



# AMAT Teflon Throttle Valve Overhaul Procedure (AMAT: 0010-38027)





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## ➤ Basic Information

### Picture



Factory P/N : \_0010-38027

Function : 壓力控制 .

Port Size : KF40 .

Port 方向 : 180度 .

Driver : 步進馬達 .

Driver界面 : Belt .

Key parts : Teflon Seal .

Bellow type : N/A

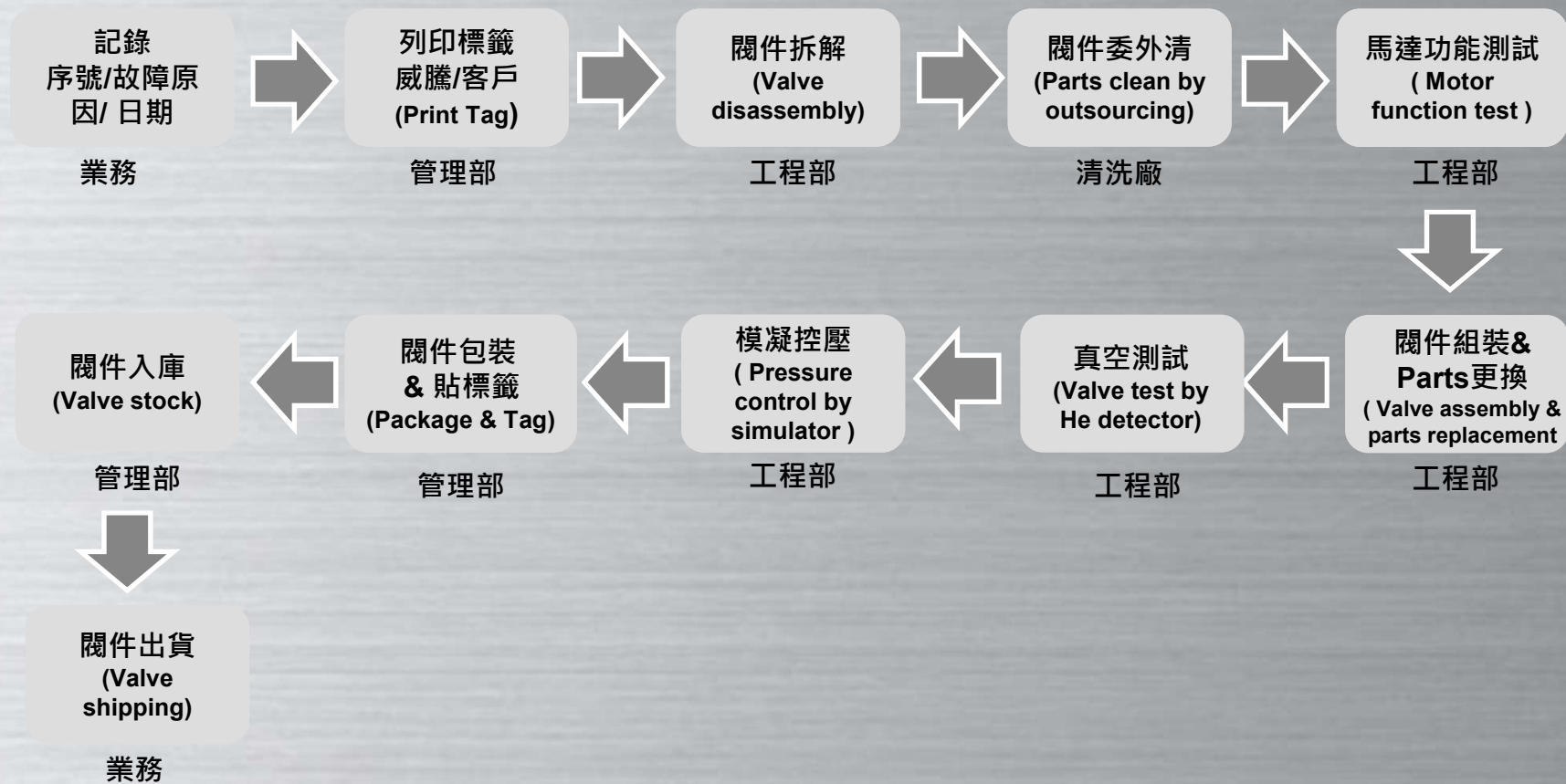
Seal type : Teflon .

Application : N/A



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## ➤ Overhaul process flow

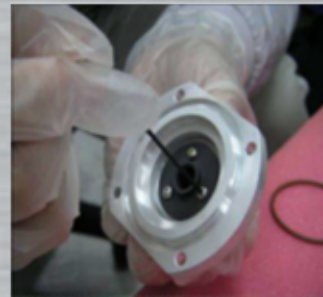
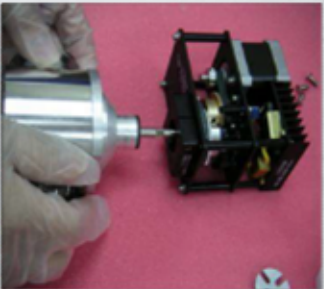
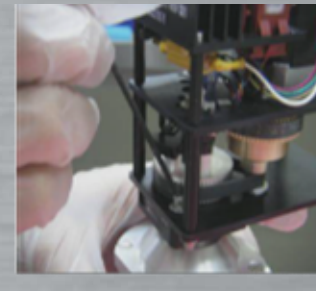
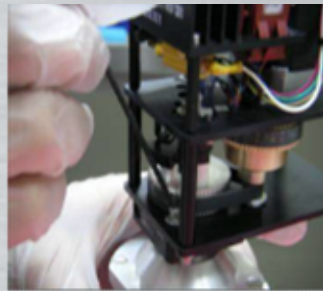






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## 1. Valve disassembly



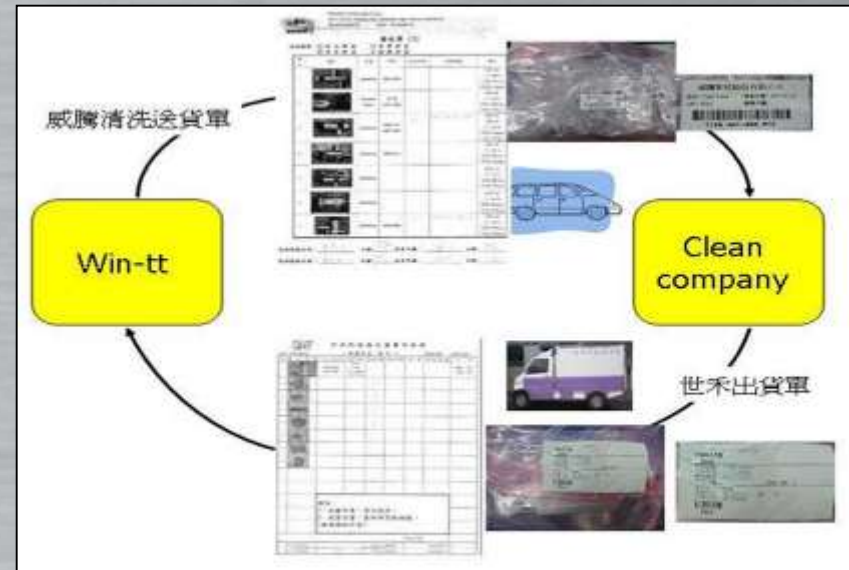


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## 2. Parts clean by outsourcing



送洗物件



送洗流程

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## 3. Motor performance test

### ● Motor step lost test

- Motor Step angle  $1.8^\circ$  , 轉一圈 200 step
- Encoder 轉一圈 3200 step







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## 4. Parts Replacement



### Parts replacement:

1. Teflon assembly ( If necessary)
2. Spring 華司
3. 軸心( If necessary)
4. All of O-ring seal
5. Bushing assembly
6. Open/close sensor

O-ring 材質: For customer request

## 5. Valve Assembly



### I 組裝 Throttle Valve

- 將Rear Bushing 放入Front Cover中 以Screw\*3固定。
- 再放入O-ring及Seal Cover。
- 將Shaft裝入Front Cover中。



### II 組裝 Throttle Valve

- 將Bottom Follower裝入Throttle Plug中，以Screw\*3固定。
- 放入Coupling。



### IV 組裝 Throttle Valve

- 已組裝完成的Front Cover裝入Throttle Valve Drive Assembly後，以Screw固定。
- 在放入已組裝完成之Throttle Valve Plug。



### V 組裝 Throttle Valve

- 將Plug Bushing放入Housing中。
- 使用治具，將Plug Bushing 和Housing 調整至最適當位置。
- 將Rear Cover鎖入，以Screw料固定。
- 組裝完成





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## 6. Valve final test:

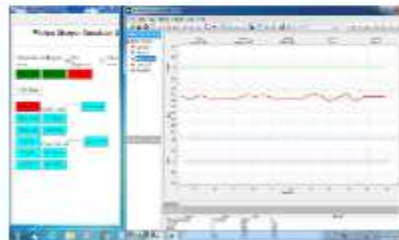
✓ 氦氣測漏



✓ Simulator calibration pressure



AMAT throttle Simulator





# AMAT Teflon Throttle Valve Overhaul Procedure (AMAT: 0010-38027)

## 6. Valve final test:

電子給點表(查詢)  
單據內容

產品編號: TPV-A01      申請會: 蔡嘉偉      申請日期: 2021-09-23  
 序列: 1      版本: 1

序次	(次)分辨	單位	Data Name	分析 類別	上限	下限	內容	Remark
2	Distance test	mm	D-TFFL	Y	0.27	0.18	Teflon Gap	coa cvt teflon gap spec
3	Distance test	mm	D-SHF	Y	9.4	9.0	main shaft size	NA
5	Vacuum test	1.0e-8torr-1/5	P-LEAK	Y	500	1	Vacuum leakage check <5.0E-8 torr/sec	COA CVD leakage (5E-8-1E-10)
7	Motor performance test	plus/sec	A-NLOD	Y	5000	3000	Motor accelerate performance without loading	NA
8	Voltage test	Voltage	V-SEON	Y	22	19.5	Open sensor on voltage	NA
9	Voltage test	Voltage	V-SEOF	Y	0.9	0.6	Open sensor off voltage	NA
10	Voltage test	Voltage	V-CLON	Y	22	19.5	Close sensor on voltage	NA
11	Voltage test	Voltage	V-CLOF	Y	0.9	0.6	Close sensor OFF voltage	NA
13	Position found	Step	C-OPCL	Y	800	700	Open to Close total count	coa cvt position step
14	Pressure test	Torr	P-0175	Y	22	0	Pressure:Home to 175 step(N2=11)	NA
15	Pressure test	Torr	P-0300	Y	3.5	1.9	Pressure:175 to 300 step (N2=11)	NA
16	Resistance test	Torr	P-0800	Y	1.95	0	Pressure:300 to 800 step (N2=11)	NA
17	Time	Sec	T-2800	Y	15.5	0	Time Chamber pressure from 0 to 30 torr, valve on Zero position(N2=11)TD	NA
18	Position found	Step	S-CLOS	Y	150	90	Close position(N2=1V)	NA
19	Time	Sec	T-LKCL	Y	0.8	0	N2:11 Valve on "low limit close position" pressure to 30 torr 所需關閉 valve on Zero position pressure 30 torr所需時間	NA
20	Time	Sec	T-LKCH	Y	5	0	N2:11 Valve on "high limit close position" pressure to 30 torr 所需關閉 valve on Zero position pressure 30 torr所需時間	NA
21	Pressure test	Torr	P-LEKO	Y	60	40	N2:11 Valve on Zero position Pressure to 50 torr and N2 off keep 15 sec.the pressure.	NA
22	Pressure test	Torr	P-LKCL	Y	60	40	N2:11 Valve on "low limit close position" pressure to 50 torr and N2 off keep 15 sec.the pressure.	NA
23	Pressure test	Torr	P-LKCH	Y	60	40	N2:11 Valve on "high limit close position" pressure to 50 torr and N2 off keep 15 sec.the pressure.	NA
24	轉速	Count	H-0000	Y	7	0	N2:5L, P=0.3 torr step 800,200,221,222,223	NA

序次	分辨	內容
1	Condition check	檢查安裝後PIN點是否正確 or broken
4	Condition check	Open Top cover check Teflon position after valve assembly completed.
8	Others	All of test on thermal 30 C
12	Position Check	Home to close step reliability test:Spec:760-790 cycle 6 times,D count<3
25	Motion cycle	Open to Close cycle 200 times within 3500 plus/sec
26	Others	所有螺絲上緊螺絲(12 points)

序次	內容
1	Pressure target: 00 torr N2: 5L Step: 140-180

序號	品名	規格	備註/備用
80000001	Photo Sensor光敏電阻器	H2181	(光敏PIN MTA-100 Header及電路板及焊線)
80000048	Motor	PK245-02AA	Motor
80000049	密封膠圈	O-RING 1.6-8mm	BANDO
80000243	Viton O-ring	AS-139	VITON
80000244	Viton O-ring	AS-110	VITON
80000380	Low pully	孔徑:6.35mm · 外徑:11.12 mm	Low pully
80000381	small pully	孔徑:6.35mm · 外徑:9.18 mm	small pully
80000382	UP Pully	UP Pully	UP Pully
80000383	Motor pully	孔徑:5 mm · 外徑:9.18 mm	NA
80000421	Plus	Plus	材料:SU5304
80000422	Coupling	Coupling	材料:SU5304
80000423	Bottom Follower	Bottom Follower	材料:SU5304
80000449	擴氣板Pinus Bushing 及 Throttle Valve Plug	孔徑:0.19 mm	Pinus Bushing & Throttle Valve Plug
80000486	Rear bushing	厚度:2.7mm-2.9mm	材料:擴氣板右蓋轉
80000487	Seal cover	Seal cover	Seal cover
80000488	Flap	Flap 油蓋	NA
80000494	Bearing	SRIF-B14/SFRI88	腳架(Z/O)齒輪用
80000495	Bearing	HR-014Z7	Z/O 齒架注油軸承(軸心用)
80000583	軸瓦	厚度:85mm D1:6.30mm D2:9.50mm	長:10EA單邊
80000740	Washer 平墊片	外徑:4.74mm 內徑:2.1mm 厚度:0.3mm(SUS WS)	300EA單邊
80001069	光學感應器	NA	NA
80001097	SENSOR	SENSOR	黃色
80001101	Front Cover 前蓋	NA	白色
80001102	Front cover 前蓋	外徑:22.20mm D:64.10mm*77.73mm	白色
80001106	Rear cover	厚:7.66mm D:64.10mm*77.73mm	NA
80001107	墊圈片	厚度:19.05, D:52.00mm*61.00mm	黑色
80001108	螺絲	長:38.15mm D:6.26mm	黑色
80001109	螺絲六角螺絲	長:23.45mm D:4.98mm	白色
80001110	Pully shaft	長:47.7mm D:6.35mm	SUS304
80001113	擴氣板(Housing 油蓋)	長:7.25mm 75.90mm*86.45mm	六角擴氣板(Housing油蓋)
80001115	Seal cover 平蓋	NA	NA
80001125	Mounting Coupler	厚度:12.80mm D1:41.81mm D2:41.86mm	黑色
80001179	擴氣板(Housing 油蓋)	NA	NA
80001386	螺絲	止付螺絲 #8*3/8(SUS SET)	NA
80001428	螺絲	圓錐十字 #2*3/16(SUS 316)	NA
80001478	Rear bushing	2.6mm-2.7mm	材料:擴氣板右蓋轉
80001479	Rear bushing	厚度:2.7mm	材料:擴氣板右蓋轉
80001520	螺絲	右螺絲內六角 #4*1/4(SLIP CAP)	三邊
80001863	LOW 運動部件	NA	NA
80001866	HAND LCP	長度:19.045 寬度:4.695	NA
80002089	Low pully	Low pully	Low pully
80002090	Small pully	孔徑:6.35mm · 外徑:11.12 mm	Small pully
80002091	UP Pully	UP Pully	UP Pully
80002092	Motor pully	孔徑:5 mm · 外徑:9.18 mm	Motor pully
80002327	空氣 O-ring	AS-139	材料:9100/雙面
80002328	空氣 O-ring	AS-110	材料:9100/雙面