

ASA 伺服螺絲鎖付系統功能特色

Features of ASA Servo Screwdriver



單控制器可驅動2把螺絲起子

1 controller activates 2 Servo screwdriver



扭力閉環控制、重複精度高

Torque closed-loop control, repeatability with high precision



500 個機種、500 顆螺絲設定

Supports 500+ and max. 500 screw types data settings



可實現滑牙、浮牙等多種不良品分析機制

Problem analysis: stripped / floating screw...etc.



數據可追溯

Data traceability



提高生產力

Improves productivity



扭矩、角度、貼合點控制與監控

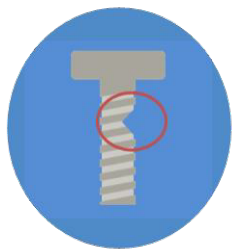
Torque, angle, seating point control strategy and monitoring



擰緊中確保工具正確、程式在正確工序中被使用，提高產品質量並減少材料浪費

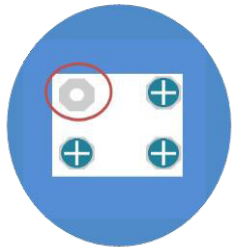
Improves process control and product quality; decreases material waste

常見螺絲鎖付品質議題 Tightening Quality Issues



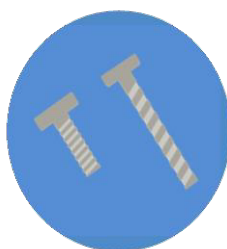
螺絲損壞檢測

Defective screw thread



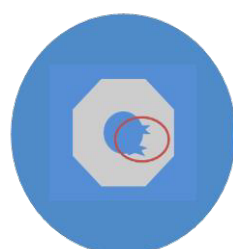
漏鎖檢測

Missing screw



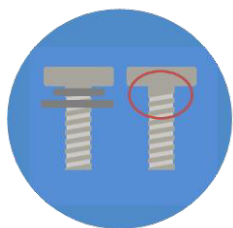
裝錯螺絲檢測 (長的裝成短的)

Wrong screw



螺孔有問題

Defective screw hole



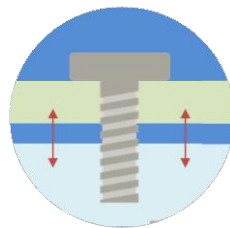
墊片漏裝檢測

Missing washer



鎖過緊

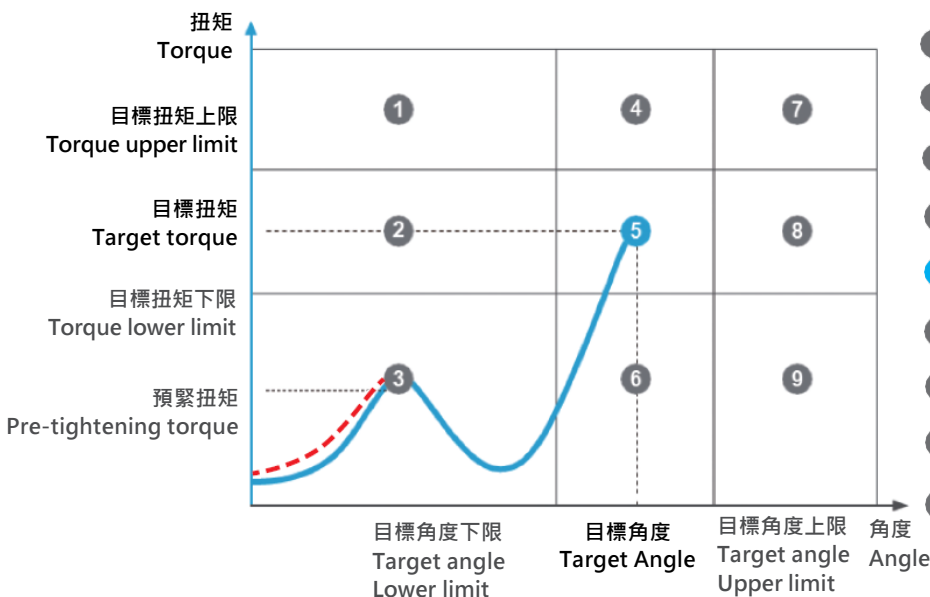
Over-tightening



浮牙檢測

Floating screw

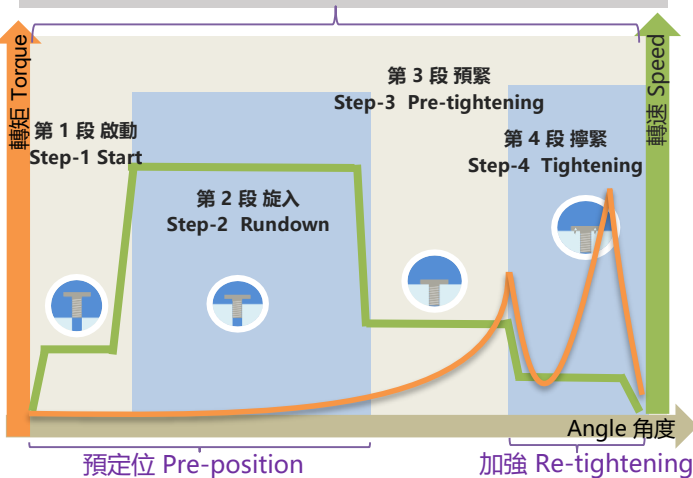
ASA Tightening Quality Issues



- ① 螺絲已鎖緊
Screw has tightened.
- ② 提早鎖死、螺孔錯誤
Screw has blocked, nut quality issue
- ③ 操作失誤 (鎖付行程未完成)
Human error (lift up too early)
- ④ 鎖付速度過快
Torque over the target.
- ⑤ 正確鎖付行為
Good result.
- ⑥ 螺絲滑牙
Screw stripping.
- ⑦ 鎖付速度過快
Tightening speed too fast.
- ⑧ 螺絲過長、漏放墊片
Screw error, gasket miss.
- ⑨ 鎖裂、螺絲滑牙
Work cracking, screw stripping

常見螺絲鎖付品質議題 Tightening Quality Issues

標準鎖付 Standard tightening



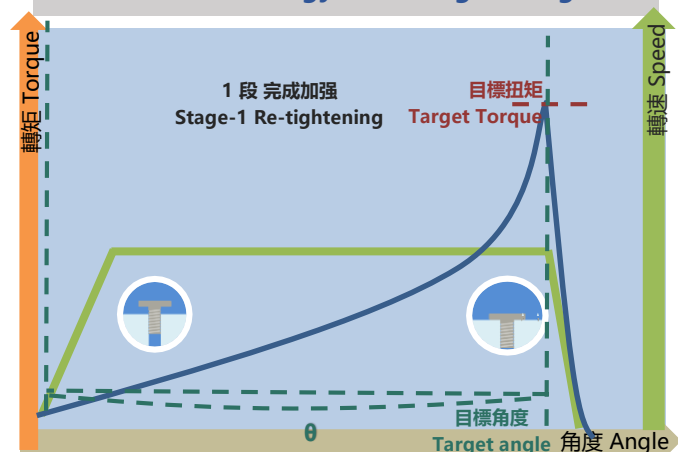
控制策略 1 – 標準策略 Control strategy 1 – Standard tightening



控制策略 2 – 預定位 Control strategy 2 – Pre-position



控制策略 3 – 加強 Control strategy 3 – Re-tightening



MES



ASA 伺服螺絲鎖付系統的架構

ASA Servo Screwdriver Structure



伺服螺絲鎖付控制器
Servo Screwdriver controller



高速通訊
High speed communication

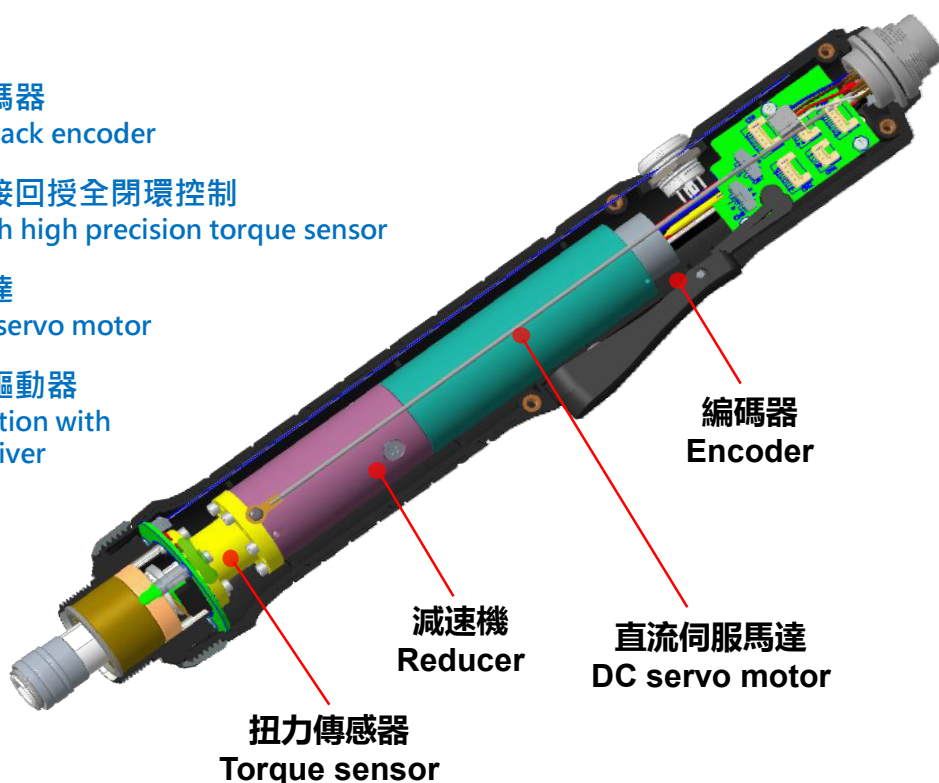


高精度的位置回授編碼器
Precisely position feedback encoder

高精度扭力傳感器直接回授全閉環控制
Closed-loop control with high precision torque sensor

低頓扭矩直流伺服馬達
Low-cogging-force DC servo motor

高速通訊連接電鎖與驅動器
High speed communication with servo drive and screwdriver



ASA 伺服螺絲鎖付控制器

ASA Servo Screwdriver Controller

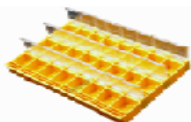


伺服螺絲鎖付控制器

Servo Screwdriver Controller

- 一對二高效能控制器
- 可依情境選擇雙軸同動或雙軸交互作業
- 10.1 吋大畫面，可同時或獨立顯示 2 把伺服螺絲起子的作業結果
- 大容量記憶體，可獨立紀錄200,000筆以上鎖附結果
- One-To-Two High Performance Controller
- Can work with 2 Screwdrivers either simultaneously or interchangeably
- 10.1-inch Large Screen
- Can display either One or Two Screwdrivers working results
- Large Memory Capacity
- Can store more than 200,000 records

Work space
announcer



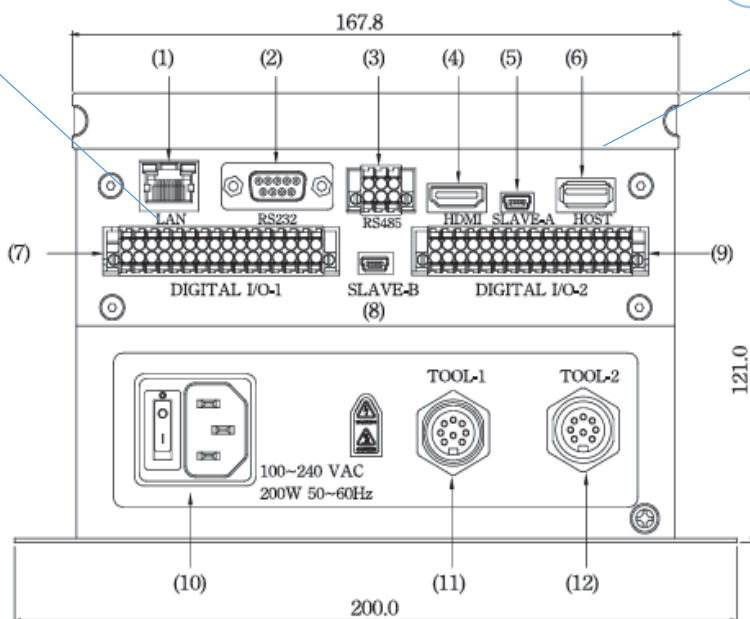
Torque Arm



Screw feeder



Bit selector



ASA 伺服螺絲起子

ASA Servo Screwdriver





ASA伺服螺絲鎖付伺服器

ASA Servo Screwdriver Controller



伺服螺絲鎖付控制器
Servo Screwdriver Controller

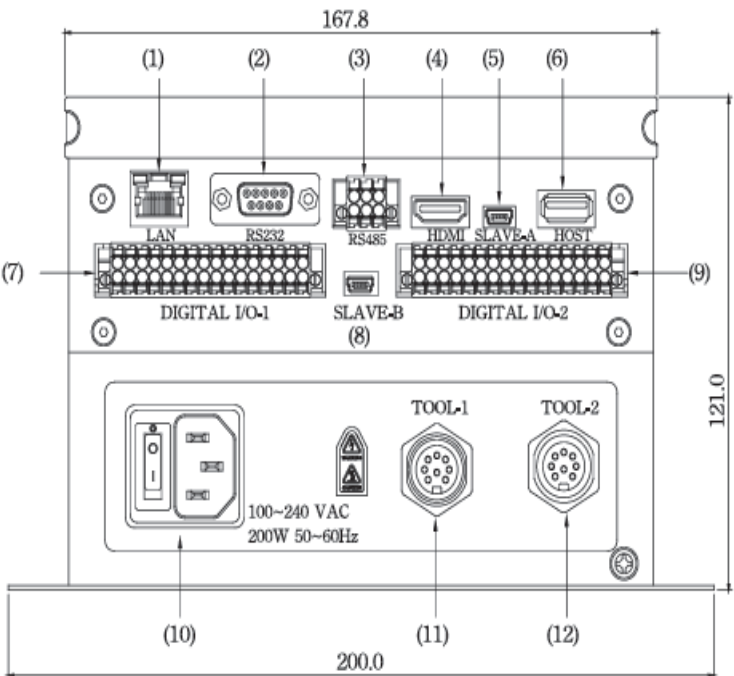
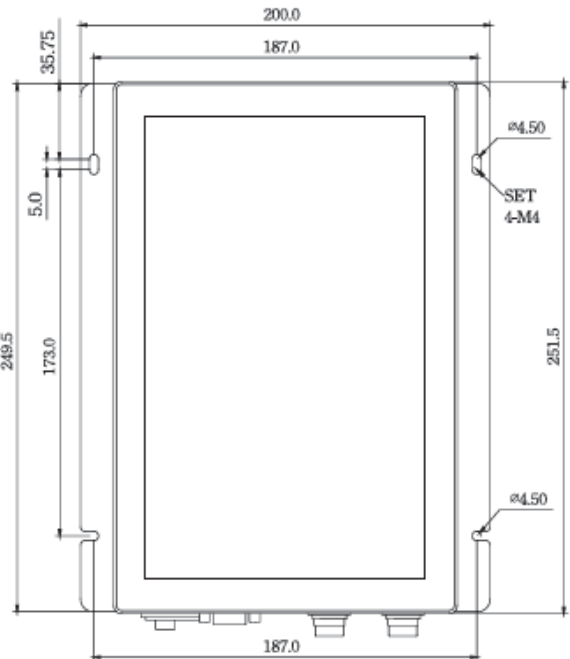


伺服螺絲起子
Servo Screwdriver



控制器 Controller		規格 Specifications	
型號 Model name		ST1-1	ST1-2
輸入電壓 Input voltage	100 ~ 240 VAC		
DC bus 電壓 DC bus voltage	38 VDC		
額定輸出電流 Rated output current	3.7 Arms		7.4 Arms
額定輸出功率 Rated output power	100W / 單軸 (1把) 100W / 1-port (screwdriver)		200W / 雙軸 (2把) 200W / 2-port (screwdrivers)
螢幕尺寸 Screen size	10.1" (觸控螢幕 touchscreen)		
外觀尺寸 Dimensions (mm)	200 x 252 x 121 (寬 width) x (高 height) x (深 depth)		
重量 Weight	4.06 kg		
安規認證 Approval by	CE , UKCA		

尺寸圖 Dimension



ASA 伺服螺絲起子 / 防靜電型
ASA Servo Screwdriver / ESD Type



型號 Model name	ST1-12SA ST1-12SB	ST1-30SA ST1-30SB	ST1-50SA ST1-50SB	ST1-75SA
啟動方式 Starting Method	槓桿式 / 下壓式 (可任意切換) Lever start / Push to start (switchable)			
輸入電壓 Input voltage	38Vdc			
扭力範圍 Torque range (kgf-cm)	2.4 ~ 12	6 ~ 30	10 ~ 50	15 ~ 75
精確度 Precision	±3%			
最高轉速 Max. speed	2000 rpm	1100 rpm	700 rpm	500 rpm
電鎖長度 Length	271 mm			
重量 Weight	480 g			
手握直徑 Handheld O.D. (mm)	34 mm			
起子頭尺寸 Bit size	5.0mm/6.35mm(1/4") 六角對邊 Hex shank			6.35mm(1/4") 六角對邊 Hex shank
操作溫度 Operating temperature	0°C ~ 40°C			
儲存溫度 Storage temperature	0°C ~ 60°C			
濕度 Humidity	0 ~ 90%RH (non-condensing)			
防護等級 IP class	IP40			

*A表6.35mm(1/4")六角起子頭，B表5mm六角起子頭 *A for 6.35mm(1/4") Hex shank，B for 5mm Hex shank

伺服螺絲鎖付系統-週邊設備(選購品) Attachment of Servo Screwdriver(Optional)

名稱 Description	規格 specification
DC電源線-3m DC Cable-3m	2W2140
DC電源線-5m DC Cable-5m	2W2142
DC電源線-10m DC Cable-10m	2W2144
90度彎頭 Right angle head	4A9110
槍型握把 Gun type-grip	4A9317
自動機台轉接座 Screwdriver holder (for EQ)	4V3034

尺寸圖 Dimension

