

作成日:2016年12月14日

No.S16-3022R10

Spec. Sheet

Title: Mask Process tool

Type: TL-0605S



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1. System concept

This tool is wet process system for up to 9" mask size

Tool Config. is L D / U L D • Centering • Spin Coater • H P / C p and Spin Developer

Load-Unload of Cassette is set up by operator and Robot handle the masks in the chamber.

2. Quoted items

eliminated

3. Body material

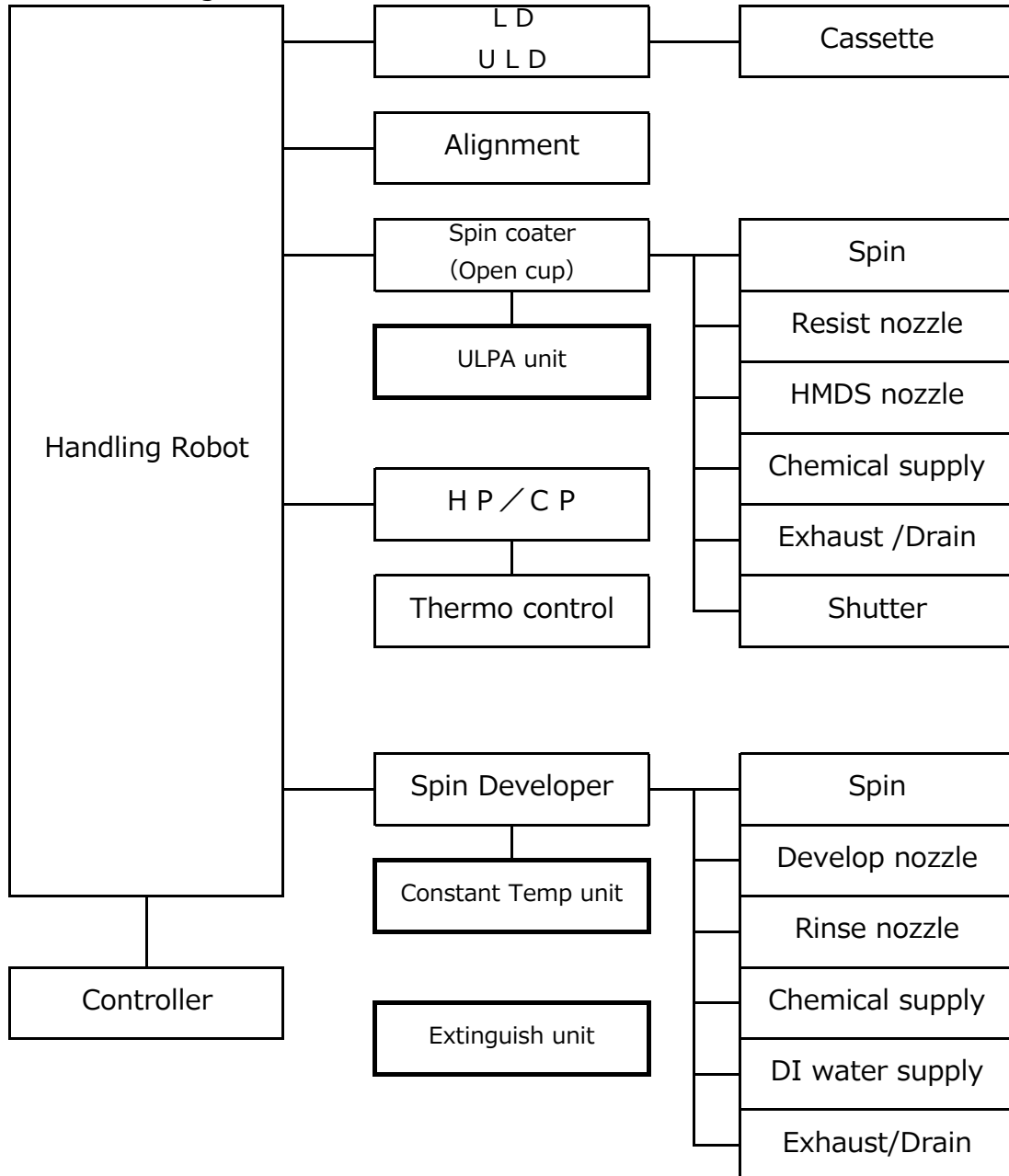
- 1) Bottom frame : S S + baked coat 2. 5Y9 / 1
- 2) Top frame : S U S (# 4 0 0 polished)
- 3) Bottom cover : S U S (# 4 0 0 polished)
- 4) Top cover : Anti-electrostatic PVC (see through)

4. System Spec.

4-1 Basic spec

- 1) Plate size : □ 5"、□ 6"、□ 7"、□ 9"
- 2) Pass line : 970mm~1350mm from FL(up & down by Robot)
- 3) クリーン度 : Class 1 0 0 (ULPAUnit : 2 unit)

4-2 Unit Config.



- ③ Resist Nozzle
 - Nozzle arm : Swing type
 - Swing motion : by Stepping motor with Gear
 - Up/Down motion : by Stepping motor + Ball guide
 - Nozzle line : 3-lines (3 type of resist)
 - Supply control : by Air operation with Suck back valve
 - Nozzle No. : 3 nozzle
 - Filtering : Entegris filter CWUG 0. 2 μ m \times 1
 - Stand by Pot : Pot to prevent the nozzle edge from Dry

- ④ HMDS Nozzle
 - Nozzle arm : π -Swing type
 - Swing motion : by Stepping motor with Gear
 - Up/Down motion : by Air cylinder
 - Chemical supply : 1 line
 - Supply control : by Air operation with Suck back valve
 - Nozzle edge : Height adjust by manual (10 mm)
 - Filtering : Entegris filter CWUG 0. 2 μ m \times 1
 - Stand by Pot : Pot to prevent from Drop

- ⑤ Exhaust/Drain
 - Exhaust port : bottom of Coater cup to Vapor/Liquid separator BOX
 - V/L Separator : connect to the bottom of tool
 - Exhaust control : Auto damper (10 steps control)
 - Exhaust fan : Electric fan unit with Inverter control (stand alone)
 - Drain way : by Returned tank(P.P.) in the bottom of tool.
 - Location : in the bottom of tool

- ⑥ Shutter in Chamber
 - Chamber material : Anti Electrostatic PVC
 - Open/Close : Slide way (Window for Robot arm)
 - motion : by Air cylinder

5) Resist line A(3 lines)

- ① Resist supply(1line)
 - Supply method : Constant dispensing pump(1set) Koganei-10cc type)
 - Chemical tank : Pressured tank(1set), quarter bottle
 - Attachment : Precise regulator + Gauge (to drain liquid in the pipe)
 - Residual check : residual liquid check by Load cell

- ② Resist line B(2 lines)
 - Supply method : Pressurized supply tank (2sets)
 - Chemical tank : Pressurized tank (2 sets), for quarter bottle
 - Attachment : Precise regulator + Gauge
 - Residual check : residual liquid check by Load cell
 - Tube size : 1 X ϕ 10mm、1x ϕ 6 mm

③ H M D S supply (1 line)

- Supply method : Pressurized supply way
- Chemical tank : Pressurized tank (1 set), for quarter bottle
- Residual check : residual liquid check by Load cell
- Attachment : Precise regulator + Gauge

④ extinguisher(Box type)

- Auto extinguisher (初田製作所製 : C X R -) , in back side of the tool
- Signal process : connect to Emergency stop & close the coater damper
- Sensors : Fire & Temp. sensor with Gas nozzle(at top of coater)
- Power supply : included in the BOX

⑤ Drain tank(1set)

- Tank material : P . P tank (5 L tank)
- Residual check : residual liquid check by Load cell
- Location : In the bottom of the tool

6) Hot plate

- Plate No. : 2 sets
- Plate material : Al with Anodizing surface
- Temp. range : R T ~ 1 5 0 °C
- Temp. accuracy : 1 0 0 °C ± 1 °C (on the HP)
- Plate support : Guide piece (4 corners) with Proximity plate(0.3mm)
- Contact material : P E E K
- Mask change : by change the guide piece with gauge for height check
- Transfer way : by Guide bar with Clump which move up/down
- Clump motion : by Stepping motor + Ball guide
- Up/Down motior : by Air cylinder
- Temp. setting : by Temp. controller
- Temp. control : by P I D regulator
- Chamber material : S U S + Heat insulator
- N 2 Purge : S U S tube
- Filter : Entigres Gas filter W G F G 0 1 D S H × 2
- Shutter Open/Close : by Air cylinder
- Shutter material : S U S
- Heat exhaust : exhaust from the bottom port in the tool
- Exhaust control : with manual dumper

7) Cooling plate(CP)

- Plate No. : 1 set
- Plate material : Al with anodizing surface
- Temp. range : 2 0 ~ 3 0 °C
- Temp. accuracy : 2 3 °C ± 1 °C (on the plate)
- Plate support : Guide piece (4 corners) with Proximity plate(0.3mm)
- Contact material : P E E K
- Mask change : by change the guide piece with gauge for height check
- Clump motion : by Stepping motor + Ball guide
- Up/Down motior : by Air cylinder
- Cooling method : by circular thermo controller(Air cooling way)

8) Spin Developer unit

① Spin cup

- Cup size : $\phi 500$ mm
- Cup material : S U S 3 0 4 # 4 0 0 with Buffing polish
- Plate holding : Mechanical chuck with Guide piece
- Chuck material : S U S 3 0 4 + P E E K (contact points)
- Spin motor : AC servo motor Output power 3.5Kw
- Spin speed : 30 ~ 200 (MAX 2000 r p m)
- Spin accuracy : ± 1 r p m
- Spin display : Digital display on touch panel
- ※ attach Digital spin meter to prevent it from abnormal spin.
- Spin control : by Spin program
- Origin stop : by Mechanical lock(by Air cylinder)
- Escape Up/Dowr : by Air cylinder with Ball spline
- Plate change : by changing table (4 types)

② Develop nozzle

- Nozzle arm : Straight movement
- Motion way : 1 axis Robot made in IAI製
- Up/Down motior : Stepping motor + ball guide
- Chemical line : 1 line
- Nozzle : Low impact nozzle (TAKEUCHI製 : 1 / 4 M YYP 1 4 0 S303)
- Fixed nozzle : 2 nozzle in the cup (Spraying製 : TPU9502SUS)
- Flow meter① : 0. 4 ~ 2. 0 L / m i n (in Low impact nozzle)
- Flow meter② : 0. 4 ~ 2. 0 L / m i n (In Shower nozzle)
- Supply control : by Air operation with Suck back valve
- Filter : Entigres filter CWUGZ 0. 0 5 μ m \times 1

③ Rinse nozzle

- Nozzle position : fixed in the cup
- Nozzle No. : 2 - Spray type
- Back rinse : fixed in the cup
- Nozzle No. : 1- S U S Tube type
- Pure water : by factory line
- Filter : Japan Pole pure water filter A B 1 N A 3 E J \times 1
- Flow meter : 2 set of 0. 4 ~ 2 L / m i n
- Supply control : by Air operation with Suck back valve

④ Blow nozzle

- nozzle No. : 1 line (from Top)
- Nozzle material : S U S tube with edge made from Teflon
- Arm motion : swing by Air cylinder (only on top surface)

⑤ N 2 Supply

- Adjustment : by Regulator with Flow meter
- Tube material : Teflon tube
- Filter : Entigris Gas filter W G F G 0 1 D S H \times 1
- Flow meter : 1 set of 1. 5 ~ 5 0 l / m i n (digital)

⑥ Exhaust & Drain

- Exhaust port : connect from Developer cup to V/L separator BOX
- V/L separator BOX : connect to the cup at behind of tool (material: PVC)
- Exhaust fun : Electric blow unit (stand alone) Inverter control
- Inside exhaust : connect to factory exhaust line

⑤ Drain tank (2 sets)

- Drain : connect from V/L separator BOX to Drain tanks(20L x 2)
- Return way : by pump with sensor (fixed at back of tank)
- Location : in the bottom of tool

⑥ Chamber

- material : P V C (ivory color)
- Maintenance door : Open/Close door at front

9) Develop chemical supply unit

- Chemical tank : in the bottom of tool
- Supply way : Pressurized method
- Chemical supply : by Canister tank(18L x 2set) **supplied by customer**
- Residual sensor : Bottom limit sensor (floating type) **supplied by customer**
- Attachment : regulator + Guage : P R 2 0 0 G 3 P (KOGANEI製)

1 0) Thermo-Hygrostat unit

- Unit No. : 2 sets (one for Coater unit and one for other units)
- Unit type : Coater by Thermo-Hygrostat unit
Other part by Thermo unit
- Power supply : by different power line from the tool (factory supply)
- setting (coater) : 2 3 °C (± 0. 1 °C) 、 5 5 % (± 1 %)
- setting(others) : 2 3 °C (± 0. 1 °C)
- Location of sensors : in front of exit port of Main ULPA unit

1 1) Controller

① Whole control

- PLC : 三菱製Mitsubishi Series (Q 0 6 U D E H C P U)
- Touch panel : 三菱製Mitsubishi G O T series (G T 2 0 0 0 / 8 inch)
(Program No. : more than 20 types)

② Spin programmer

- Recipe setting : by touch panel
- Setting items : Spin speed
Spin acceleration/deceleration time
timing & speed of Nozzle motions
Strength & timing of Exhaust fun
Open/Close & timing of each valves
Process time of H P / C P
handling pattern of Robot
Process step No. : more than 20

③ Security function

- Interlock : It is managed safely by interlock functions which are confirmed each movement without contacting any parts.
- Urgent Shut down : In case Plate was released or other power supply capacity was down, It is stopped running the system urgently.
- Emergency Switch : Stop by pushing the emergency switch
- Signal tower : In case any abnormality occurred on the system, it is informed such errors by lighting & buzzer.

④ Control box : installed at a stand alone separately from the main body.

5. Guarantee

If any defect or damage was occurred by our obvious responsibility within 1 year except consumable parts, such problem should be repaired or replaced without charge. However, shown below is not free of charge

- 1) Defect caused by mistaking Spec. usage or purpose.
- 2) Defect by unfair modification or repairs
- 3) Defect caused by the wrong usage or management
- 4) Exchange or attachment without contract or consumable parts
- 5) Defect caused by natural disaster like a fire, flood or earthquake

6. Others

6-1 Presented documents

Form of equipment is as follows

- 1) Whole layout chart
 - 2) Flow or piping design
 - 3) Electric circuit diagram(hard copies)
 - 4) Instruction(tool, electronics, and others)
 - 5) Any other document by customer discussion
- however, each parts in detailed design will not be submitted.
and Ladder diagram or PLC software will not be submitted

※ Completed manual is submitted one month after delivery of system.

6-2 Issues or items which is not included Spec. sheet
and contract should be discussed mutually

Utility List

No.	Items	Spec	pcs	connection	Remark
1	Power supply	ϕ 3 AC200V 50Hz 100A 40KVA	1	4P with earth line in Power supply box	5KW motor for coater 3. 5KW motor for developer 0. 6KW for Robot
2	CDA	300NL/min 0.6MPa	1	3/8" SUS Rc female port in the tool	
3	N2	200NL/min 0.3MPa	1	3/8" SUS Rc female port in the tool	
4	Pure water	10L/min 0.2MPa	1	ϕ 26 (VP20) port in the tool	
5	Exhaust 1	6m ³ /min	1	ϕ 123 SS+coating	for Spin coater
6	Exhaust 2	10m ³ /min	1	ϕ 75 SS+coating	for Spin developer
7	Organic exhaust	5m ³ /min	1	ϕ 75 SUS	for Spin coater
8	General exhaust	5m ³ /min	1	ϕ 76 PVC Port in the tool	for Spin coater
9	Heat exhaust	5m ³ /min	1	ϕ 75 SUS Port in the tool	
10					
11					
12					
13					
14					
15					