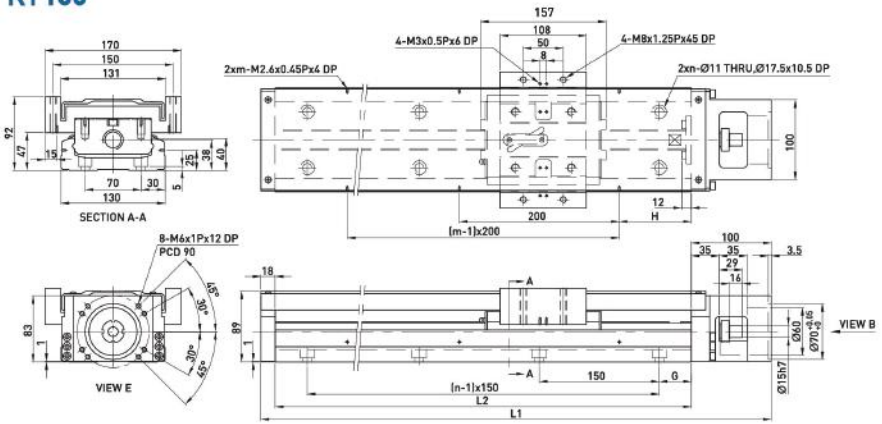
軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) S1滑座 Block	S2滑座 Block	H (mm)	n	m	重量 Mass (kg) S1滑座 Block	S2滑座 Block
340	440	246	170	70	3	2	6.3	7.1
440	540	346	270	20	4	3	7.6	8.4
540	640	446	370	70	5	3	8.8	9.6
640	740	546	470	20	6	4	10.1	11.1
740	840	646	570	70	7	4	11.4	12.2
940	1040	846	770	70	9	5	12.8	13.6

KT100



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	H (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
980	1089	828	700	40	90	7	5	20.4	22.1
1080	1189	928	800	15	40	8	6	22.2	23.9
1180	1289	1028	900	65	90	8	6	24.0	25.7
1280	1389	1128	1000	40	40	9	7	25.7	27.4
1380	1489	1228	1100	15	90	10	7	27.5	29.2

KT130



軌道長度 L2 (mm) Rail Length	全長 L1 (mm) Total Length	最大行程 Maximum Stroke (mm) A1滑座 Block	A2滑座 Block	G (mm)	H (mm)	n	m	重量 Mass (kg) A1滑座 Block	A2滑座 Block
980	1098	811	659	40	90	7	5	31.9	35.9
1180	1298	1011	859	65	90	8	6	37.1	41.1
1380	1498	1211	1059	90	90	9	7	42.2	46.2
1680	1798	1511	1359	90	40	11	9	49.9	53.9

1.10 馬達座與馬達連接法蘭 Motor Housing and Motor Adaptor Flange

1.10.1 適用馬達對照表 Motor Selection

TOCO MOTION 伺服馬達 Mikrosystem Servo Motor

輸出功率 Motor Output	馬達 Motor	重量 Weight (Kg)	適用法蘭 Flange Selection KT30	KT40	KT50	KT60	KT80	KT86	KT100	KT130	附剎車 +Brake Weight (Kg)	驅動器 Drive	重量 Weight (Kg)	備註 Remarks
50W	FRLS052□□A4□	0.45	-	F2	F2	F2	F3	F3	-	-	-			220V
100W	FRLS102□□A4□	0.6	-	F2	F2	F2	F3	F3	-	-	-			220V
200W	FRLS202□□06□	1	-	-	-	-	F0	F0	F0	F1	-	D2	1.25	220V
400W	FRLS402□□06□	1.45	-	-	-	-	F0	F0	F0	F1	-			220V
750W	FRMS752□□08□	2.66	-	-	-	-	-	-	F1	F2	-			220V

三菱伺服馬達 Mitsubishi Servo Motor

輸出功率 Motor Output	馬達 Motor	重量 Weight (Kg)	適用法蘭 Flange Selection KT30	KT40	KT50	KT60	KT80	KT86	KT100	KT130	附剎車 +Brake Weight (Kg)	驅動器 Drive	重量 Weight (Kg)	備註 Remarks
10W	HC-AQ0135D	0.19	F1	-	-	-	-	-	-	-	0.29	M2-JR-03A5	0.2	
20W	HC-AQ0235D	0.22	F1	-	-	-	-	-	-	-	0.32	M2-JR-03A5	0.2	
50W	HF-KP053	0.35	-	F1	F1	F1	F2	F2	-	-	0.75	MR-J3S-10A	0.8	220V
100W	HF-KP13	0.56	-	F1	F1	F1	F2	F2	-	-	0.89	MR-J3S-10A	0.8	220V
200W	HF-KP23	0.94	-	-	-	-	F0	F0	F0	F1	1.6	MR-J3S-20A	0.8	220V
400W	HF-KP43	1.5	-	-	-	-	F0	F0	F0	F1	2.1	MR-J3S-40A	1	220V
750W	HF-KP73	2.9	-	-	-	-	-	-	F1	F2	4	MR-J3S-70A	1.4	220V

松下伺服馬達 Panasonic Servo Motor

輸出功率 Motor Output	馬達 Motor	重量 Weight (Kg)	適用法蘭 Flange Selection KT30	KT40	KT50	KT60	KT80	KT86	KT100	KT130	附剎車 +Brake Weight (Kg)	驅動器 Drive	重量 Weight (Kg)	備註 Remarks
50W	MSMD5AZP1	0.32	-	F2	F2	F2	F3	F3	-	-	0.53	MADDT1105	0.8	110V
50W	MSMD5AZP1	0.32	-	F2	F2	F2	F3	F3	-	-	0.53	MADDT1205	0.8	220V
100W	MSMD011P1	0.47	-	F2	F2	F2	F3	F3	-	-	0.68	MADDT1107	0.8	110V
100W	MSMD012P1	0.47	-	F2	F2	F2	F3	F3	-	-	0.68	MADDT1205	0.8	220V
200W	MSMD021P1	0.82	-	-	-	-	F1	F1	-	-	1.3	MADDT2110	1.1	110V
200W	MSMD022P1	0.82	-	-	-	-	F1	F1	-	-	1.3	MADDT1207	0.8	220V
400W	MSMD041P1	1.2	-	-	-	-	F1	F1	-	-	1.7	MADDT3120	1.5	110V
400W	MSMD042P1	1.2	-	-	-	-	F1	F1	-	-	1.7	MADDT2210	1.1	220V
750W	MSMD082S1	2.3	-	-	-	-	F4	F4	F2	F4	3.1	MADDT3520	1.5	220V

安川伺服馬達 Yas kawa Servo Motor

輸出功率 Motor Output	馬達 Motor	重量 Weight (Kg)	適用法蘭 Flange Selection KT30	KT40	KT50	KT60	KT80	KT86	KT100	KT130	附剎車 +Brake Weight (Kg)	驅動器 Drive	重量 Weight (Kg)	備註 Remarks
10W	SGMMV-A1A2A21	0.13	F2	-	-	-	-	-	-	-	0.215	SGDV-R90A01A	0.9	200V
20W	SGMMV-A2A2A21	0.17	F2	-	-	-	-	-	-	-	0.27	SGDV-R90A01A	0.9	200V
50W	SGMAV-A5ADA61	0.3	-	F1	F1	F1	F2	F2	-	-	-	SGDV-R70A01A	0.9	有鍵 with key
50W	SGMAV-A5ADA2C	0.3	-	F1	F1	F1	F2	F2	-	-	-	SGDV-R70A01A	0.9	無鍵 no key
50W	SGMAV-A5ADA21	0.3	-	F1	F1	F1	F2	F2	-	-	0.75	SGDV-R70A01A	0.9	中慣量 Mid inertia
100W	SGMAV-01ADA64	0.4	-	F1	F1	F1	F2	F2	-	-	0.89	SGDV-R90A01A	0.9	
200W	SGMAV-02ADA65	0.9	-	-	-	-	F0	F0	F0	F1	1.6	SGDV-1R6A01A	0.9	
400W	SGMAV-04ADA66	1.2	-	-	-	-	F0	F0	F0	F1	2.1	SGDV-2R8A01A	1	
750W	SGMAV-08ADA67	2.6	-	-	-	-	-	-	F1	F2	4	SGDV-5R5A01A	1.5	

TOCO MOTION 步進馬達 Step Motor

系列 Series	規格 Model	適用法蘭 Flange Selection KT30	KT40	KT50	KT60	KT80	KT86	KT100	KT130	重量 Weight (Kg)	含馬達 Built in Motor	重量 Weight (Kg)	備註 Remarks
ST40	FRST011024	-	F3	F3	F5	-	-	-	-	0.3			單軸心 Single axis
ST55	FRST021024	-				-	-	-	-	0.55			單軸心 Single axis
	FRST022024	-	F3	F3	F5	-	-	-	-	0.8			
	FRST023024	-				-	-	-	-	1.18	STD-24A	0.09	
	FRST121024	-				-	-	-	-	0.58			雙軸心 Double axis
	FRST122024	-	F3	F3	F5	-	-	-	-	0.83			
	FRST123024	-				-	-	-	-	0.21			

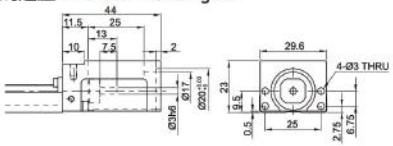
東方步進馬達 Oriental Step Motor

系列 Series	規格 Model	適用法蘭 Flange Selection KT30	KT40	KT50	KT60	KT80	KT86	KT100	KT130	含馬達 Built in Motor	重量 Weight (Kg)	含驅動器 Built in Drive	重量 Weight (Kg)
	CSK243-AP	-	F3	F3	F5	-	-	-	-	PK243-01A	0.21	CSD2109-P	0.12
	CSK244-AP	-	F3	F3	F5	-	-	-	-	PK244-01A	0.27	CSD2112-P	0.12
	CSK245-AP	-	F3	F3	F5	-	-	-	-	PK245-01A	0.35	CSD2112-P	0.12
CSK 2相組合 2 phase	CSK264-AP	-	-	-	F4	F6	F6	-	-	PK264-02A	0.45	CSD2120-P	0.12
	CSK266-AP	-	-	-	F4	F6	F6	-	-	PK266-02A	0.7	CSD2120-P	0.12
	CSK268-AP	-	-	-	F4	F6	F6	-	-	PK268-02A	1	CSD2120-P	0.12
	CSK296-AP	-	-	-	-	-	-	F4	F3	PK296-03A	1.7	CSD2145P	0.2
	CSK299-AP	-	-	-	-	-	-	F4	F3	PK299-03A	2.8	CSD2145P	0.2
	CSK2913-AP	-	-	-	-	-	-	F4	F3	PK2913-02A	3.8	CSD2140P	0.2
CSK 5相組合 phase	CSK523-AP	F3	-	-	-	-	-	-	-	PK523A	0.1	SD5103P3	0.04
	CFK543AP2	-	F3	F3	F5	-	-	-	-	PK543NAW	0.21	DFC5107P	0.2
	CFK544AP2	-	F3	F3	F5	-	-	-	-	PK544NAW	0.27	DFC5107P	0.2
	CFK545AP2	-	F3	F3	F5	-	-	-	-	PK545NAW	0.35	DFC5107P	0.2
CFKII 5相微步組合 5 phase micro stepping	CFK564AP2	-	-	-	-	F5	F5	-	-	PK564NAW	0.6	DFC5114P	0.2
	CFK566AP2	-	-	-	-	F5	F5	-	-	PK566NAW	0.8	DFC5114P	0.2
	CFK569AP2	-	-	-	-	F5	F5	-	-	PK569NAW	1.3	DFC5114P	0.2
	CFK566HAP2	-	-	-	-	F5	F5	-	-	PK566HNAW	0.8	DFC5128P	0.22
	CKF569HAP2	-	-	-	-	F5	F5	-	-	PK569HNAW	1.3	DFC5128P	0.22
	CFK596HAP2	-	-	-	-	-	-	F3	-	PK596HNAW	1.7	DFC5128P	0.22
	CFK599HAP2	-	-	-	-	-	-	F3	-	PK599HNAW	2.8	DFC5128P	0.22
	CFK5913HAP2	-	-	-	-	-	-	F3	-	PK5913HNAW	3.8	DFC5128P	0.22
	UMK243A	-	F3	F3	F5	-	-	-	-	PK243-01	0.21	UDK2109	0.47
	UMK244A	-	F3	F3	F5	-	-	-	-	PK244-01	0.27	UDK2112	0.47
UMK 2相組合 2 phase	UMK245A	-	F3	F3	F5	-	-	-	-	PK245-01	0.35	UDK2112	0.47
	UMK264A	-	-	-	F4	F6	F6	-	-	PK264-02	0.45	UDK2120	0.47
	UMK266A	-	-	-	F4	F6	F6	-	-	PK266-02	0.7	UDK2120	0.47
	UMK268A	-	-	-	F4	F6	F6	-	-	PK268-02	1	UDK2120	0.47
	RK543AA	-	F3	F3	F5	-	-	-	-	PK543W	0.25	RKD507-A	0.4
	RK544AA	-	F3	F3	F5	-	-	-	-	PK544W	0.3	RKD507-A	0.4
	RK545AA	-	F3	F3	F5	-	-	-	-	PK545W	0.4	RKD507-A	0.4
RK 5相組合 5 phase	RK566AA	-	-	-	-	F5	F5	-	-	PK566W	0.8	RKD514L-A	0.85
	RK569AA	-	-	-	-	F5	F5	-	-	PK569W	1.3	RKD514L-A	0.85
	RK596AA	-	-	-	-	-	-	F3	-	PK596W	1.7	RKD514H-A	0.85
	RK599AA	-	-	-	-	-	-	F3	-	PK599W	2.8	RKD514H-A	0.85
	RK5913AA	-	-	-	-	-	-	F3	-	PK5913W	3.8	RKD514H-A	0.85
ASC α-step	ASC34AK	F3	-	-	-	-	-	-	-	ASM34AK	0.15	ASD10A-K	0.25

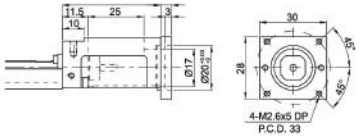
1.10.2 馬達座與馬達連接法蘭 Motor Housing and Motor Adaptor Flange

☆KT30

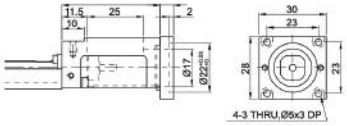
馬達座 F0 Motor Housing F0



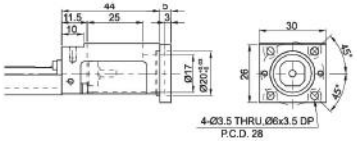
馬達連接法蘭 F1 Motor Adaptor Flange F1



馬達連接法蘭 F3 Motor Adaptor Flange F3

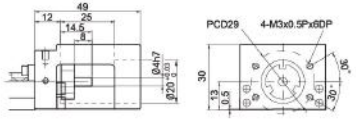


馬達連接法蘭 F2 Motor Adaptor Flange F2

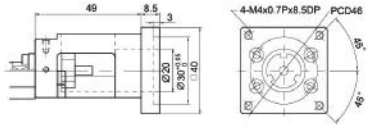


☆KT40

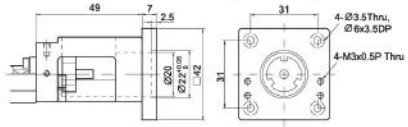
馬達座 F0 Motor Housing F0



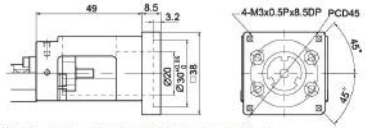
馬達連接法蘭 F1 Motor Adaptor Flange F1



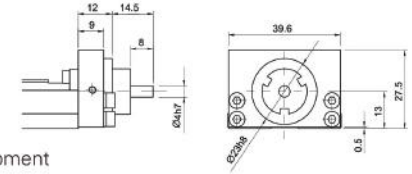
馬達連接法蘭 F3 Motor Adaptor Flange F3



馬達連接法蘭 F2 Motor Adaptor Flange F2



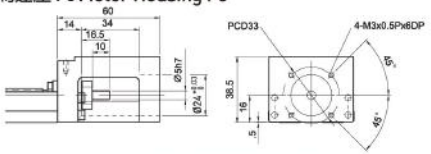
轉接固定座 H0 Mount Housing H0



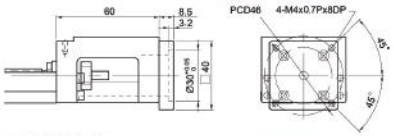
備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

KT50

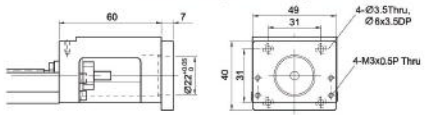
馬達座 F0 Motor Housing F0



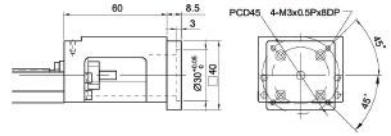
馬達連接法蘭 F1 Motor Adaptor Flange F1



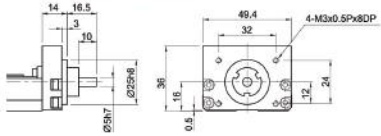
馬達連接法蘭 F3 Motor Adaptor Flange F3



馬達連接法蘭 F2 Motor Adaptor Flange F2

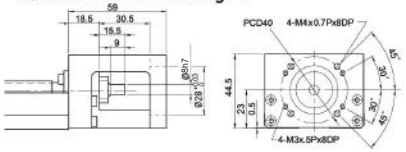


轉接固定座 H0 Mount Housing H0

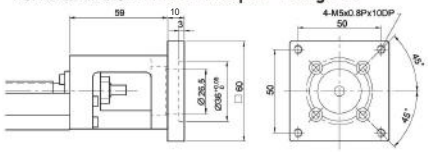


KT60

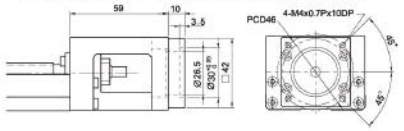
馬達座 F0 Motor Housing F0



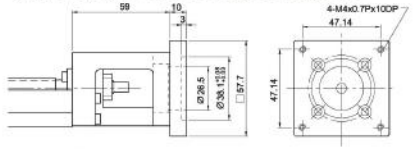
馬達連接法蘭 F3 Motor Adaptor Flange F3



馬達連接法蘭 F1 Motor Adaptor Flange F1



馬達連接法蘭 F4 Motor Adaptor Flange F4



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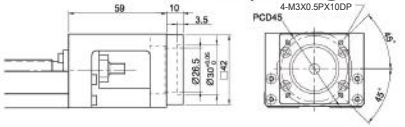
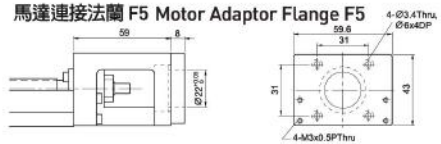
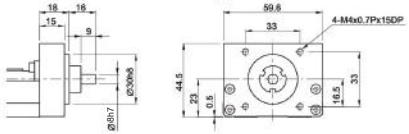


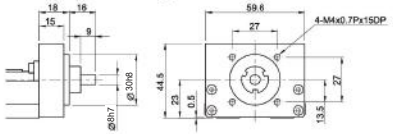
馬達連接法蘭 F5 Motor Adaptor Flange F5



轉接固定座 H0 Mount Housing H0

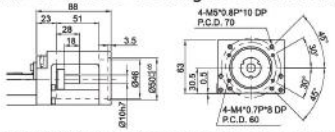


轉接固定座 H1 Mount Housing H1

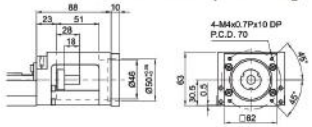


☆KT80

馬達座 F0 Motor Housing F0 Motor Housing F0



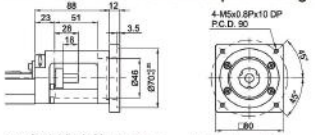
馬達連接法蘭 F1 Motor Adaptor Flange F1



馬達連接法蘭 F2 Motor Adaptor Flange F2

馬達連接法蘭 F3 Motor Adaptor Flange F3

馬達連接法蘭 F4 Motor Adaptor Flange F4



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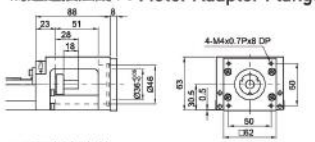
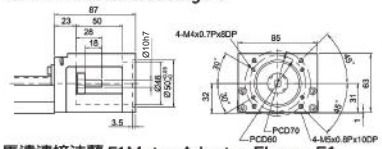


馬達連接法蘭 F6 Motor Adaptor Flange F6

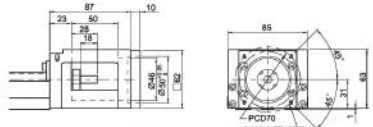
備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

KT86

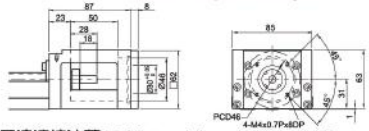
馬達座 F0 Motor Housing F0



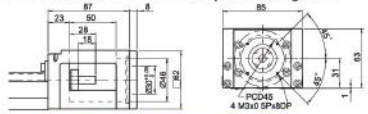
馬達連接法蘭 F1 Motor Adaptor Flange F1



馬達連接法蘭 F2 Motor Adaptor Flange F2



馬達連接法蘭 F3 Motor Adaptor Flange F3



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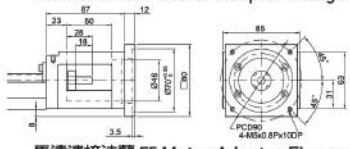
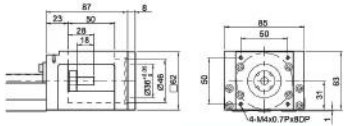
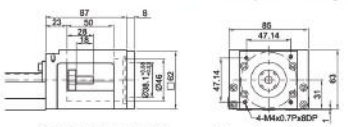


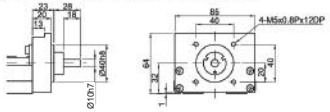
馬達連接法蘭 F5 Motor Adaptor Flange F5



馬達連接法蘭 F6 Motor Adaptor Flange F6

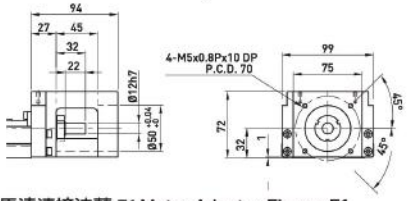


轉接固定座 H0 Mount Housing H0

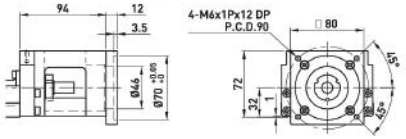


KT100

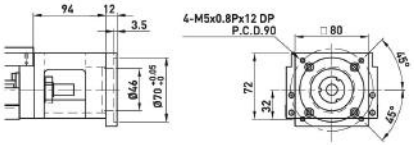
馬達座 F0 Motor Housing F0



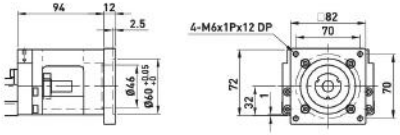
馬達連接法蘭 F1 Motor Adaptor Flange F1



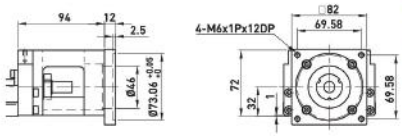
馬達連接法蘭 F2 MotorAdaptor Flange F2



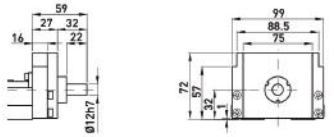
馬達連接法蘭 F3 Motor Adaptor Flange F3



馬達連接法蘭 F4 Motor Adaptor Flange F4

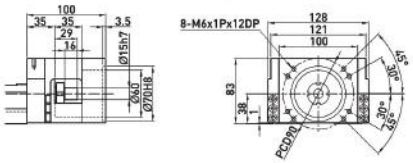


轉接固定座 H0 Mount Housing H0

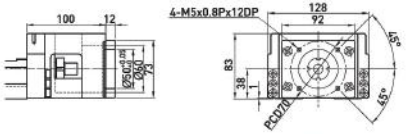


KT130

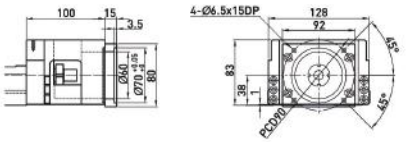
馬達座 F0 Motor Housing F0



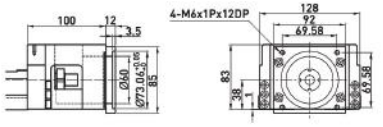
馬達連接法蘭 F1 Motor Adaptor Flange F1



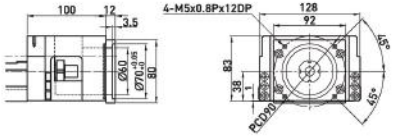
馬達連接法蘭 F2 Motor Adaptor Flange F2



馬達連接法蘭 F3 Motor Adaptor Flange F3

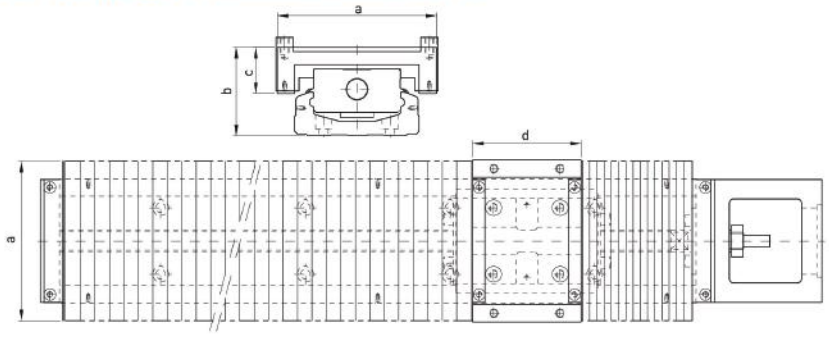


馬達連接法蘭 F4 Motor Adaptor Flange F4



轉接固定座 H0 Mount Housing H0

1.11 伸縮護套 Optional Accessories



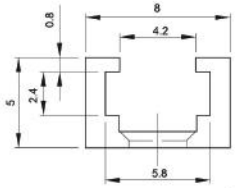
單位 Unit : mm

	尺寸 Nominal Width	軌道長度 Rail Length	最大行程 Stroke	最小壓縮量 Min.	最大伸長量 Max.	a	b	c	d
	KT40	100	35	16	51	60	29.5	19	33
☆		150	63	27	90				
		200	93	37	130				
	KT50	150	60	21.5	81.5	62	37	19	47
		200	95	29	124				
		250	130	36.5	166.5				
		300	160	46.5	206.5				
	KT60	150	56	16	80	84	45.5	24	54
		200	106	20	126				
		300	166	40	206				
		400	234	56	290				
		500	306	70	376				
		600	366	90	456				
	KT86	340	188	36	224	110	61	32	75
		440	260	50	310				
		540	336	62	398				
		640	408	76	484				
		740	480	90	570				
		940	640	110	750				
	KT100	980	769	58	827	150	73	41	95
		1080	855	65	920				
		1180	945	70	1015				
		1280	1029	78	1107				
		1380	1115	85	1200				
	KT130	980	748	62	810	180	89	53	108
		1180	916	78	994				
		1380	1084	94	1178				
		1680	1346	113	1459				

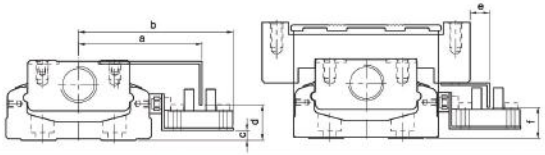
備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development

1.12 極限開關 Switch

極限軌道 Switch rail

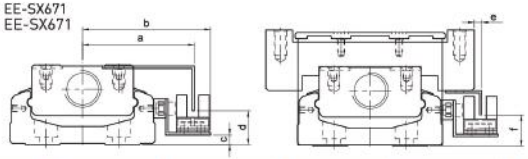


感應器 Switch



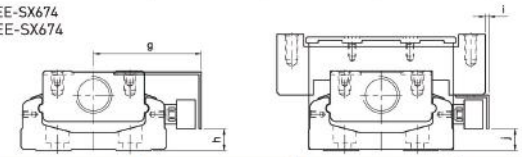
	尺寸 Nominal Width	a	b	c	d	e	f
☆	KT40	41.5	54.1	0.5	10.8	15.3	12
	KT50	45.5	59	1	10	15	11
	KT60	51	63.8	4	14.5	8	13
☆	KT80	61	74	8	19	-	-
	KT86	63.5	76.7	8	18	8	18
	KT100	71	84	10	20	9	20
	KT130	85.5	98.5	14	24	0.5	23

感應器 S1 : TOCO MOTION EE-SX671
Switch 1: TOCO MOTION EE-SX671



	尺寸 Nominal Width	a	b	c	d	e	f
☆	KT40	36.5	44.3	1	9.8	10.5	12
	KT50	41.3	48	1	10.5	10.2	11
	KT60	46.2	52.8	4	14	3.2	13
☆	KT80	56	63	8	18	-	-
	KT86	59	65.7	8	18	3	18
	KT100	66	73	10	20	4.2	20
	KT130	80.8	87.5	14	23.5	-4.1	23.5

感應器 S2 : TOCO MOTION EE-SX674
Switch 2 : TOCO MOTION EE-SX674



	尺寸 Nominal Width	g	h	i	j
☆	KT30	28	1.9	-	-
☆	KT40	40	5.5	13.5	5.5
	KT50	39.5	5.7	7	19.5
	KT60	44.5	9	2	9
☆	KT80	54	12	-	-
	KT86	57	13	1	13
	KT100	64.5	15	2.5	15
	KT130	79	19	-6	19

備注:帶"☆"標記規格還在研發中。
Remarks: models with ☆ are still under development