



# VAT Throttle Valve Overhaul Procedure (AMAT: 0190-46323)

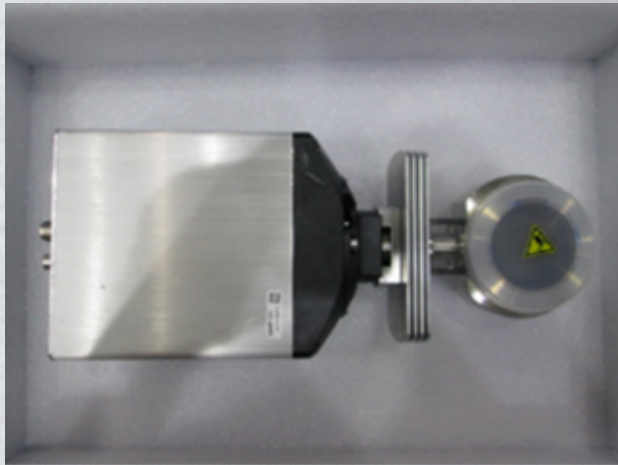




# VAT Throttle Valve Overhaul Procedure (AMAT: 0190-46323)

## ➤ Basic Information

### Picture



Factory P/N: 61234-KEGQ-AWX1.

AMAT P/N:0190-46323

Function : 壓力控制 .

Port Size : KF50 .

Port 方向 : 180° .

Driver : Device-net .

Driver界面 : Device-net (MSD: 3, LSD:7, RATE: 500 KB) .

Key parts : controller、motor、軸心 .

Bellow type : NA .

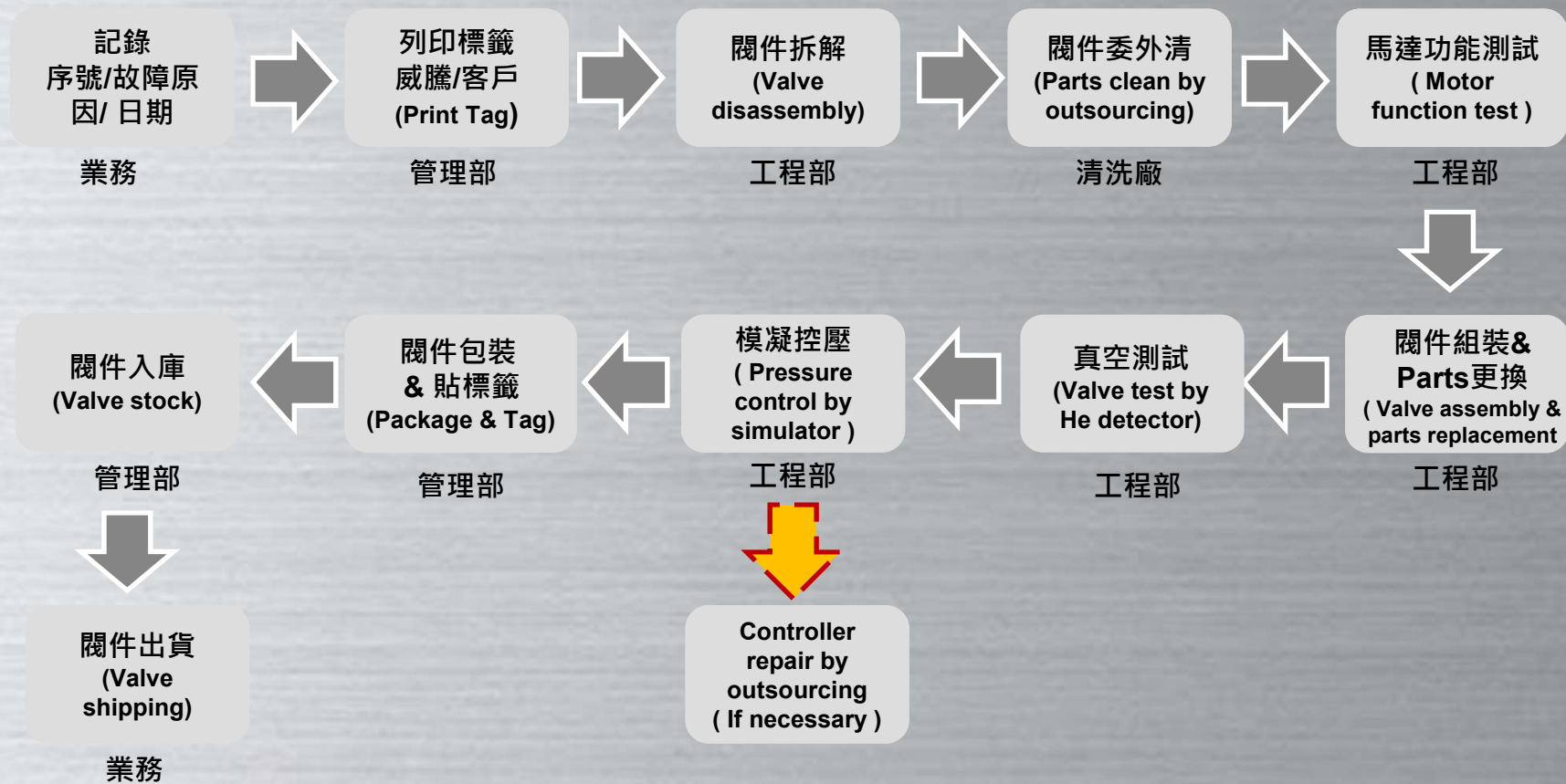
Seal type : NA .

Application : AMAT ALD .



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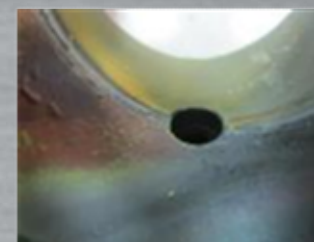
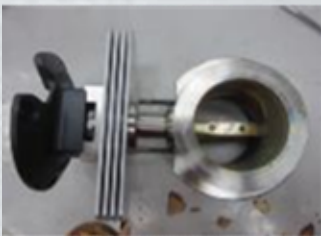
## ➤ Overhaul process flow





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## 1. Valve disassembly

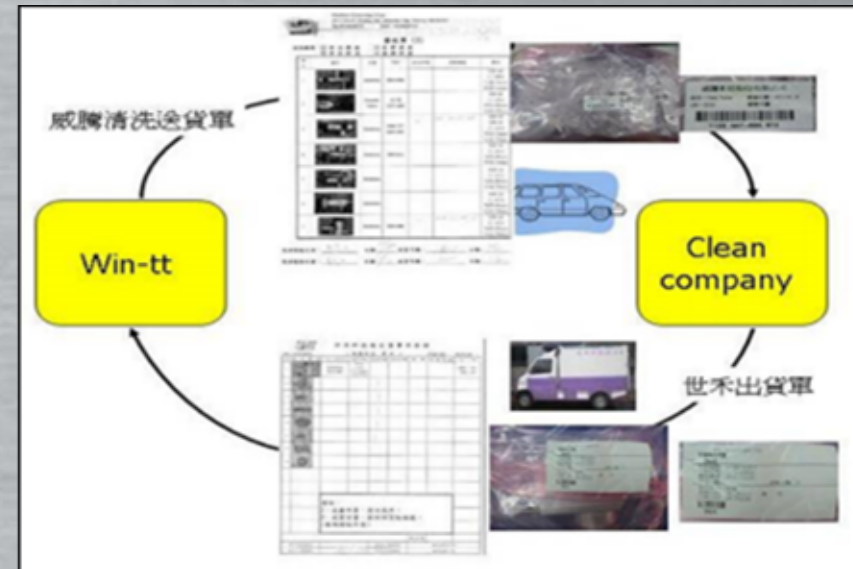


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## 2. Parts clean by outsourcing



送洗物件



送洗流程

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## 3. Motor performance test



Motor speed test



Cycle test



- \* Open to close total count: 9500~13000 step
- \* Motor performance test Step 馬達最高速度：29950~30000 plus/sec.



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## 4. Parts Replacement



### Parts replacement:

1. O-ring seal
2. Spring 華司
3. 聯軸器
4. Housing/ 閥片 ( if necessary )
5. Controller (PCB repair, if necessary)

### O-ring 材質:

XCD ring --- 客戶指定

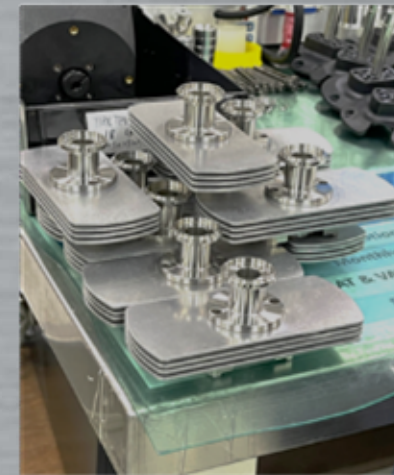
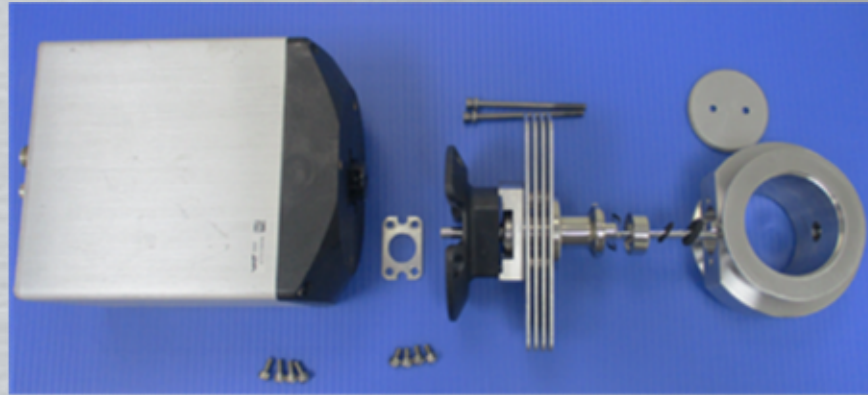
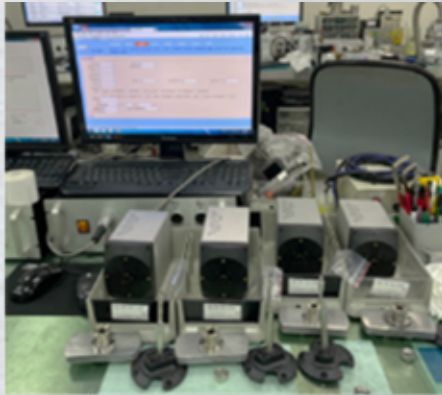
9100 (Kalrez) --- 因為彈性問題, 控壓測試時, 閥件角度變化較大

8900 (Kalrez) --- 現行使用



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## 5. Valve Assembly







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Description	Required tool
<p><b>Remove valve from system</b></p> <p>1. Note: Valve size that the valve is in closed position.</p> <p>2. Vent vacuum system, disconnect electrical connections and remove valve from vacuum system. If you only replace control and actuator (unit), the valve can remain in the system.  <b>Note:</b> Take care not to damage the sealing surface!  <b>Attention!</b>            Do not move the plate by hand when control and actuating unit is installed.</p>	Depending on large screws
<p><b>Remove control and actuating unit from valve unit</b></p> <p>3. Unfasten clamp coupling.</p>	Allen Wrench 2mm
<p><b>Remove control and actuating unit</b></p> <p>4. Unfasten the 2 connection bolts and separate both parts.  <b>Note:</b> Valve size DN 150 (1/2") and bigger require a stretched wrench.            For ordering number refer to spare parts list 2 accessories.</p>	Allen Wrench 2mm
<p><b>Remove plate</b></p> <p>5. Unfasten screws and remove plate from shaft.</p>	Allen Wrench 2mm

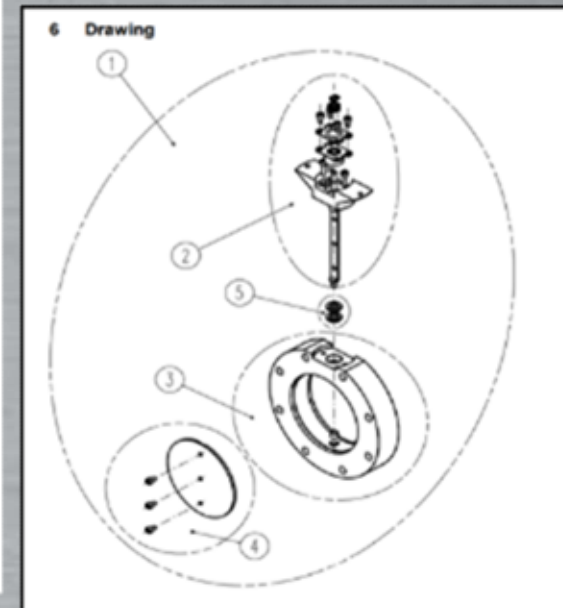
Description	Required tool
<p><b>Remove and clean mechanical unit</b></p> <p>6. Unfasten alternately the 2 mounting screws (DN 150).</p> <p><b>Note:</b> If only one screw is broken / carbon, the mechanical unit will be damaged. Max. difference should be less than 1 turn or 0.5 turn of the screw.</p>	Allen Wrench 2mm
<p>7. Remove mechanical unit and clean shaft.</p>	
<p><b>Inspect and clean valve assembly</b></p> <p>8. Remove O-rings.</p> <p>9. Clean shaft bedthrough and valve body.</p>	
<p><b>Lubricate actuator shaft</b></p> <p>10. Lubricate seal contact surface of valve body with a slight film of vacuum grease (0-100 mPa).</p> <p>11. Lubricate each O-ring with a slight film of vacuum grease (0-100 mPa).</p>	

Description	Required tool
<p>12. Lubricate seal contact surface of shaft with a slight film of vacuum grease (0-125 mPa).</p> <p>13. Slide both O-rings onto shaft @ the end.</p> <p>14. Deposit 0.2005 ml vacuum grease between the O-rings.</p> <p>15. Clean shaft from vacuum grease.</p>	
<p><b>Mount mechanical unit to valve body</b></p> <p>16. Assemble mechanical unit in reverse order as described (steps 6 to 9).</p> <p>17. Align potential parallel to valve body and tighten the 2 mounting screws with 2 Nm.</p>	Allen Wrench 2mm

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## 5. Valve Assembly

	Description	Required tool
Assemble and adjust plate	18. Center plate.	
	Size	Feeler gauge set
	25	0.24
	42	0.24
	52	0.24
	62	0.24
	82	0.30
	100	0.30
	140	0.30
	200	0.30
250	0.4	
	19. Tighten plate screws with 2 Nm.	
Mount control and actuating unit to valve unit	20. Assemble control and actuating unit to valve unit. Tighten marking screws adequately.	Allen Wrench 2mm
	21. Tighten diaphragm coupling with 1.1 Nm.	Allen Wrench 2mm
Install valve into system	22. Reinstall valve into vacuum system according to chapter 4 installation.	



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## 6. Valve final test:

Vacuum test by He detector



Pressure control by simulator within 190°C Heater





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6. Valve final test:



**VAT Simulator**

TPV-134 Go-All EMO

SN:

1.Learn 2.Seal\_20L 3.Pressure\_60T\_20L

4.Pressure\_10T\_10L

Test:

Status:

Refresh

**VAT - FreeMASTER**

File Edit View Dashboard Project Tools Help

Project List

- New Project
- Fault
- Chart\_100T
- Chart\_1000T

Graph: T [mV] vs Time [s]

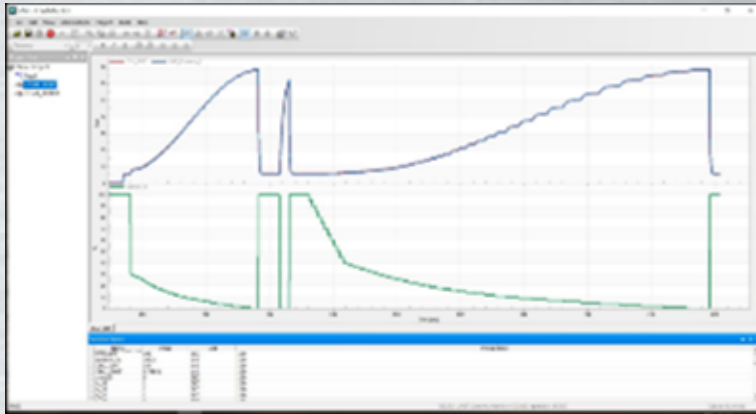
Name	Value	Unit	Point [mV]
Pressure_10T	10.0	DEC	100
Pressure_20L	10.0	DEC	100
Ch_100T	0.5	DEC	100
Ch_1000T	1.0000	DEC	100
valve_0	0	DEC	100
b_S1	0	DEC	100
b_S2	0	DEC	100
b_S3	0	DEC	100
b_S4	0	DEC	100
b_S5	0	DEC	100
b_S6	0	DEC	100

Ready ES232 UART Controller (COM2) speed=115200 Scope Running

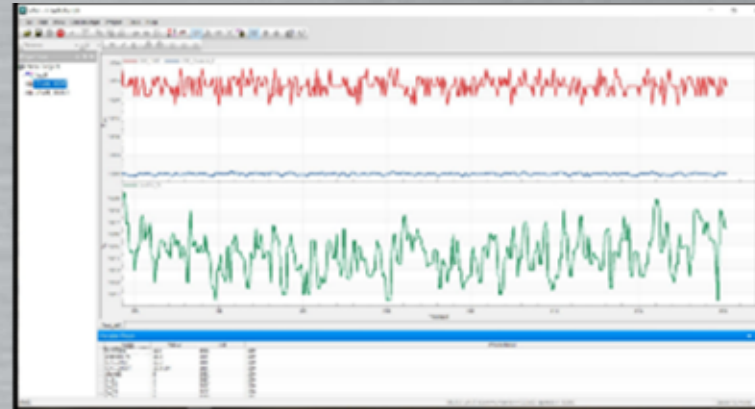


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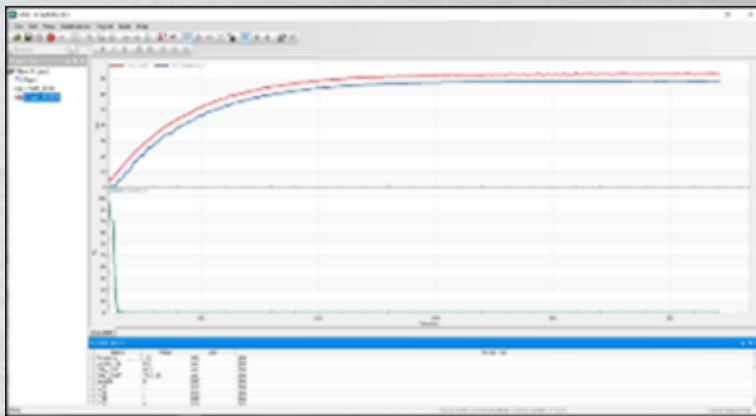
## 6. Valve final test:



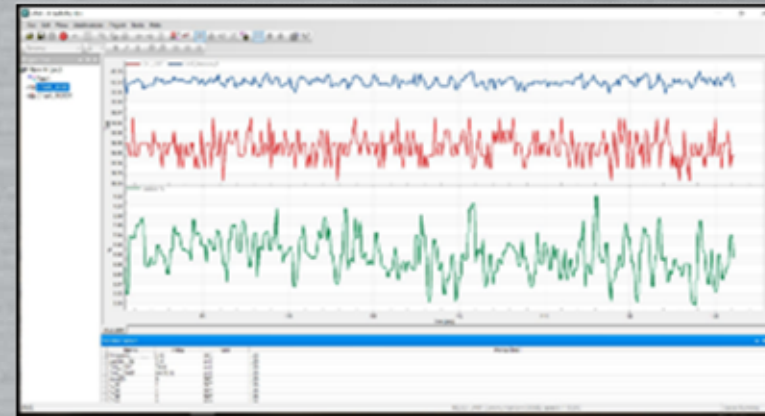
Valve Learning



Pressure Target: 10 Torr  
Gas flow: 10L



Valve Seal Test



Pressure Target: 60 Torr  
Gas flow: 20L