



4M ManPro

*Elements For
Manufacturing Processes*

**AUTOMATIC
SCREW FEEDER**

自動鎖螺絲機

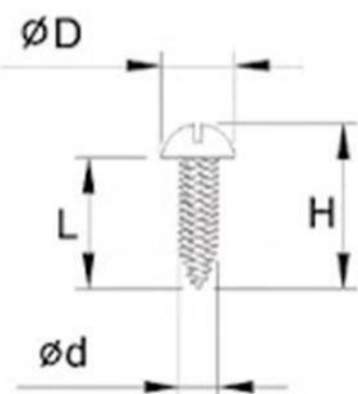
機種選用表 Selection Chart

	螺絲尺寸(screw size)									
	M1.5	M2	M2.3	M3	M4	M5	M6	M7	M8	
CM-30										
CM-40										
CM-30T										
CM-40T										
CM-501										
CM-502										
CM-100S										
CM-100G										
CM-B1	VGA .DVI Stand off screw									

可承製螺絲規格表

Available Screw Table

- Listed below is the typical model of screw sizes that can be accepted for production (Unit:mm)
- The machine is built for the specific screw you provide.



	CM-30	CM-40	CM-30T	CM-40T
Screw Head Dia. (D)				
Min.H Dimension (H)				
Max.L Dimension (L)				
5		8		22
6		9		22
7		10		22
8		11		22
9		12		22
10		13		22
11		15		22
12		16		22

	CM-501	CM-502
Screw Head Dia. (D)		
Min.H Dimension (H)		
Max.L Dimension (L)		
5		8
6		9
7		10
8		11
9		13
10		13
11		15
12		18
13		18
14		20

(R)圓頭 Round Head	(P)丸頭 Pan Head	(F)凹頭 Flat Head	(O)橢圓凹頭 Oval-Flat Head	(B)定位頭 Binding Head	(V)碗形頭 Oven Head	(T)大扁頭 Truss Head

適用螺絲槽型

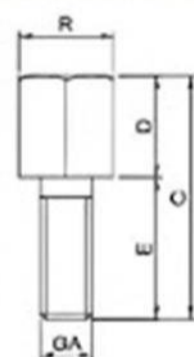
Available Screw Recess

十字 Phillip	米字 Pozi	星型 Torx	一字 Slot	內六角 Hex Socket	其他 Others
					Further Discussion
標準 Standard	起子頭訂製，最低量100支。 Customized Bit, MOQ 100 pcs.				

選購機構

Optional Mechanism

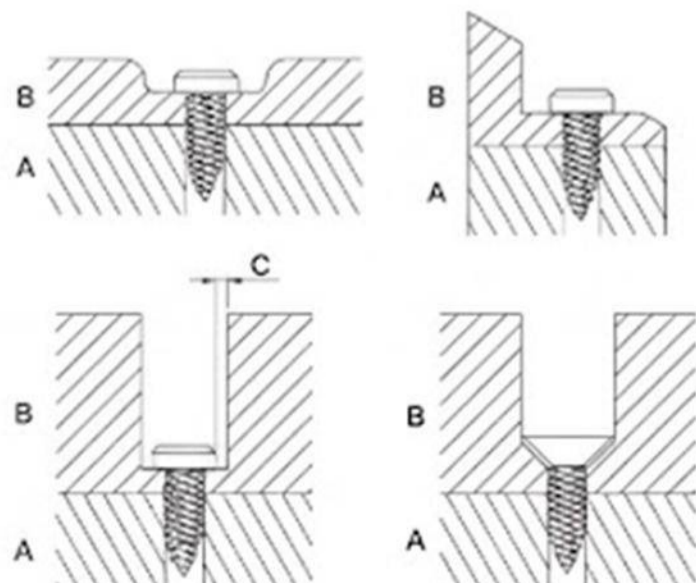
- 鎖付過短螺絲時之特製夾具
Special Jaw for under sized screw.
- 螺絲過長時之全組打製機台
Whole custom-made machine set for over sized screw.



CM-B1	
Ref. 部位	Dimension 尺寸
A	#4-40UNC
B	4.7-5.0
C	11.7-13.1
D	4.8-6
E	6.9-7.9

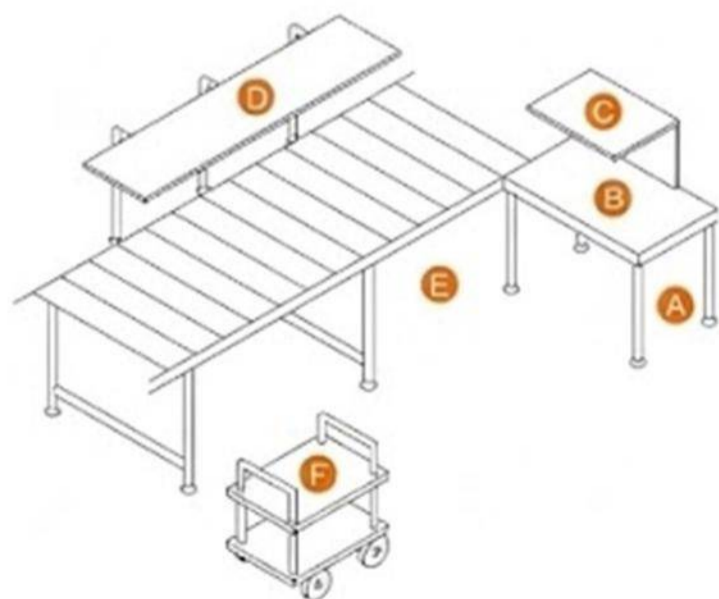
鎖付環境

Fastening Environment



機台放置處

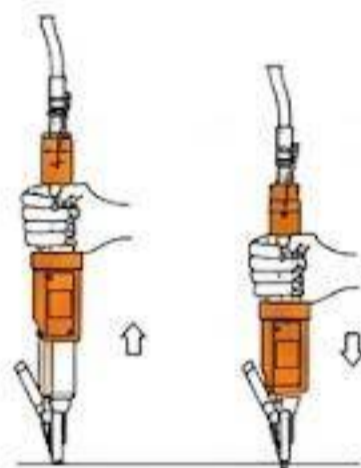
Feeder Position



CM-30、CM-40自動鎖螺絲機 Automatic Screw Feeder

- 依撈快速、穩定、方便之設計原則，結合氣(電)動螺絲起子、高科技自動送料嘴及高精度螺絲夾具，以提升螺絲鎖付速度、大幅提高效率。
- It is manufactured by fast, stabilized and convenient design principles, which combine with pneumatic/electric screwdriver, Hi-tech Auto Feeder and High-precision Screw Jaw to escalate the screw fastening speed in order to significantly enhance the production efficiency.
- 根據式樣客戶螺絲，工作環境量身設計，以確保作業穩定。
- The Screw Jaw will be customized according to the customer's screws and work-piece to ensure smooth and stable operation.
- 自動送料，完全省卻螺絲拿取、移動的動作。
- Automatic feeding to completely save the screw picking and moving action.
- 適用2.3mm-6.0mm 螺絲。
- Applicable for 2.3mm-6.0mm screw.
- 作業速度可達到每分鐘20-30支螺絲。
- It provides faster operating speed up to 20-30 pieces of screws per minute.
- 採用扭力控制起子，強化客戶產品鎖付品質。
- The torque-controlled screwdriver is used to improve the fastening quality for the customer.

- 採用台(日)製氣(電)動起子。
- It adopts Taiwan-made / Japan-made pneumatic / electric screwdriver.
- 智慧型送料，省電不軟料。
- Fiber Optic control intellectual-type feeding, saving power while avoiding short supply.
- 配備彈簧吊車，手持操作持續量負荷。
- It is equipped with Spring Balancer to provide load free operation experience.
- 亦可選配 TR-350, TR-650, TA-300, TA-600, TM-6, THA, THB 提供不同工作需求配件組合，產生更廣範圍鎖付品質。
- You may also select TR-350, TA-650, TA-300, TA-600, TH-6, THA and THB to provide a variety of accessory combinations according to the actual work need so as to achieve high-performance fastening quality.



CM-30



CM-40



Extension hopper (Optional)



RH-1 for CM-30
RH-3 for CM-40

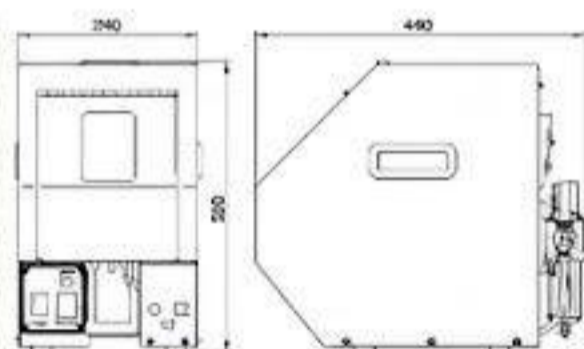
實用圖

Demonstration

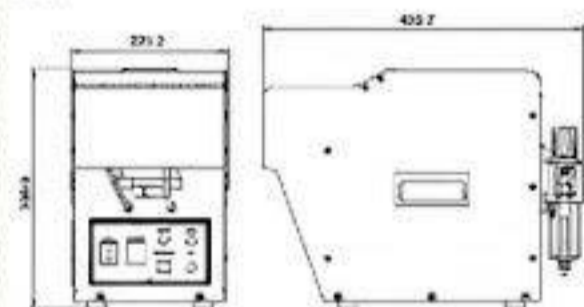


送料機

Feeder



30F



40F

選購配件

Optional Accessories

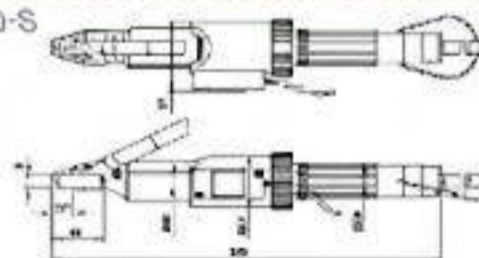
TR-250、TR-650	扭力支撐架 Torque Reaction Arm	Page 13
TA-300、TA-600	扭力支撐架 Torque Supporting Arm	Page 14
THA、THB	工具懸吊空臂 Tool Supporting Arm	Page 15
TM-6	氣缸高行程機構 Fasten Stroke Cylinder Equipment	Page 15

起子組

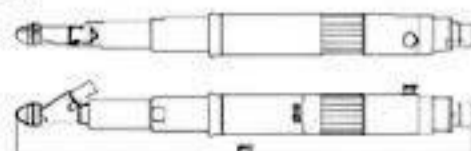
Screwdriver set



40-S

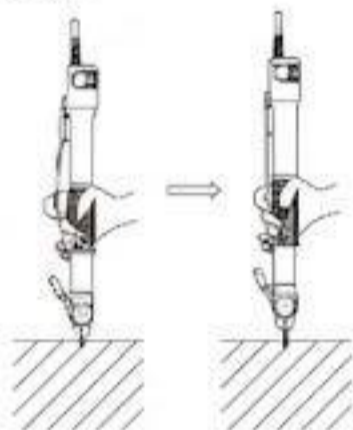


41-D1



CM-30T、CM-40T自動鎖螺絲機 Automatic Screw Feeder

- 採用符合人體工學、強力化的扳手握柄設計。
The lever-activating design shall meet the ergonomics and labor-saving requirements.
- 只需按壓把手，起子即自動完成鎖絲機付。
Simply press the lever and the Screwdriver will complete the screw fastening automatically.
- 自動送料，完全免除握持擷取、移轉的動作。
Automatic feeding to completely save the screw picking and moving action.
- 適用2.3mm-6.0mm 螺絲。
Applicable for 2.3mm-6.0mm screw.
- 作業速度可達每分鐘20-30支螺絲。
It provides faster operating speed up to 20-30 screws per minute.
- 採用扭力控制起子，強化客戶產額鎖付品質。
The torque-controlled screwdriver is used to improve the fastening quality for the customer.



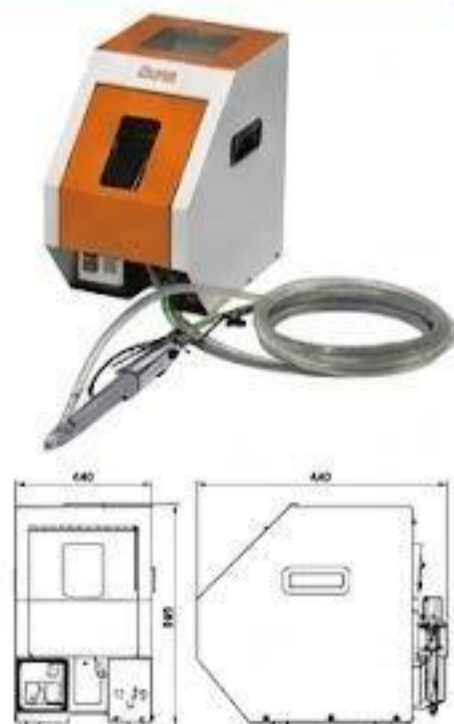
- 採用合(日)製氣(電)動起子。
It adopts Taiwan-made / Japan-made pneumatic / electric screwdriver.
- 智慧型送料，省電不積料。
Fiber Optic control intellectual-type feeding, saving power while avoiding short supply.
- 起子遇自動送料精確出料付，夾具可不接觸工件表面，不應擦產沾、不產生壓力。
The bit push the screw for fastening automatically. It prevents the jaw from contacting the surface of the work-pieces, thus it will neither rub the product nor produce too much stress.
- 配備彈簧吊坐，手持操作時無重量負荷。
It is equipped with Spring Balancer to provide load free operation experience.
- 即可選配 TR-350, TR-650, TA-600, TA-600, THA, THB 提供不同工作需求配件組合，產生更優越鎖付品質。
You may also select TR-350, TR-650, TA-600, TA-600, THA and THB to provide a variety of accessory combinations according to the actual work need as as to achieve high-performance fastening quality.

選購配件

Optional Accessories

TR-350 · TR-660	扭力支撐架 Torque Reaction Arm	Page 13
TA-300 · TR-660	扭力支撐架 Torque Supporting Arm	Page 14
THA · THB	工具懸吊支撐 Tool Supporting Arm	Page 15

CM-30T



CM-40T



Extension hopper
(Optional)

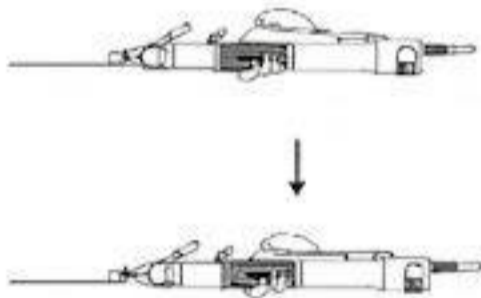


RH-1 for CM-30
RH-3 for CM-40

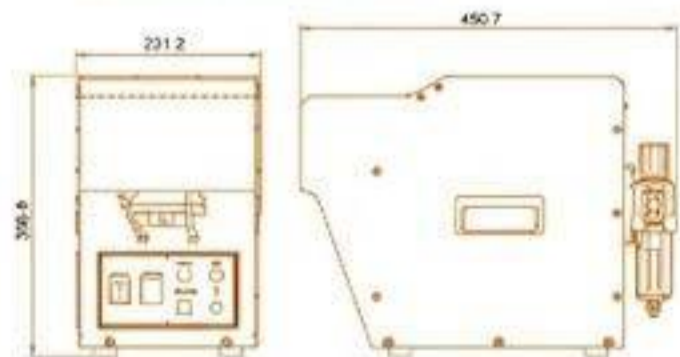
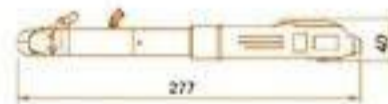
CM-B1 顯示卡專用自動鎖螺絲機 VGA, DVI card Automatic Screw Feeder

- 適用六角釧柱螺絲。
- 適用於顯示卡、主機板、音效卡..等電腦介面卡。
- 採用符合人體工學、省力化的扳手啟動設計。
- 只要按壓把手，起子即自動完成螺絲鎖付。
- 自動供料，完全省略螺絲拿取、移動的動作。
- 作業速度可達到每分鐘30支螺絲。
- 採用扭力控制起子，強化客戶產品鎖付品質。
- 採用台(日)製電動起子。
- 智慧型供料，省電不送料。

- Specifically for standoff screw.
- Applicable for VGA and DVI interfaces, etc.
- Ergonomic design
- Auto downward screw driver by easy lever trigger.
- Automatic feeding without screw picking and moving action.
- Capacity 30 pcs/min
- It adopts torque control screwdriver to enhance quality of fastening
- Auto motor stop when full loading in track.



CM-B1



CM-501、CM-502 自動鎖螺絲機 Automatic Screw Feeder / Vibration Bowl Type

CM-501 單出口

One Outlet

- 每分鐘可達50顆之螺絲送料能力。
Speed up to 50 pieces of screws per minute.
- 可承製M1.5-M8及長度達30mm之螺絲。
Capacity could be up to 30mm in length for M1.5-M8 screw.
- 自動送螺絲至夾具，無需來回取用螺絲。
Automatic Screw feeding. No more screw picking and moving action.
- 結構簡單明瞭，易於維護保養。
Simple structure and easy maintenance.

Model No.	CM-501	CM-501T
Screw Size	M1.5-M8	M1.5-M8
Screw Length	Up to 30 mm	Up to 30 mm
Screwdriver set	One set Telescape Type	One set Trigger Type
Capacity	50pcs/min	40pcs/min

CM-502 雙出口

Two Outlets

- 單一送料槽可同時供給兩組獨立操作之起子組。
One feeder supply screws for two screwdriver sets independently.
- 每組起子組含自有每分鐘45顆螺絲之送料能力。
Speed up to 45 pieces of screws per minuter per screwdriver set. (Total 90 pcs/min / one machine)
- 可承製M3-M8及長度達30mm之螺絲。
Capacity could be up to 30mm in length for M3-M8 screw.
- 自動送螺絲至夾具，無需來回取用螺絲。
Automatic Screw feeding. No more screw picking and moving action.
- 結構簡單明瞭，易於維護保養。
Simple structure and easy maintenance.

Model No.	CM-502	CM-502T
Screw Size	M3-M8	M3-M8
Screw Length	Up to 30 mm	Up to 30 mm
Screwdriver set	Two Independent sets Telescape Type	Two Independent sets Trigger Type
Capacity	45pcs/min. / per driver set 90 pcs/min. / two driver sets	40pcs/min. / per driver set 80 pcs/min. / two driver sets



CM-501 CM-501T



CM-502 CM-502T



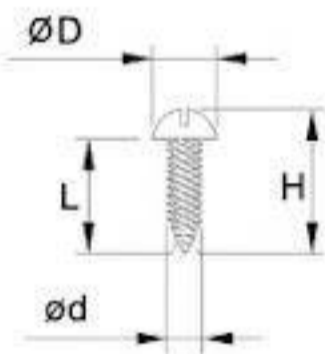
機種選用表 Selection Chart

	M1.5	M2	M2.3	M3	M4	M5	M6	鎖絲尺寸(screw size)	
								M7	M8
CM-30									
CM-40									
CM-30T									
CM-40T									
CM-501									
CM-502									
CM-100S									
CM-100G									
CM-B1	VGA .DVI Stand off screw								

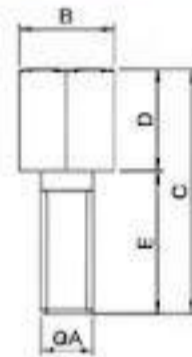
可承製螺絲規格表

Available Screw

- Listed below is the typical model of screw sizes that can be
- The machine is built for the specific screw you provide.



	CM-20	CM-40	CM-30T	CM-40T
Screw Head Wdr. (Ø)	5	6	7	8
Min. J. Dimension (H)	8	9	10	11
Max. J. Dimension (L)	22	22	22	22
Max. L. Dimension (L)	30	30	30	30
	9	10	11	12
	10	11	12	13
	11	12	13	14
	12	13	14	15
	13	14	15	16

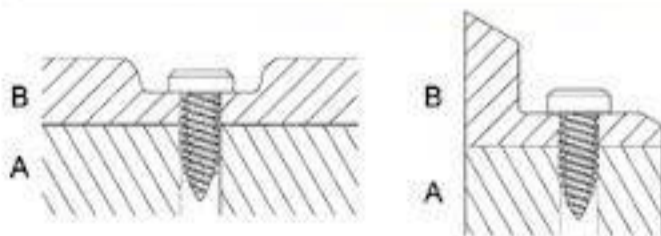


CM-B1

Ref. 部位	Dimension 尺寸
A	#4-40UNC
B	4.7,5.0
C	11.7~13.1
D	4.8~6
E	6.9~7.9

鎖付環境

Fastening Environment

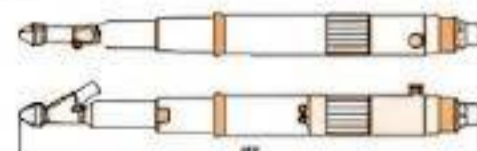


機台放置處

Feeder Position



41-D1



選購配件

Optional Accessories

TR-350、TR-650	扭力支變架 Torque Reaction Arm	Page 13
TA-300、TA-600	扭力支變架 Torque Supporting Arm	Page 14
THA、THB	工具輔助支臂 Tool Supporting Arm	Page 15
TM-6	氣缸鎖付機構 Fasten Stroke Cylinder Equipment	Page 15

CM-TABLE 桌上型機器人式 自動鎖螺絲機

Robot Type Automatic Screw Driving Machine

搭配SEALS各式螺絲送料機，以氣缸移動鉗頭造成高效率鎖螺絲付，並有不同工作範圍可供選購。

By adopting SEALS screw feeder and delivering screw to the jaw directly by air blow, SEALS CM-TABLE achieves the shortest distance for fastening sequence. Different work area are available for option.

- 採用台灣桌上型機器人，穩定精準耐用速度快。
Taiwan-made table-type Robot is used to achieve stabilized, accurate, longer lasting and faster operation.
- 重複精度± 0.01mm。
Repeated accuracy: ± 0.01mm.
- 工作範圍由小空大可適用。
Suitable for various kinds of working range.
- 多組工作記憶模組數。
Several working memory modules.
- 1分鐘內即可透過控制面板更換不同工作記憶模組，適合少量多樣生產。
Different working memory modules can be changed in one minute with Control Panel, which is suitable for small-quantity diversified production.
- 含缺料檢知及警示。
Short supply detection and warning functions are included.
- 含滑牙檢知及警示。
Thread-slipping detection and warning functions are included.
- 含扭力到達檢知及警示 (選配)。
Torque reaching detection and warning functions are included (optional).
- 可支援不同高度鎖付。
It can be used to support varied height fastening.
- 可用教導器編寫程式；或使用電腦連線。
It can use remote teaching MDI to write programs; or use the computer for online operation.



可選配送料機機型

Adoptable Feeder Options

30F



40F



501F



CM-TABLE-V 桌上型機器人式 真空吸取自動鎖螺絲機

Robot Type Vacuum Pick-up Automatic Screw Feeder

採用日本OHTAKE螺絲排列機，將螺絲排列並依序輸送至真空吸取區，並由XY TABLE 可程式桌上型機械人上之真空吸嘴，完成螺絲吸取後，分別移動至各螺絲孔上方，完成下壓鎖付作業。真空吸嘴依客戶螺絲、工作環境量身設計，以確保作業順暢穩定。作業人員僅將工件取放，機台可自行完成所有螺絲鎖付。另外，搭配無刷扭力偵測電動搖子，並且可進行清牙、牙紋檢知，確保螺絲鎖付品質。

It adopts Japan-made OHTAKE brand automatic screw presenter, let the screw line up to the vacuum pick-up area. The programmable XY Table carry the vacuum nozzle to the screw head and deliver it to every screw holes.

- 採用台灣製桌上型機械人，穩定精準耐用速度快。
Taiwan-made table-type Robot is used to achieve stabilized, accurate, longer lasting and faster operation.
- 重複精度 $\pm 0.01\text{mm}$ 。
Repeated accuracy: $\pm 0.01\text{mm}$.
- 工作範圍由小至大可選用。
Suitable for various kinds of working range.
- 多組工作記憶模組數。
Several working memory modules.
- 1分鐘內即可透過控制面板更換不同工作記憶模組，適合少量多樣生產。
Different working memory modules can be changed in one minute with Control Panel, which is suitable for small-quantity diversified production.
- 含缺料檢知及警示。
Short supply detection and warning functions are included.
- 含清牙檢知及警示。
Thread-slipping detection and warning functions are included.
- 含扭力到達檢知及警示(選配)。
Torque reaching detection and warning functions are included (optional).
- 可支援不同高度鎖付。
It can be used to support varied height fastening.
- 可用教導器編寫程式；或使用電腦連線。
It can use remote teaching MDI to write programs; or use the computer for online operation.



軸式自動鎖螺絲模組 Spindle Type Automatic Screw Feeding Module

CM-100S、100G

- 可安裝在全自動化組裝線，模具定位後即自動完成鎖付。
It can be mounted in the fully-automated assembly line. After fitting the mold in place, it will complete the fastening automatically.
- 亦可安裝在半自動化組裝站上，作業員僅須取、放工件即可。
Or, it can also be used in the semi auto assembly station and the operator only need to pick and lead the Workpiece.
- 調整扭力設定簡單，不須任何工具。
Easier for setting the torque without any tools.
- 60秒內可輕鬆更換鋤子頭。
The bit can be easily replaced in 60 seconds.
- 每分鐘作業次數可達30次。
It achieves 30 operation times per minute.
- 可直直、水平或其他角度安裝。
It can be installed vertically, horizontally or at any other angle.
- 含扭力檢知，未達扭力無訊號輸出。
Torque detection. No signal output before reaching the torque value.
- 含鎖付到位檢知，未到位不產生脈號。
Fastening end detection included. No signal output before reaching the position.
- 缺料檢知(選配)。
Short supply detection (optional).
- 六種自製電動起子可供選用。
Six kinds of Japan-made electric screwdrivers are provided.
- 專為自動化生產線設計製造。
Specifically designed and manufactured for automatic production line.



CM-100S



CM-100G

起子規格

Driver Specification

型號 Model	電動起子 Driver	能力 Capacity	扭力 Torque	轉速 r.p.m.	控制器 Adopter	重量 Weight	電壓 Voltage	氣壓 Pressure																
CM-100S	DLV3321	M1-M3	0.5-5 kgf cm	900	DLC3310	7.5kg	AC24V DC24V	5.5±0.5 kg/cm ²																
	DLV3321	M2-M3.5	2-11 kgf.cm	900					CM-100G	DLV3131	M2.3-M2.6	2.5-7 kgf cm	900	none	8.5kg	AC110V DC24V	DLV3131	M2.6-M3.5	5-14 kgf.cm	900	DLV3141	M3.5-M5	12-30 kgf cm	600
CM-100G	DLV3131	M2.3-M2.6	2.5-7 kgf cm	900	none	8.5kg	AC110V DC24V																	
	DLV3131	M2.6-M3.5	5-14 kgf.cm	900																				
	DLV3141	M3.5-M5	12-30 kgf cm	600																				
	DLV3151	M4.5-M5	20-45 kgf cm	450																				

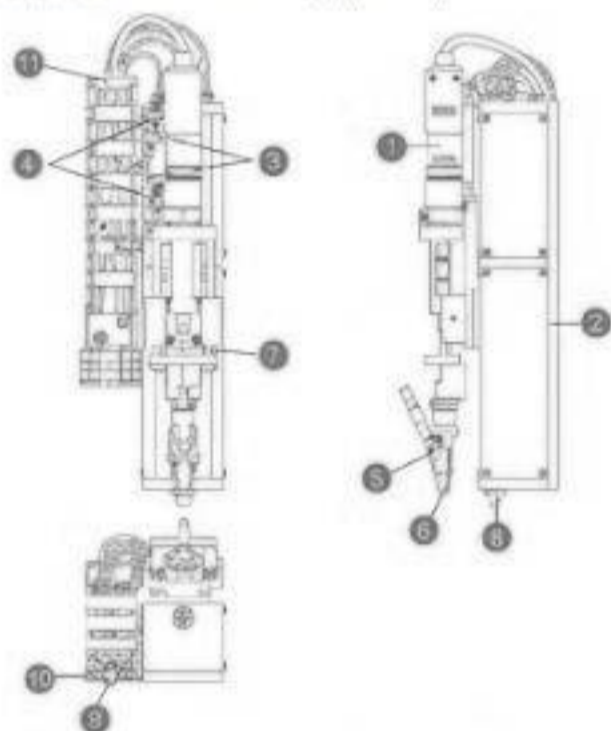
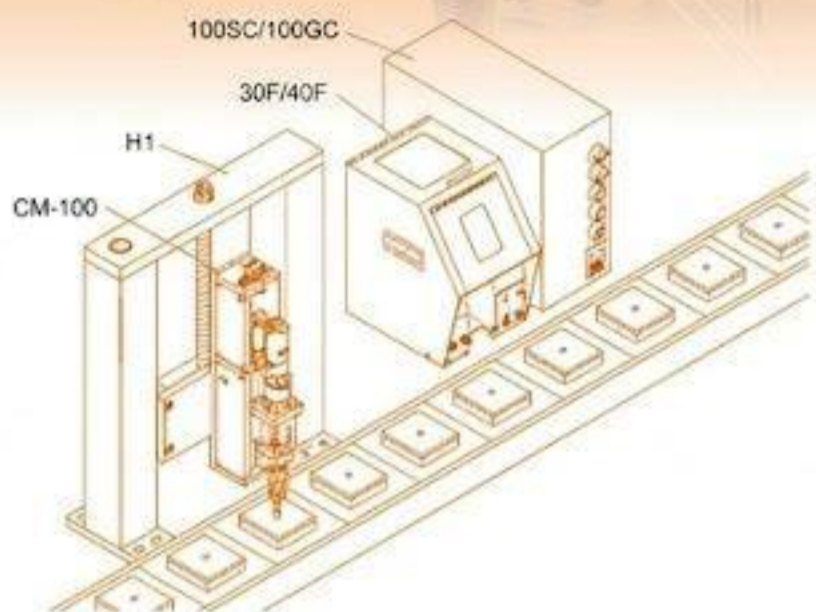
部位名稱

Layout

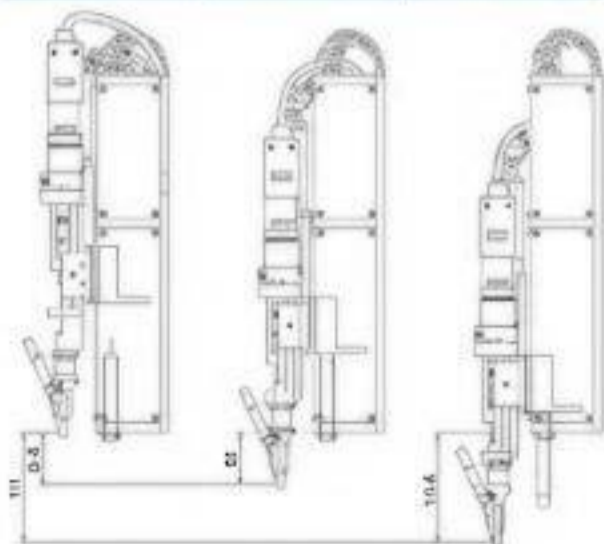
作業示意圖

Package

- 1 扭力控制電動起子 / Torque control electric screwdriver
- 2 安裝版面 / Mounting face
- 3 主氣缸調速期 / Speed adjust Valve for jaw position cylinder
- 4 副氣缸調速期 / Speed adjust Valve for bit driving cylinder
- 5 蛇順 / Jaw Base
- 6 夾具 / Jaw
- 7 起子頭 / Bit
- 8 緩衝器 / Cushion
- 9 起子接頭 / Screwdriver Connection Cable
- 10 氣缸接頭 / Air hose for two cylinders
- 11 管線保護繩 / Cable Carrier (Optional)



型號 Model	最大行程 Max. Stroke	最小行程 Min. Stroke
CM-100S	111mm	51.5mm
CM-100G	111mm	51.5mm



扭力支臂架 Torque Reaction Arm



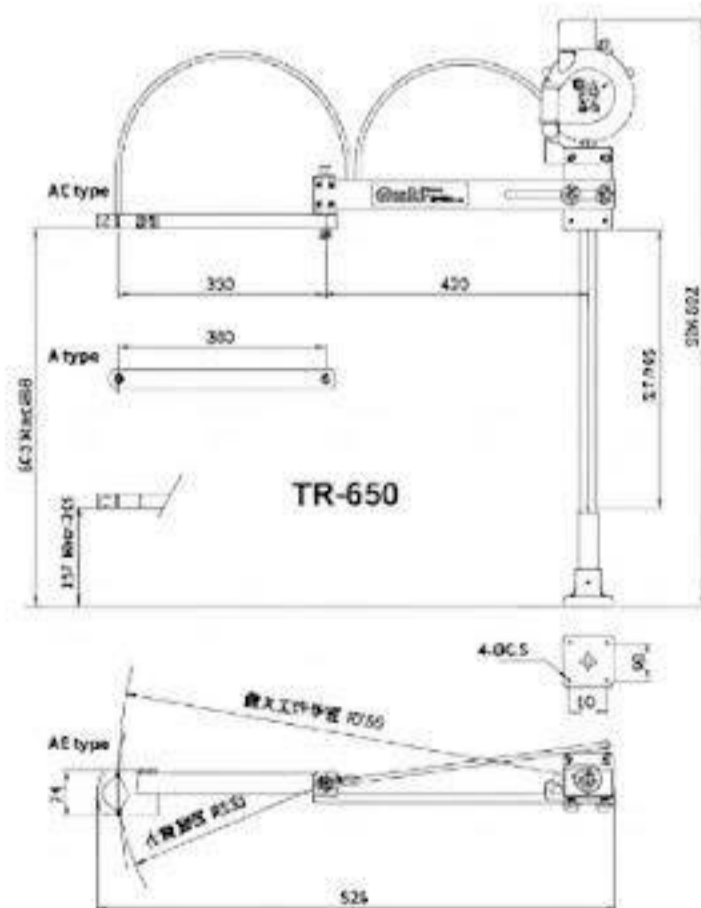
TR-350

Model No.	TR-350A	TR-350AE
Pneumatic	V	V
Electric	x	V
Max Working Area	R508	R508
Vertical Stroke	370mm	370mm



TR-650

Model No.	TR-650A	TR-650AE
Pneumatic	V	V
Electric	x	V
Max Working Area	R750	R750
Vertical Stroke	445mm	445mm



扭力支臂架 Torque Supporting Arm

www.chengmao.com.tw



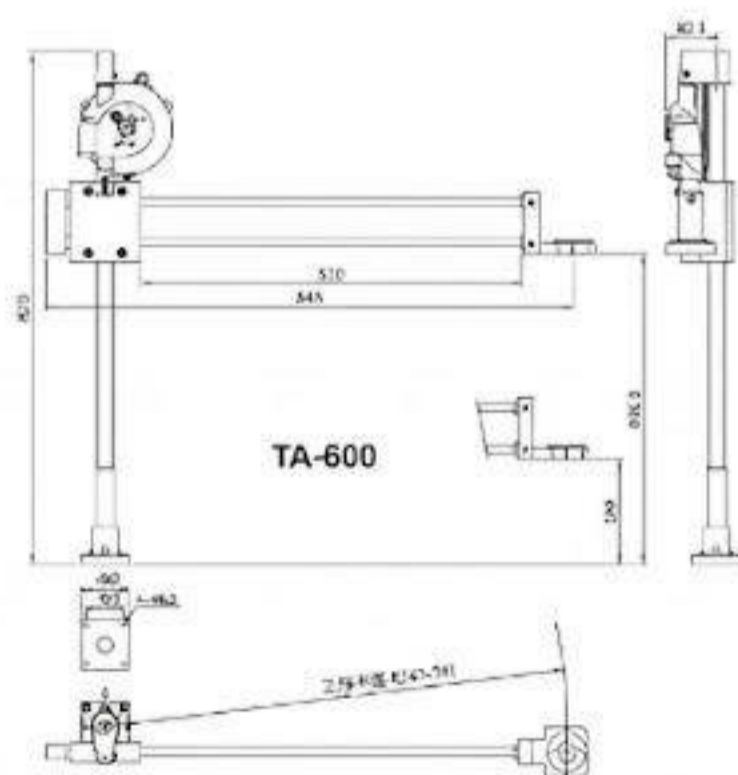
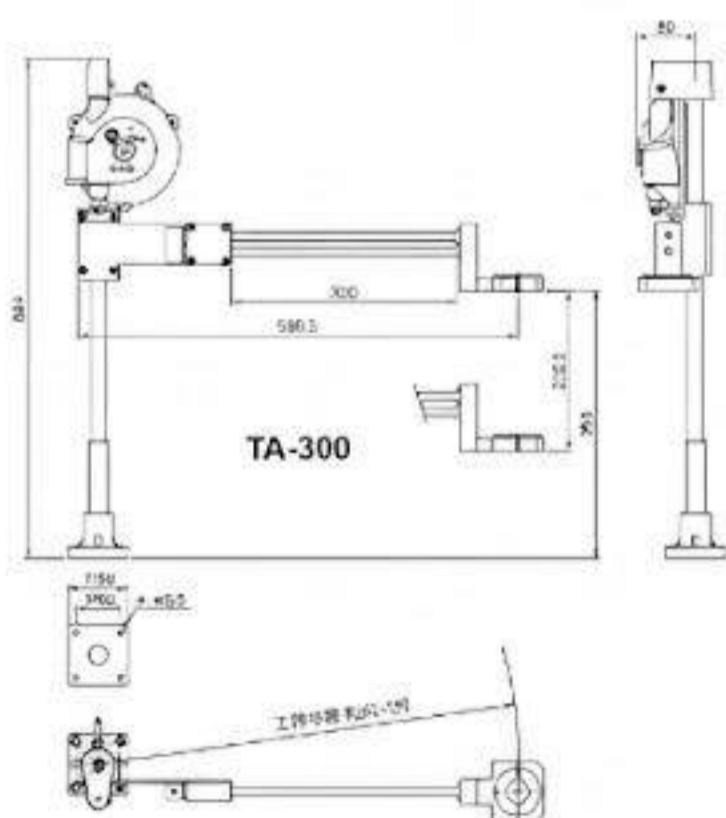
TA-300



TA-600

型 號 / Model No.	TA-300
水平行程 / Horizontal Stroke	300mm
垂直行程 / Vertical Stroke	218mm

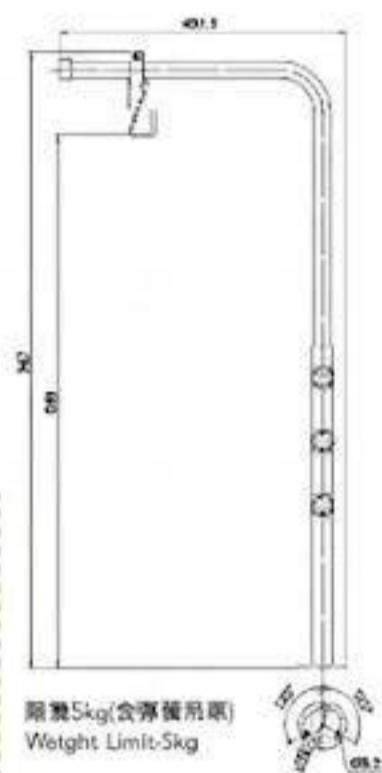
型 號 / Model No.	TA-600
水平行程 / Horizontal Stroke	600mm
垂直行程 / Vertical Stroke	311mm



工具懸吊支臂 Tool Supporting Arm



THA



限重5kg(含彈簧吊車)
Weight Limit:5kg



THB

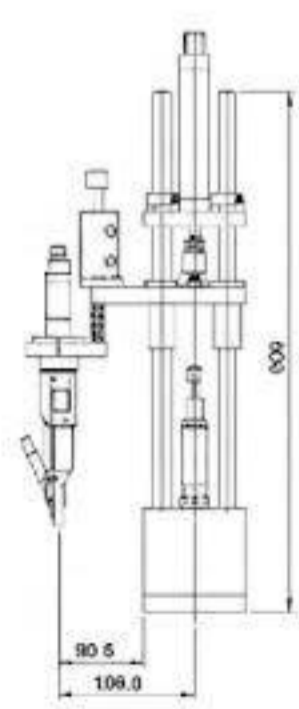
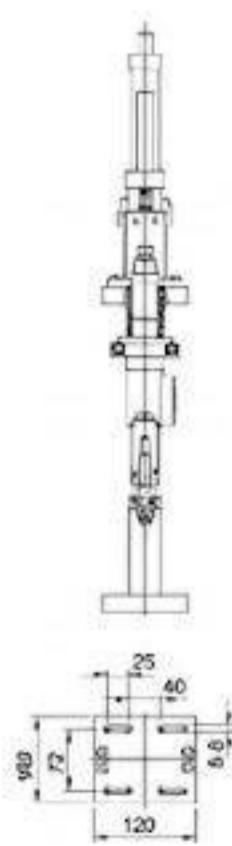


限重5kg(含彈簧吊車)
Weight Limit:5kg

氣缸鎖付機構 Fasten Stroke Cylinder Equipment



TM-6



客製化應用圖例-產品照



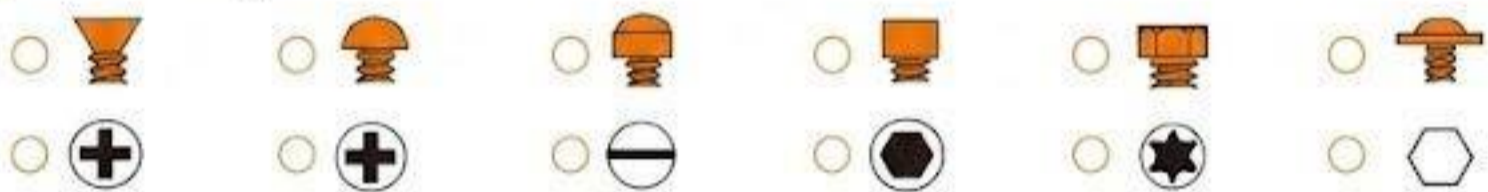
自動鎖螺絲機接洽評估表 Automatic Screw Feeder Assess Table

公司名稱 Company : _____ 聯絡人 Contact : _____ 日期 Date : _____

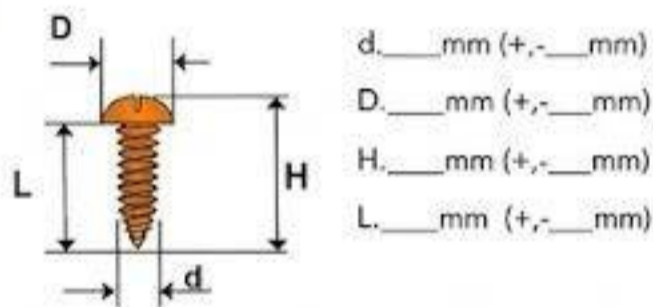
國家 Country : _____ 電話 Tel : _____ 傳真 Fax : _____

1 電壓 Voltage : 220V, Single Phase 頻率 Frequency : 50 Hz 60 Hz

2 螺絲樣式 Screw Type



3 螺絲尺寸 Screw Size



4 操作方式 Operation Direction

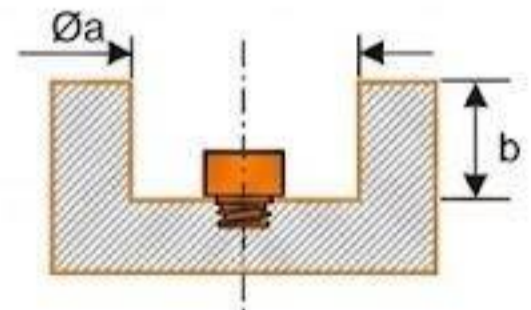
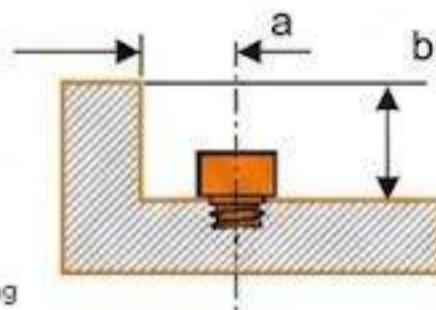
- 水平鎖付 Horizontal
- 下壓鎖付 Downward
- 上壓鎖付 Upward
- 特殊角度鎖付 Specific Angle
- 其它 Other

5 扭力要求 Torque : _____ kgf-cm 精確度 Precision _____ % 無扭力要求 No Torque Requirement

目前採用何種螺絲起子 What type of screwdriver applied now : _____

6 鎖付環境 Operation Environment

平面 Flat Surface 靠牆 Near a wall (a: _____ b: _____) 孔內 Inside the hole (a: _____ b: _____)



非平面 None Flat Surface
請提供圖面 Please provide the drawing

7 產能要求 Cycle Time : _____ pcs/minute

• Illustrate, Demo, Picture of workpiece •

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