



精傳科技有限公司

Motion Control Technologies

VHP/VHP+ Robot Drivers Overhaul

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VHP/VHP+ Robot Drivers 簡介

一、原理

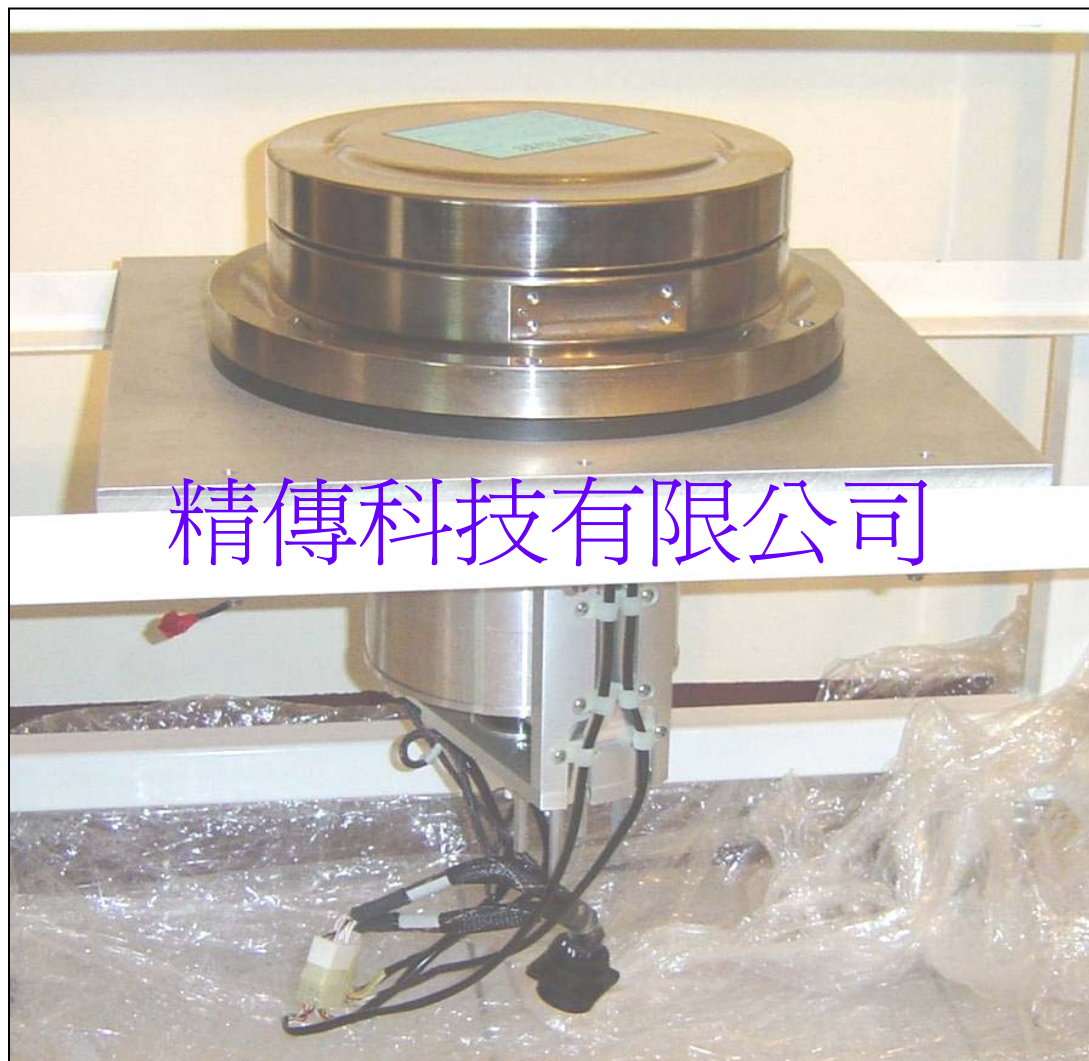
使用兩個**NSK-DD Motor**驅動**Upper & Lower Atmospheric Magnet Assembly**

二、適用機型 **Applied Materials**

T/F: Centura, Endura, HDP, Producer

ETCH: MXP+, SUPER-E, DPS, E-MAX,

三.VHP / VHP+ Drivers 外部構造



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四、VHP/VHP+ Robot Drivers 之故障原因分析

1.Direct Driver motor

(1) servo motor

- * 磁極破損
- * 欠相運轉
- * 運轉環境欠佳(軸承磨損, 磁極受異物污染)
- * 負載阻力過大(**Robot 中心軸 bearing 磨損, Vacuum Magnet ball bearing 磨損**)

(2) Resolver (position feedback signal)

- *磁極破損
- *運轉環境欠佳(磁極受異物污染)
- ***Resolver cable connector 作用不良**

2.SENSOR (Upper & Lower motor home sensor and Retract sensor)

- * **Input Diode** (發光二極體作用不良. 故障)
- * **Output Phototransistor** (光二極體作用不良. 故障)
- * **AMP 3-pin Connector** 作用不良

3.Mercury Feed-through (rotating connector)

- * 連接器作用不良
- * 連接器 **Bearing** 作用不良摩擦阻力過大

4.Ball Bearing (Magnet 8" ball bearing . Center shaft ball bearing)

- * **Bearing** 磨損作用不良.摩擦阻力過大或閒隙過大
- * **Vaccum Grease** 劣化造成摩擦阻力過大作用不良

五、VHP/VHP+ Robot Drivers 之檢驗測試

VHP/VHP+ Robot Drivers 專用測試機 & Vacuum magnet
分解安裝特殊工具

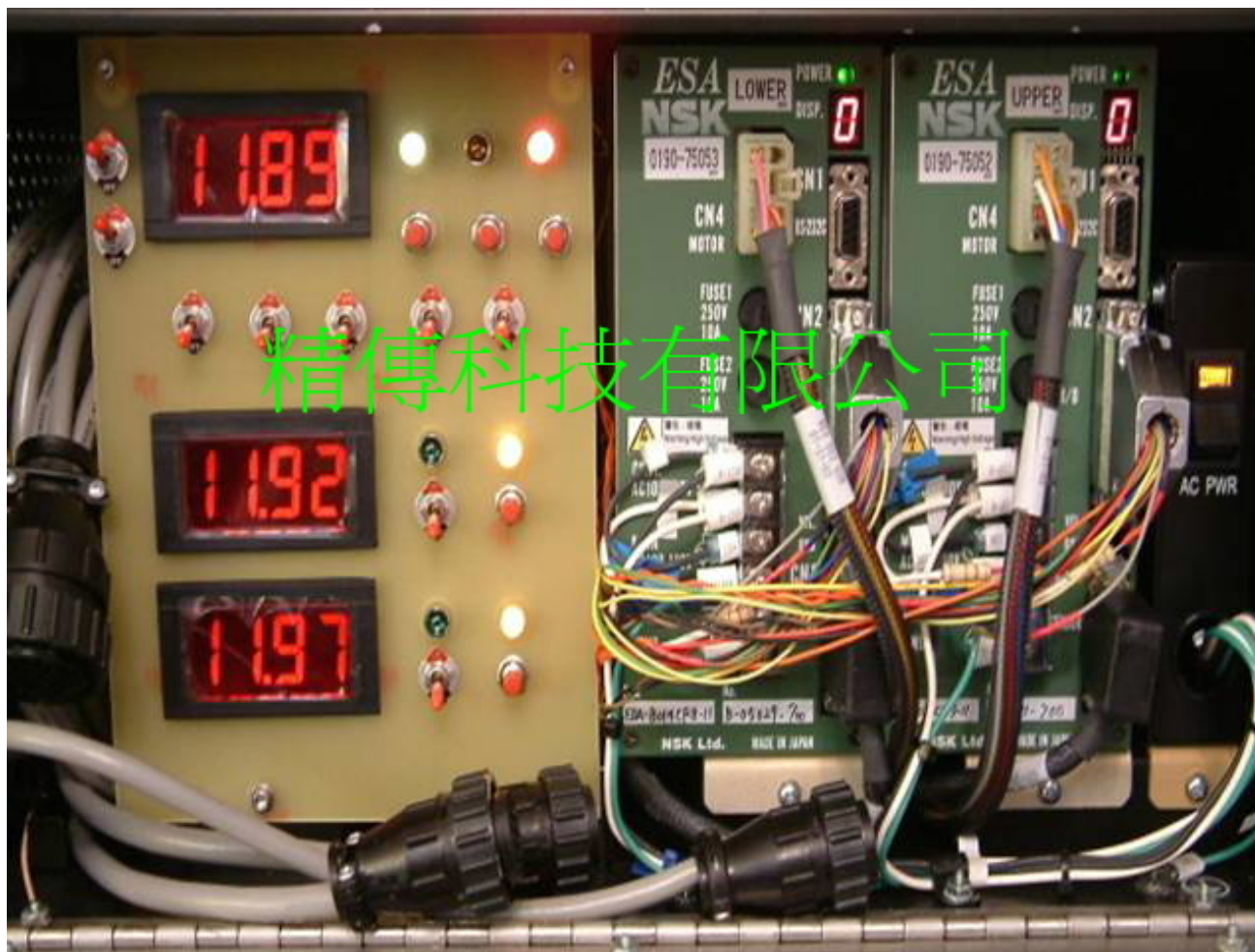
EEST ES-01 , ES-01S Software 內含:

- * CONTROLLER**
- * SERVO MOTOR DRIVER**
- * POSITION READER**
- * SENSOR TESTER**
- * CONTROL SOFTWARE**
- * COMMUNICATION SOFTWARE**
- * SERVO Parameter setting Software**

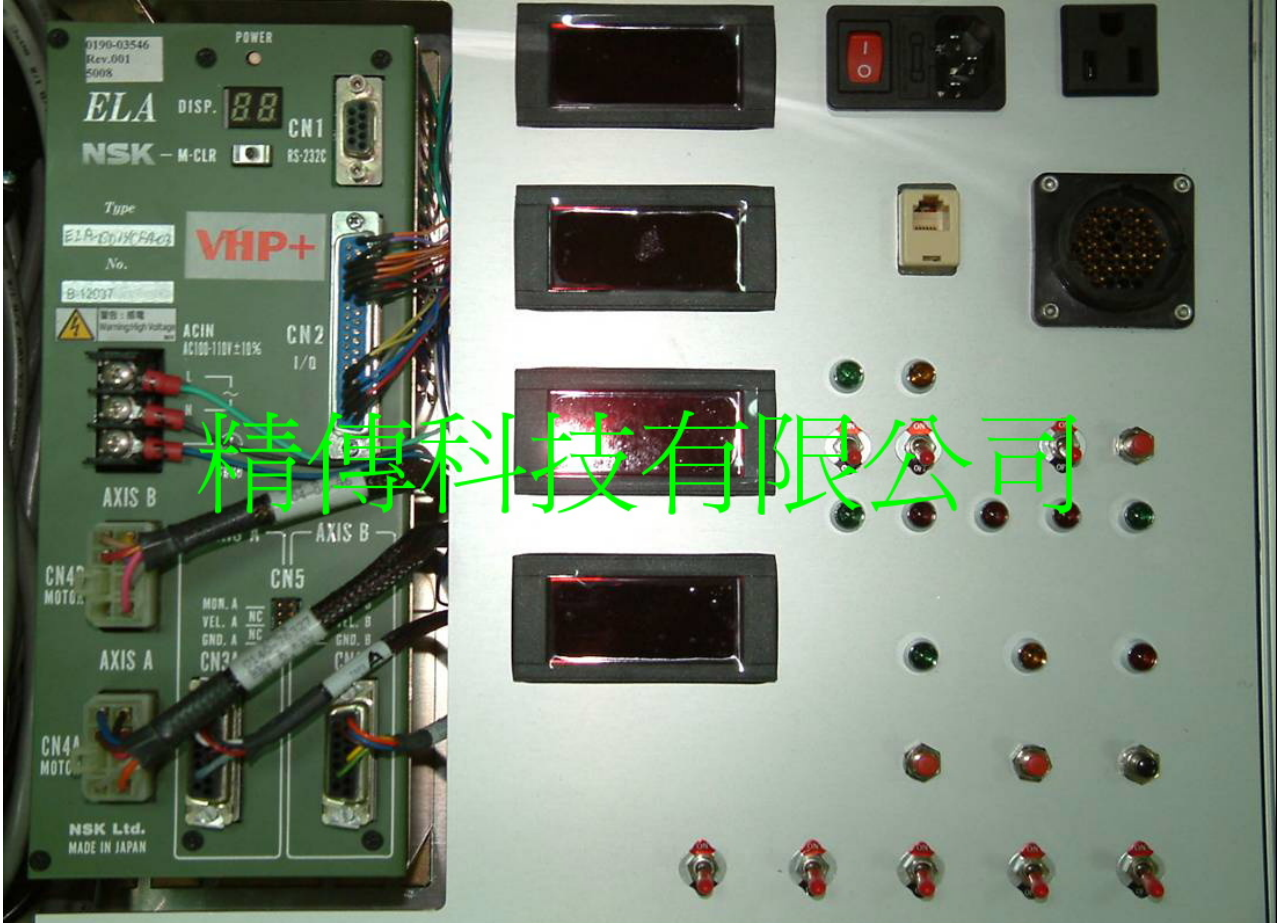
專用測試儀 ETEST ES-01



專用測試儀 ETEST ES-02 Controller



專用測試儀 ETEST ES-03 Controller



Vaccum magnet 分解安裝特殊工具



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檢測報告

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VHP Robot QA Check List

CUSTOMER : TSMC-F3-PVD

SERIAL NO: 20050314

DATE :2005/03/14

PART NAME : robot driver :

PARTS NO: N/A

FAB NO # :F3

CHECK POINT CHECK TYPE	STANDARD	1	2	3	4	5	6	7	8	9
1.Servo Motor Test (V=20000Hz,200000pulse)	200000	U	200000	200000	200000	200000	200000	200000	200000	200000
		L	200000	200000	200000	200000	200000	200000	200000	200000
2.Servo Motor Test (V=30000Hz,200000pulse)	200000	U	200000	200000	200000	200000	200000	200000	200000	200000
		L	200000	200000	200000	200000	200000	200000	200000	200000
3.Servo Motor Test (V=60000Hz,300000pulse)	300000	U	300000	300000	300000	300000	300000	300000	300000	300000
		L	300000	300000	300000	300000	300000	300000	300000	300000
4.Servo Motor Test (V=100000Hz,400000pulse)	400000	U	400000	400000	400000	400000	400000	400000	400000	400000
		L	400000	400000	400000	400000	400000	400000	400000	400000
5.Extension Sensor Test (IN:1.7V OUT:12V)	11.0± 1.0V		11.70	11.40	11.50	11.50	11.60	11.50	11.60	11.50
6.Rotation Sensor Test (IN:1.7V OUT:12V)	11.0± 1.0V		11.10	11.10	11.00	11.00	11.20	11.10	11.10	11.20
7.Retract Sensor Test (IN:1.7V OUT:12V)	11.0± 1.0V		11.0	10.9	11.0	11.1	11.1	11.1	11.2	11.1

TEST RESULT: (1)Position Servo : OK FAULT (2)Servo Stability : OK FAULT (3)Extension Home : OK FAULT

(4)Rotation Home : OK FAULT (5)Retract Sensor : OK FAULT

QA CHECKER: Andy

VERIFY BY: Dragon

六、檢修流程及檢測服務

1. 模擬機台運轉速度分析**Resolver**讀取訊號,判定**Position servo** 正確及穩定.
2. 模擬機台做**home**檢查**home sensor**讀取訊號動作是否正常.
3. 異常動作元件進行維修或更換

本公司備有完整之**VHP/VHP+ Robot** 細部分解資料及**Driver** 操作使用手冊.將能提供客戶最正確精密的細部分解安裝及檢修服務; 亦提供入廠 **in-line** 檢測服務,**drivers**無需取下,提供使用單位快速檢測分析故障原因及**Servo parameter setting**.