



## Service overview of mechanical maintenance tasks 2019 (機械維護保養服務 2019)

Content 內容	Inspection 檢測項目	Basic Inspection 基本檢測	Wrist Maintenance 中心軸保養	Main axis Maintenance 主軸保養
Storage of user programs (USB provided by customer) 程式備分 (USB 由客戶提供)		■		
Inspection of running noises 各軸雜訊檢測		■		
Checking of joint mastering 檢查機械手臂原點		■		
Condition check of hose packs, cable tracks and electrical installations 檢查外部管線, 線纜以及其他電器裝置		■		
Inspection of the counterbalancing system 檢測平衡缸系統		■		
Condition and tension check of the toothed belts (if necessary exchange, depending on the type of robot) 皮帶張力檢測 (依實際檢查情況更換皮帶)		■		
Visual inspection for leaks and damages of all gear units 外觀檢查齒輪箱是否漏油與損壞情況		■		
General visual inspection to check that connectors are undamaged and fitted securely 一般性電器接口檢查		■		
Check of the Emergency Stop at the robot system 檢查機械手臂急停裝置		■		
Check of the battery voltage / power supply unit voltage 檢查蓄電池電壓與供電電壓		■		
Inspection of cabinet temperature and radial fans 檢查控制箱溫度與風扇		■		
Exchange of the cabinet filters (KR C2) 更換控制箱濾網 (KRC2)		■		
Documentation of the maintenance records in the cabinets and fixing of the maintenance sticker 機台保養履歷並貼上保養年份貼紙		■		
Oil exchange of the wrist axis gear units (depending on the robot type) 更換機械手臂中心軸齒輪油 (依據不同手臂型號)			■	
Exchange of the toothed belts (depending on the robot type) 更換機械手臂中心軸皮帶 (依據不同手臂型號)			■	
Oil exchange of main axis gear units 更換機械手臂主軸齒輪油				■
Inspection of the motor and gear shafts axis 1 to 3 檢查A1 – A3 軸馬達與傳動軸 (與客戶討論是否施行)				■



## Service description of electrical maintenance tasks 2019:

### 電器維護保養服務 2019

Content 內容	Inspection 檢測項目	Minor Electrical Maintenance 初級電器維護	Major electrical mainte- nance 高級電器維護	Data back-up with spare SSD 資料備份
Cleaning heat exchanger (in cleanroom, this item will depends on actual environment conditions) 清潔熱交換器 (無塵室場合需視現場情況而定)		■		
Cleaning cooling elements of the drive components (in cleanroom, this item will depends on actual environment conditions) 清潔驅動件的冷卻元件(無塵室場合需視現場情況而定)		■		
Cleaning external fan (in cleanroom, this item will depends on actual environment conditions) 清潔外部風扇(無塵室場合需視現場情況而定)		■		
Battery exchange 更換蓄電池			■	
Exchange of the PC – radial fan 更換 PC 風扇			■	
Exchange of the cabinet radial fans (incl. cleaning) 更換控制箱風扇			■	
Exchange of the mainboard battery 更換主板電池			■	
Exchange of the external fan 更換外部風扇			■	
Creation of Back-Up image 建立備份				■
Labeling of the storage medium and handout to the customer 標註硬碟儲存內容				■



**Customer Services Maintenance recommendation for 5,000 operating hrs/a:**  
**客戶服務建議每年運行時間 5000 小時的保養項目**

Basic inspection 基本檢測	yearly 每年
Wrist maintenance 中心軸保養	every 10.000 h or every 2 years 每 10000 個小時或 2 年
Main axis maintenance 主軸保養	every 20.000 h or every 4 years 每 20000 個小時或 4 年
Minor electrical maintenance 初級電器維護	every 2 years 每兩年
Major electrical maintenance 高級電器維護	every 5 years 每五年
Data back-up 資料備份	yearly (on spare SSD) 每年

Maintenance Recommendation 建議保養週期	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
Basic inspection 基本檢測	■	■	■	■	■	■	■	■	■	■
Wrist maintenance 中心軸保養		■		■		■		■		■
Main axis maintenance 主軸保養				■				■		
Minor electrical maintenance 初級電器維護		■		■		■		■		■
Major electrical maintenance 高級電器維護					■					■
Data back-up with spare SSD 資料備份	■	■	■	■	■	■	■	■	■	■



■ 備註

1. 已停產的機器人,附加軸與控制箱升級價格另計

Prices for discontinued robot types, additional axes and control generations on request

2. 特殊系統,有外層保護裝置的機器人(例如低溫機器人,鑄造機器人與裝置在無塵室的機器人),價格需另外計算

Prices for special kinematics, robots with increased protection (e. g. arctic- and foundry-variants) and robots which are in stalled in a clean room on request.

3. 若機械手臂不是地面安裝(牆面.倒掛.支架安裝),將額外收取費用

Surcharge for robots and linear tracks not mounted on the floor (wall-mounted, ceiling-mounted or shelf-mounted units) or highly fouled robots

4. 基本檢測是以上各項維護保養的首要必須項目

Basic inspection is prerequisite for these performances