



UNIC

Mask Cleaner System

(주)유닉 UNIC
Considerate Confident Creator

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Considerate Confident Creator

1. Introduction

1) Application:

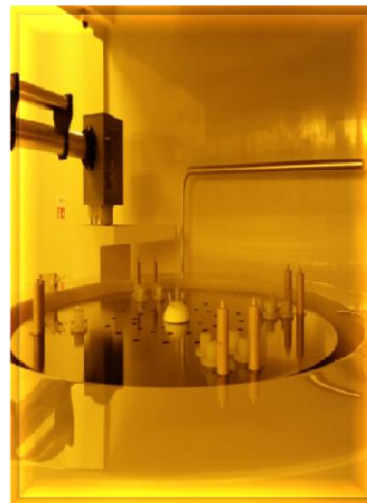
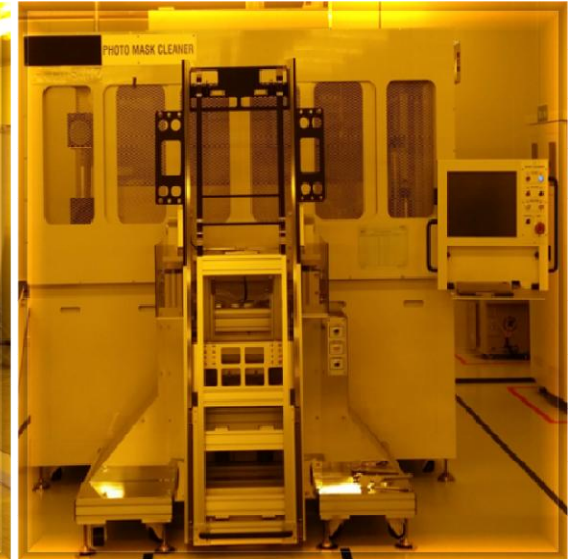
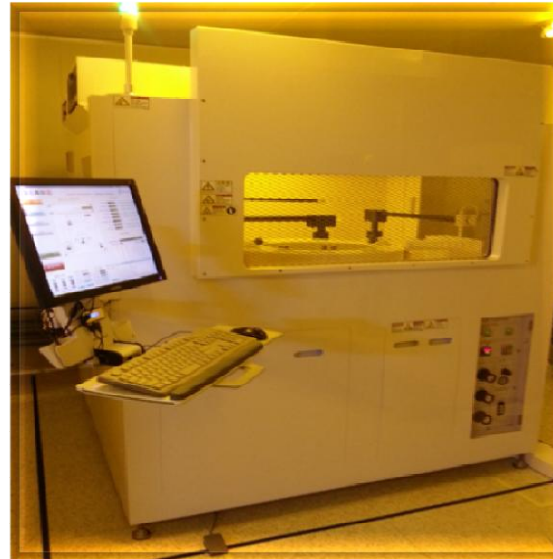
- (1) Photo Mask / Color Filter Mask
Cleaning Process (Q'tz / Soda-lime)

2) Glass Size

- (1) 大, 中, 小 Various Size Optimizing
- (2) 150 ~ 1600mm Multi Available

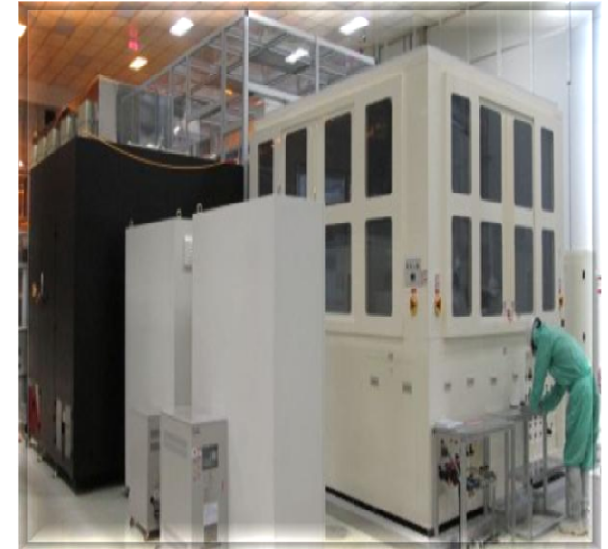
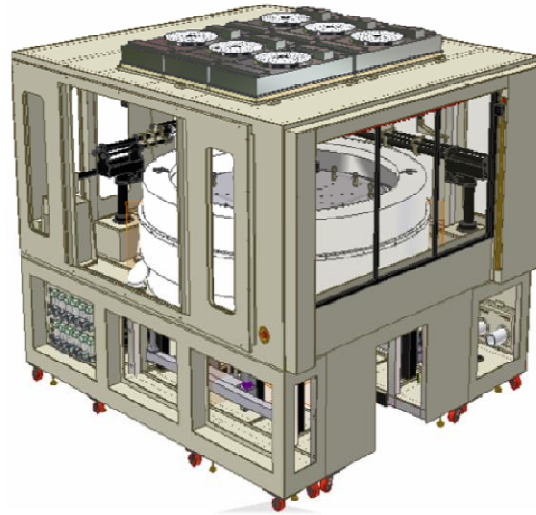
3) Processing Method (Optional)

- (1) Dual Side Cleaning & Dry
- (2) Alkali Base Cleaning (KOH, TMAH...)
- (3) Acid Base Cleaning (H₂SO₄, H₂O₂...)
- (4) Brush Cleaning Or Only Chemical Cleaning
- (5) DI Spray (Hot & Cold), Rinse (Front, Back)
N₂ (Front, Back), Wall DI, Spin Dry
- (6) Megasonic, UV, Reverse & Inspection,
Stocker
- (7) Auto Loader or Manual Loader
- (8) Other Function Available
(Ex. Develop, Etching, Strip, Rinse, Dry)

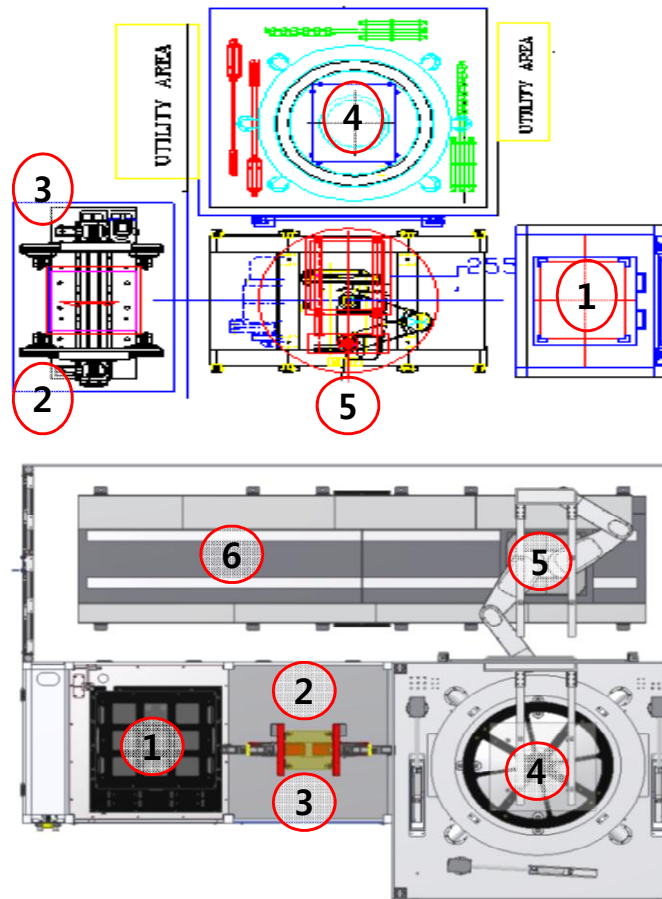
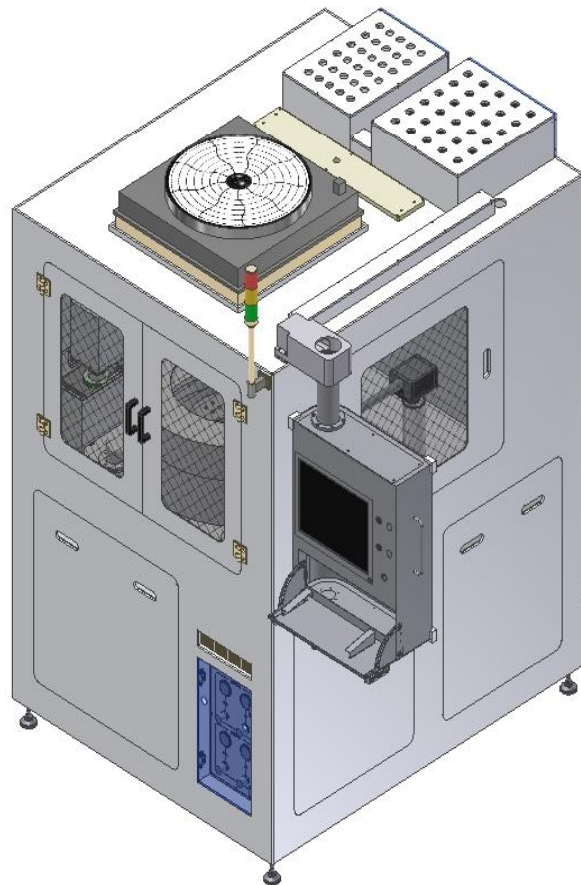


2. Generals

- 1) High Quality Cleaning Process
- 2) Small Foot Print / Maintenance Area
- 3) Low Chemical Consumption
- 4) From Manual to Full Automation System
- 5) Unit Isolation Usage Available
- 6) Spin Processor System Optimizing
 - (1) Developer
 - (2) Etcher
 - (3) Striper
 - (4) Cleaner



3. System Configuration

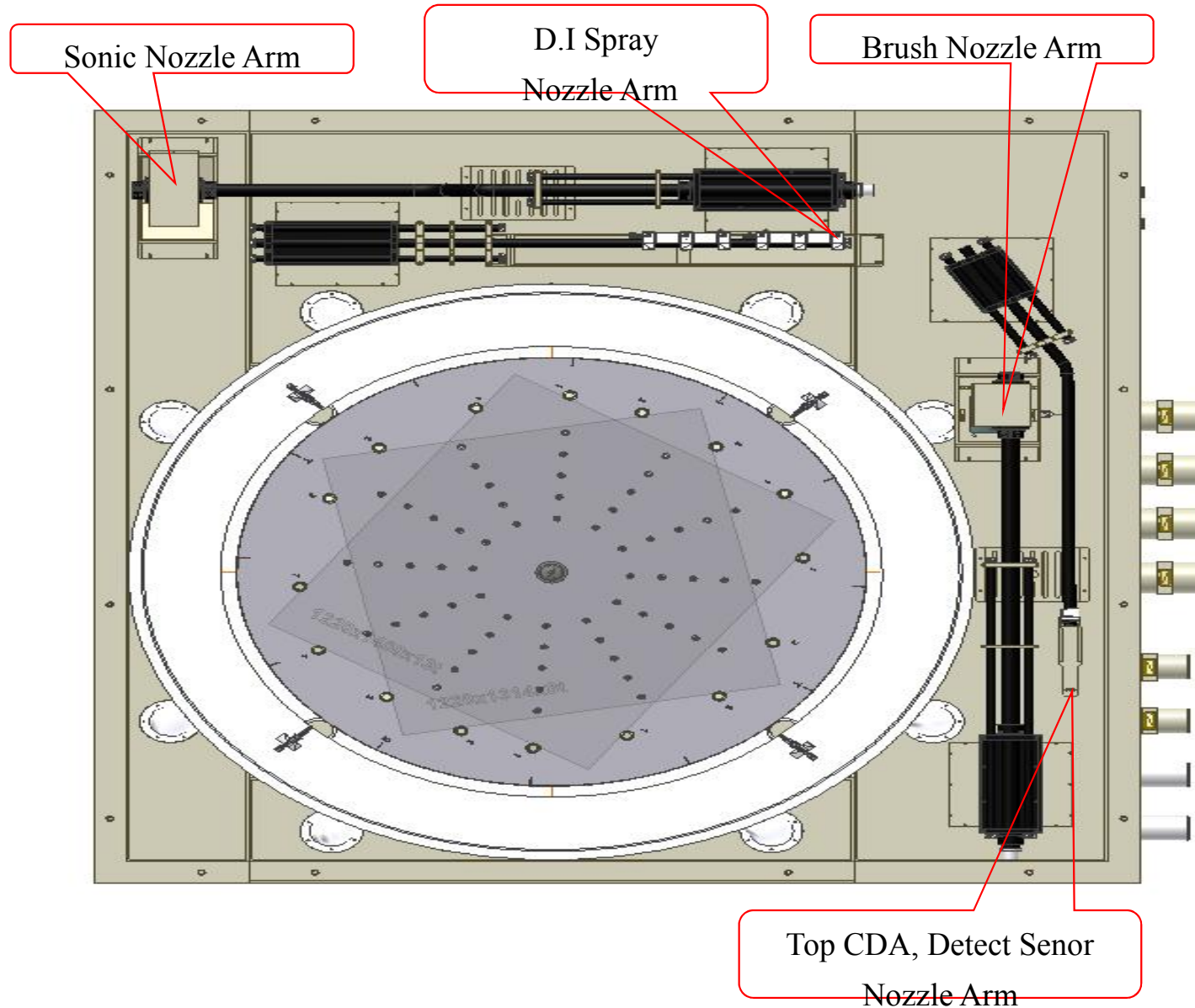


1. Loader / Unloader (Indexer)
2. Aligner Unit
3. Rotating Unit (Reverse / Inspection)
4. Spin Cleaner Unit
 - Dispense Nozzle Arm
 - Megasonic Nozzle Arm
 - Brush Head Arm
5. Glass Handling Robot
6. Track Axis

Case 1. Mask Cleaner Semi-Auto Type
(Loader Option, Various Mask Available)

Case 2. Mask Cleaner Full Auto Type
(Stocker Available up to user's request)

4. Spin Cleaner Module



5. Spin Motor & Cup Module

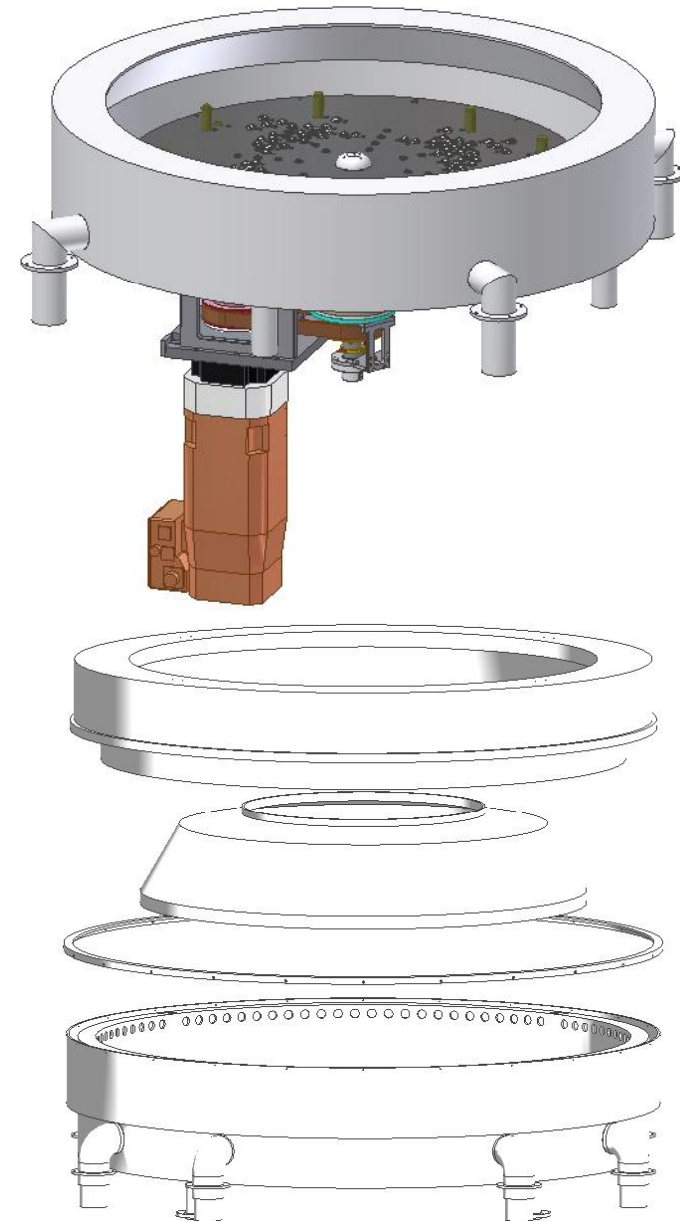
Spin Module Specification

1) Spin Motor

- Spin Motor fit in the separate frame with isolated base
- Spin Motor : AC Servo 15KW Motor
- RPM : 1 to 500 RPM (Set in unit of 1 RPM)
- Accuracy : ± 2 RPM (10 to 500RPM)

2) Cup

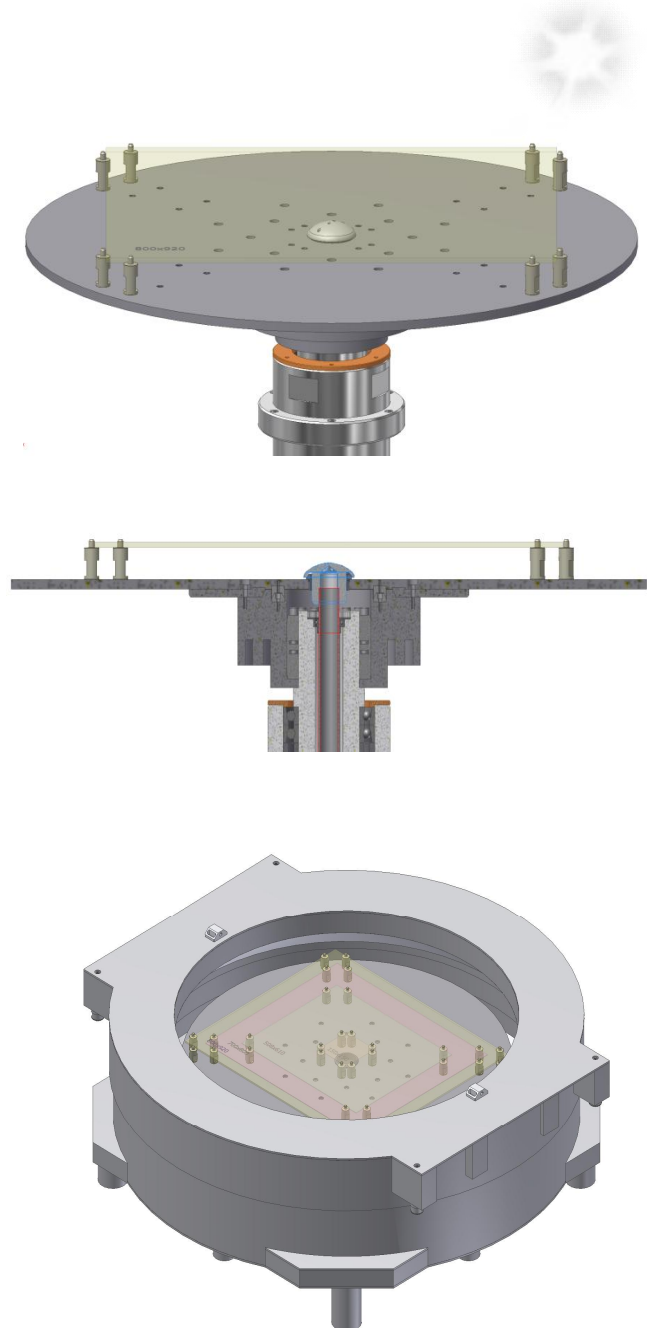
- Size: ϕ 1400
- Base Material : Pure P.P.
- Exhaust : 6 Port, 100 mm Pipe
- Drain : 4 Port, 50A Pipe
- Cup Up/Down Method
 - a) Air Cylinder made by SMC
 - b) Stroke : Max. 150 mm
- Mask Loading Confirming Detection Application



6. Chuck Unit

Spin Chuck

- AL 6061 material coated with 300um Black Teflon
- Enable multi sized photo masks chucking with one chuck
- Chuck configuration & size
 - the upper chuck : Ø 1100
 - the under chuck : Ø 500
- Pin : Titanium coated with 300um Black Teflon + PTFE (Guide)
- Pin Base : Titanium
- Contact Width of Mask Pin : above 15mm
- Pin Base : AL7072
- Connection Method Between Motor And Chuck
 - : In Direct type (Belt Type)



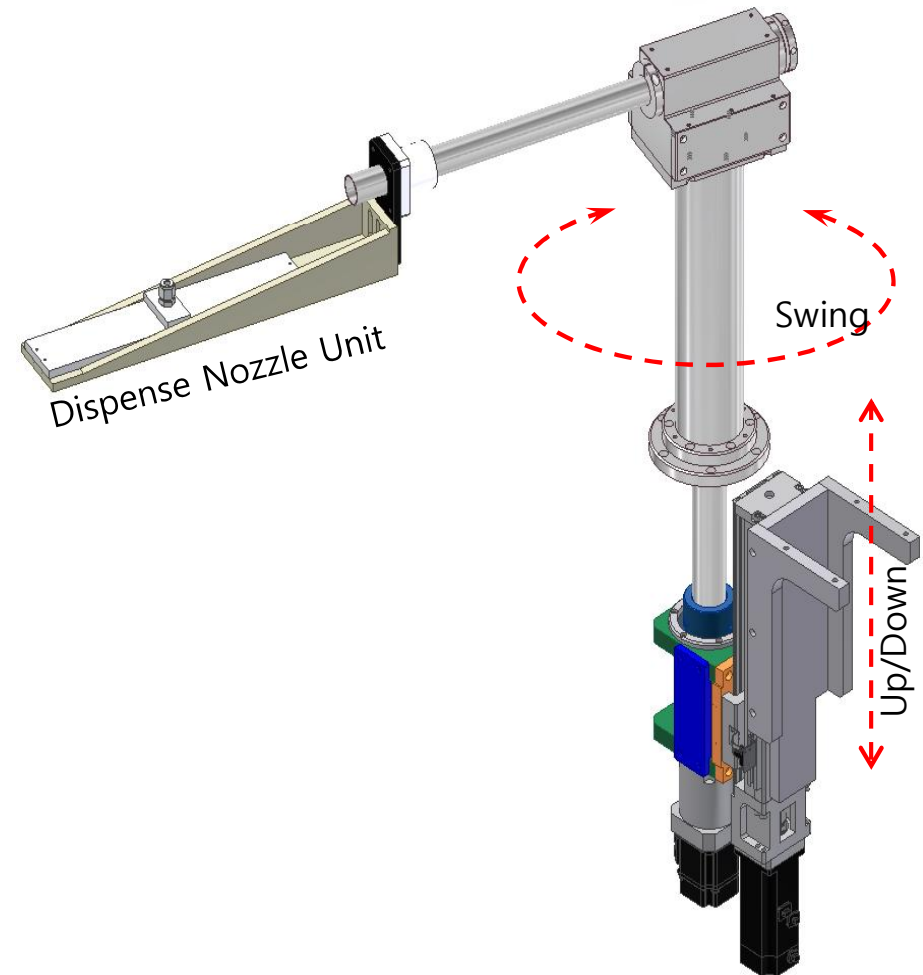
7. DIW Spray Nozzle Unit

Dispense Nozzle Arm

- Type : Spray Nozzle End
- Material : P.P Block (0.05 mm)
- D.I Inlet size : 3/8'
- Nozzle Tip : Angle-115°
- Nozzle Tip Quantity : 5~7 EA
- Filter : 0.2um filter available(Filter Life Time : 6moths)
- Flow Meter : Maximum range 20L/ min
- Pipe : PFA Tube
- Valve : Air Operation valve by SMC
- Fitting : PFA Super Pillar Fitting & extension type
- Arm Shaft : Hard anodized AL

Up/Down Moved by AC Servo Motor

Swing by AC Servo Motor



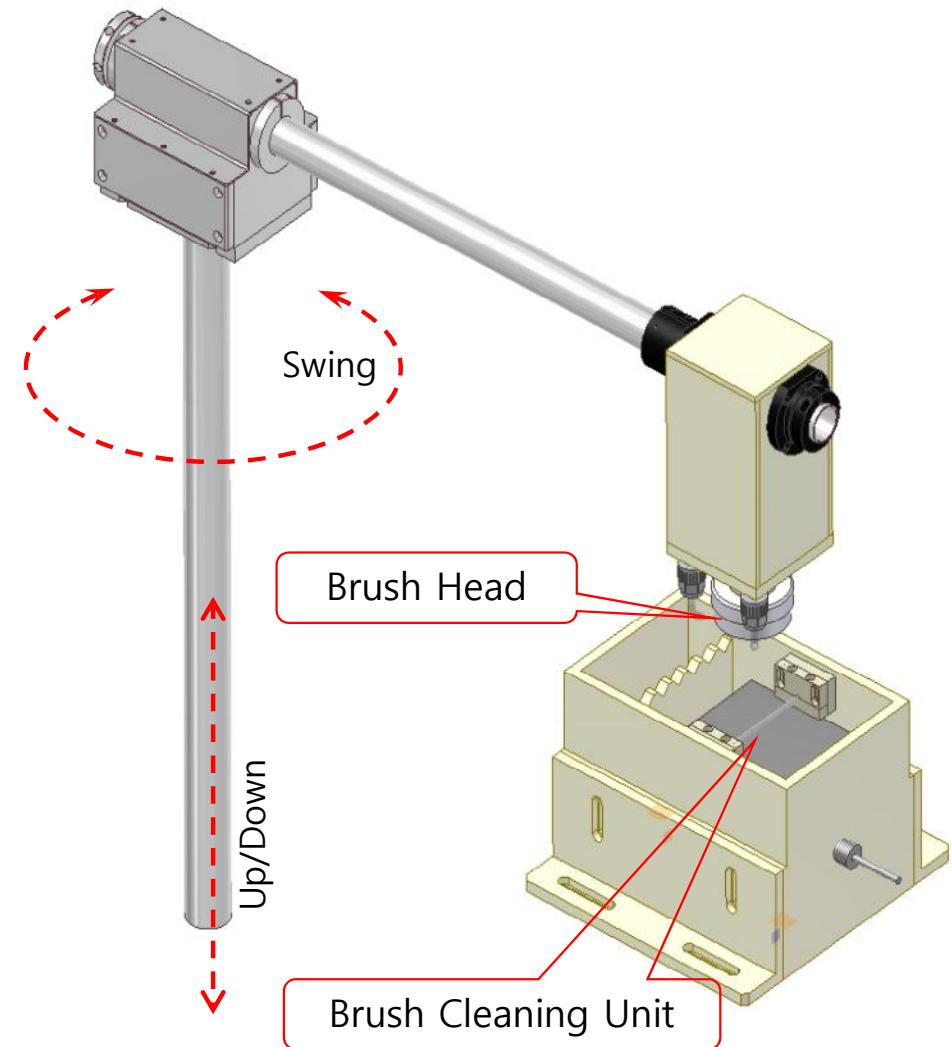
8. Brush Head Unit

Brush Head Arm

- Type : Brush Head & Nozzle End
- Material : Nylon-612 Brush
- Chemical Inlet size : 1/4"
- Filter : 0.2um filter available
- Flow Meter : Maximum range 10L/min
- Pipe : PFA Tube
- Valve : Air Operation valve by SMC
- Fitting : PFA Super Pillar Fitting & extension type
- Brush RPM:5~500 RPM
- Brush RPM Setting : Recipe Parameter

Brush Cleaning Unit

- Cleaning by Brush Rotation
- Fine Cleaning by DI Overflow, Ultra Sonic Waves Effect



9. Top N2 Unit

Top N2 Nozzle

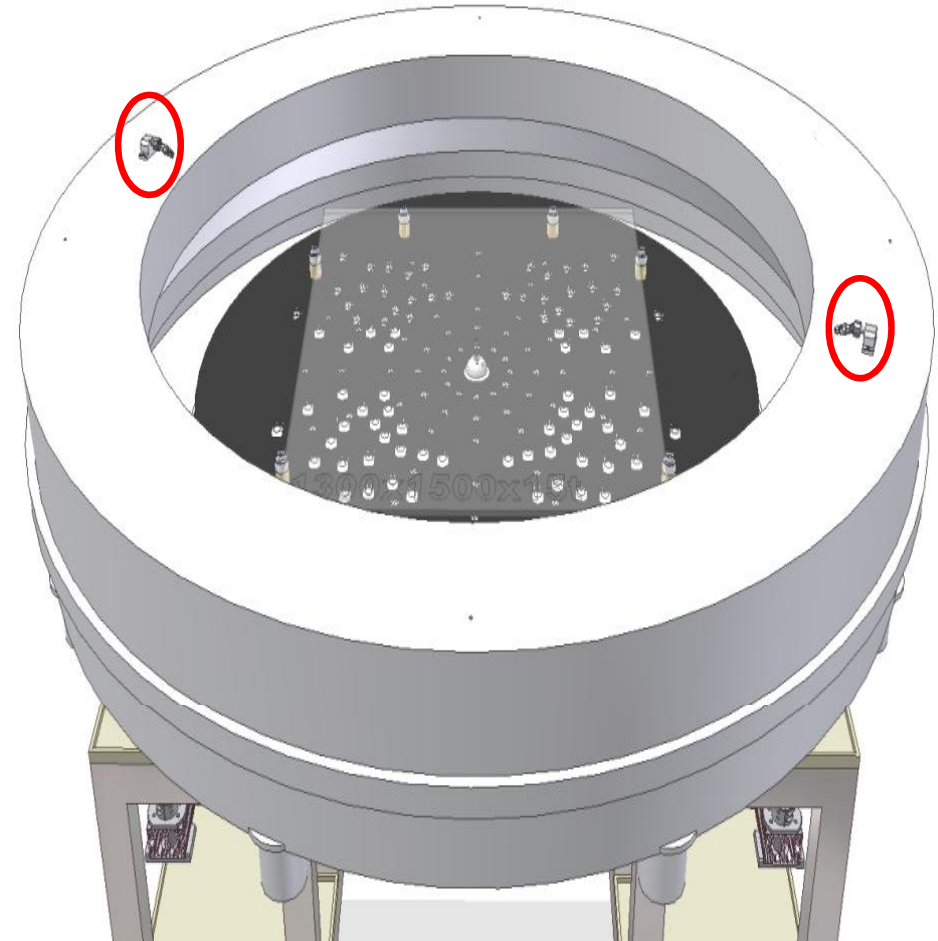
- Type : Tube End
- Quantity : 1/4" 1EA
- Filters : 1 um filter available
- Flow Meter : Maximum range 10L/min
- Pipe : PFA Tube
- Valve : Air Operation valves
- Fitting : PFA Super Pillar Fitting & extension type
- Location : the Upper Cup



10. Wall D.I Nozzle

Wall D.I Nozzle

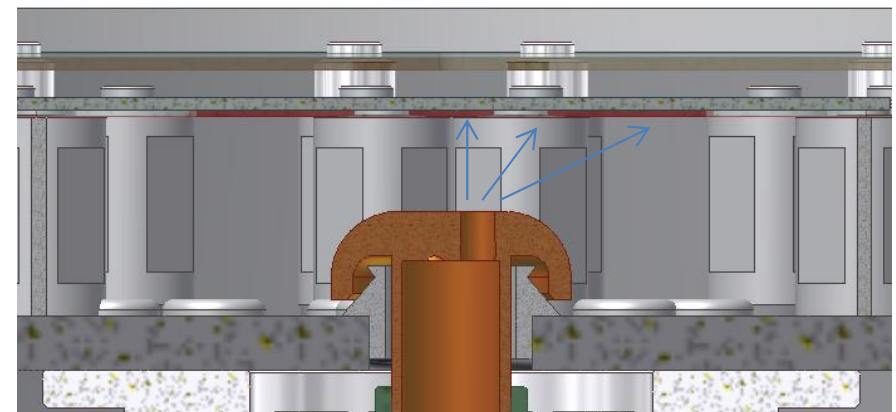
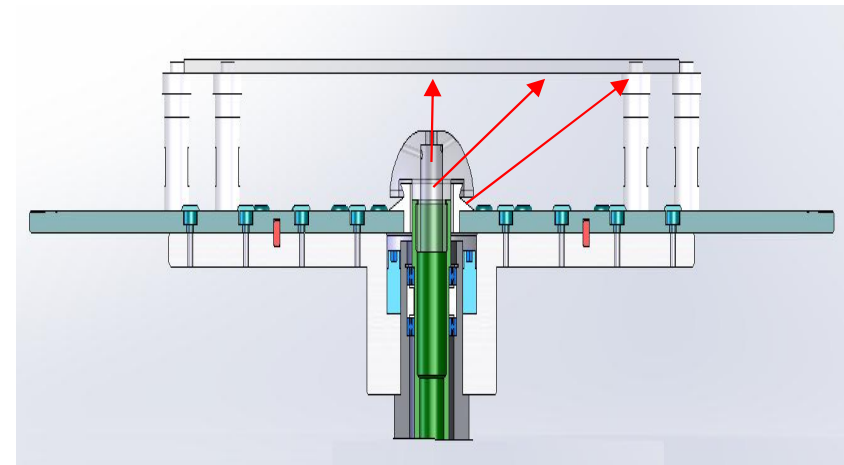
- Type : Tube End
- Quantity : 1/4" 2EA or More
- Filters : 0.2 um filter available
- Flow Meter : Maximum range 20L/min
- Pipe : PFA Tube
- Valve : Air Operation valves
- Fitting : PFA Super Pillar Fitting & extension type
- Location : the Upper Cup



11. Back DI, N2 Spray

Back DI, N2

- Type : Tube End
- Quantity : BACK N2 ¼" 1EA or More
BACK DI ¼" 2EA or More
- Filters : 1 um filter available
- Flow Meter : Maximum range 10L/min
- Pipe : PP Tube
- Valve : Air Operation valves
- Fitting : Super Pillar Fitting & extension type
- Location : Under the chuck



Mask Back Side
DI, N2 Spray Cleaning

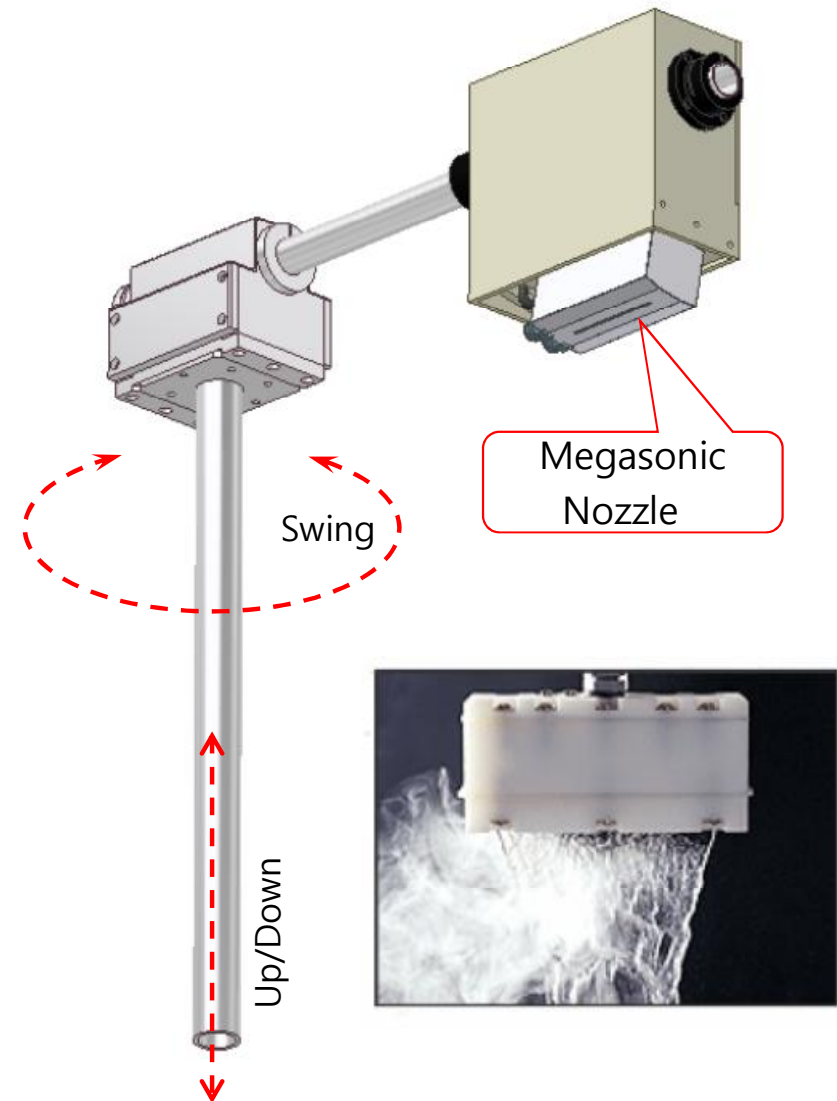
12. Megasonic Nozzle Unit (Optional)

Megasonic Nozzle Arm

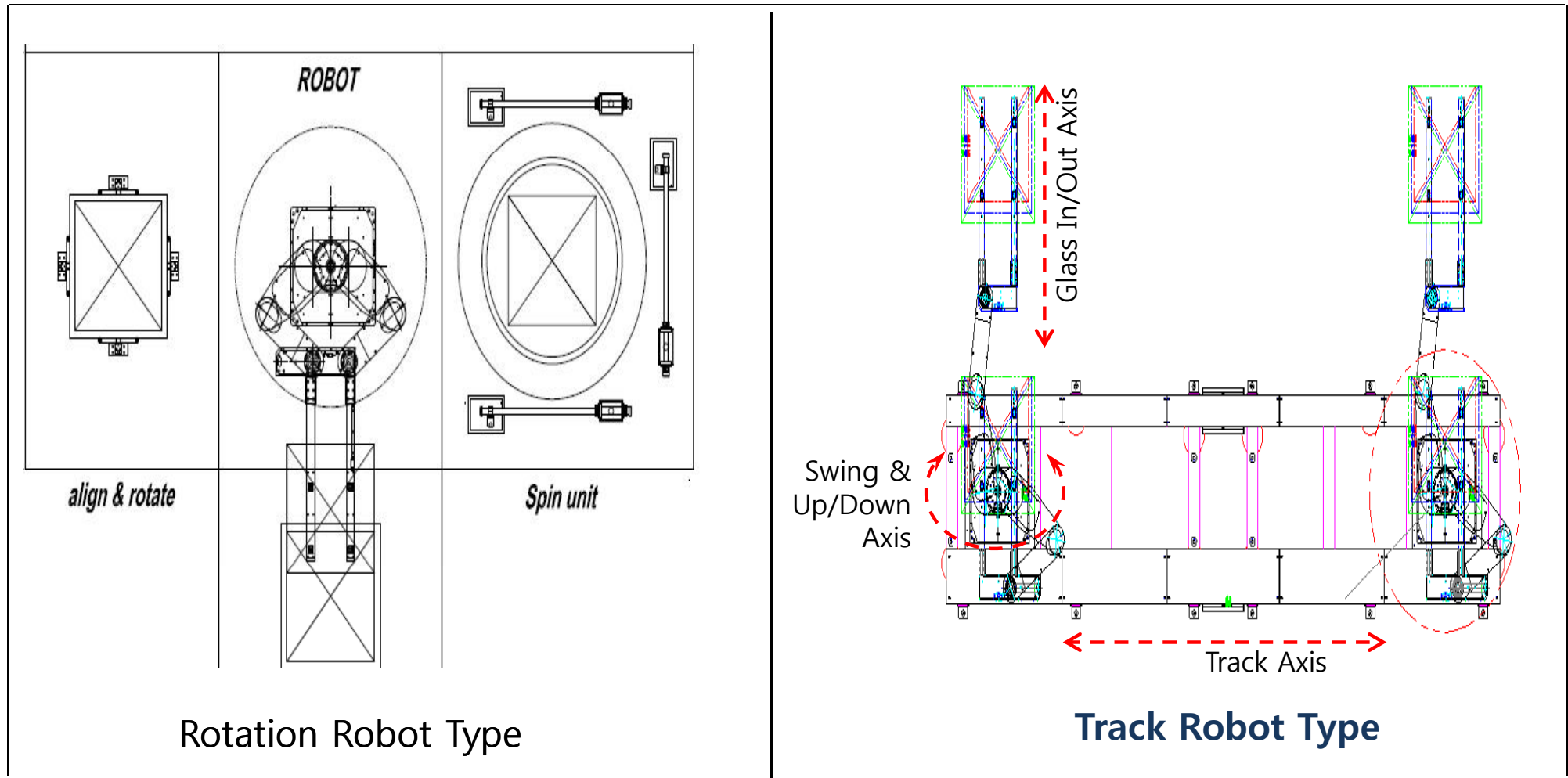
- Type : Slit Type
- Size : 1/2'
- Filters : 0.2um filter available
- Flow Meter : Maximum range 15L/ min
- Frequency : 1.6MHz \pm 0.3MHz, 180W, 90mm
- Pipe : PFA Tube
- Valve : Air Operation valves
- Fitting : PFA Super Pillar Fitting & extension type
- Arm Shaft : Hard anodized AL

Up/Down Moved by AC Servo Motor

Swing by AC Servo Motor



13. Robot Module (Optional)

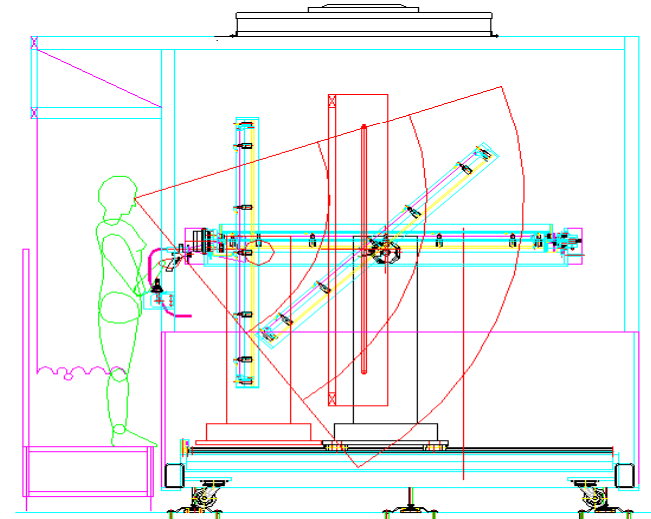
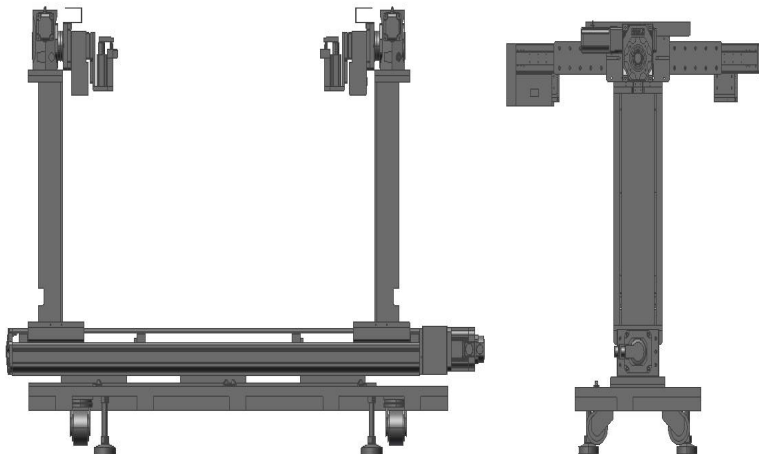
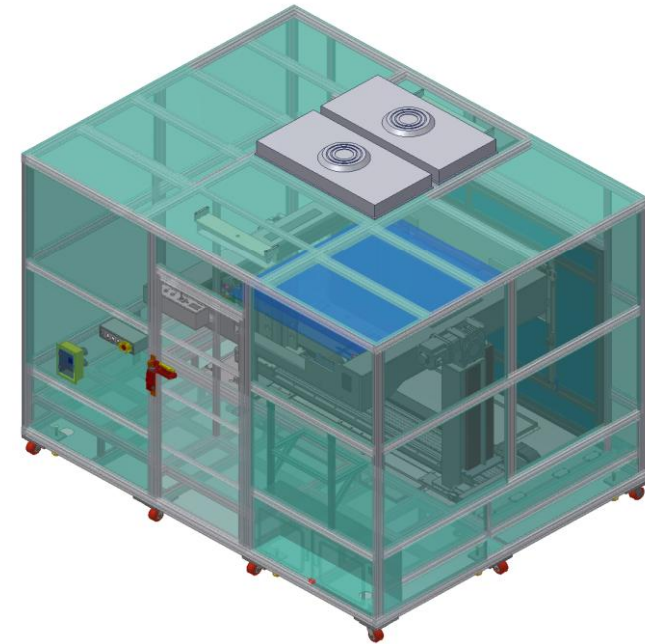


14. Rotating / Inspection Room (Optional)

Rotating Unit

- Mask Size : 800x960x8mm , 800x960x7.6mm
- Auto Alignment (AC Servo Motor)
- Glass Sensor Applied
- Applied in the dark room for spot light inspection

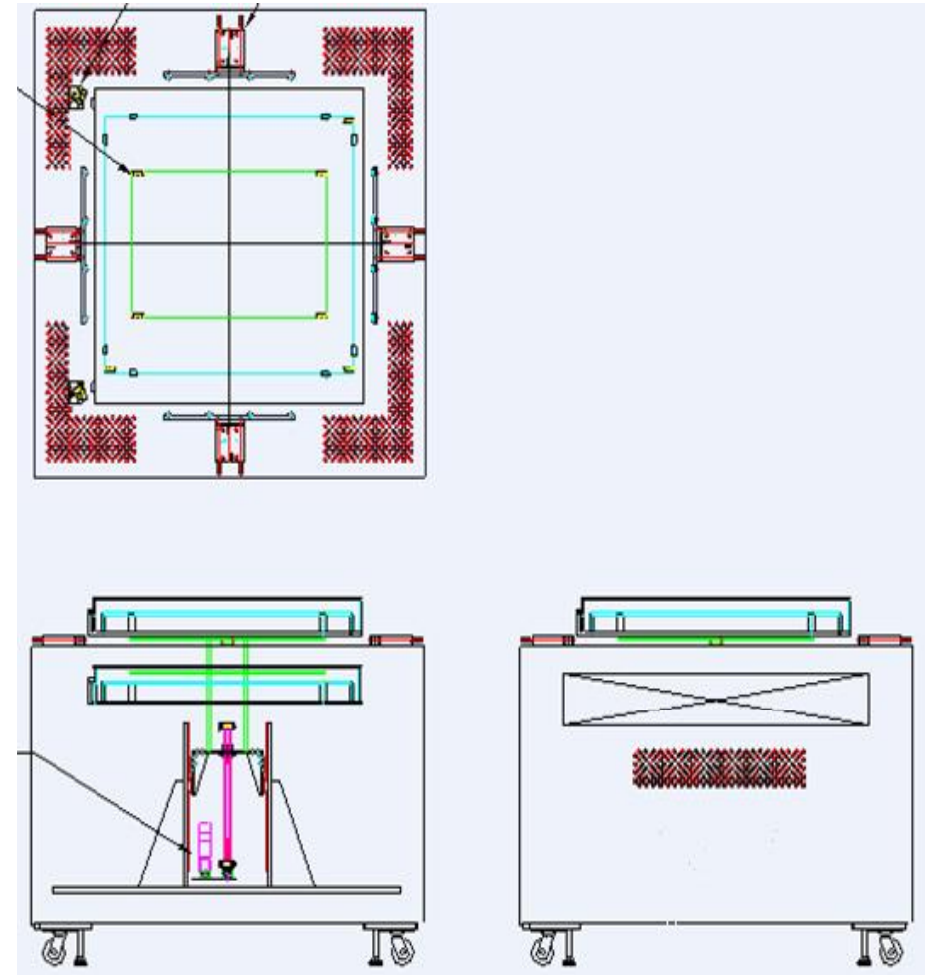
(Need a detail information for user's preferred spot light)



15. Indexer Unit (Optional)

Indexer Unit

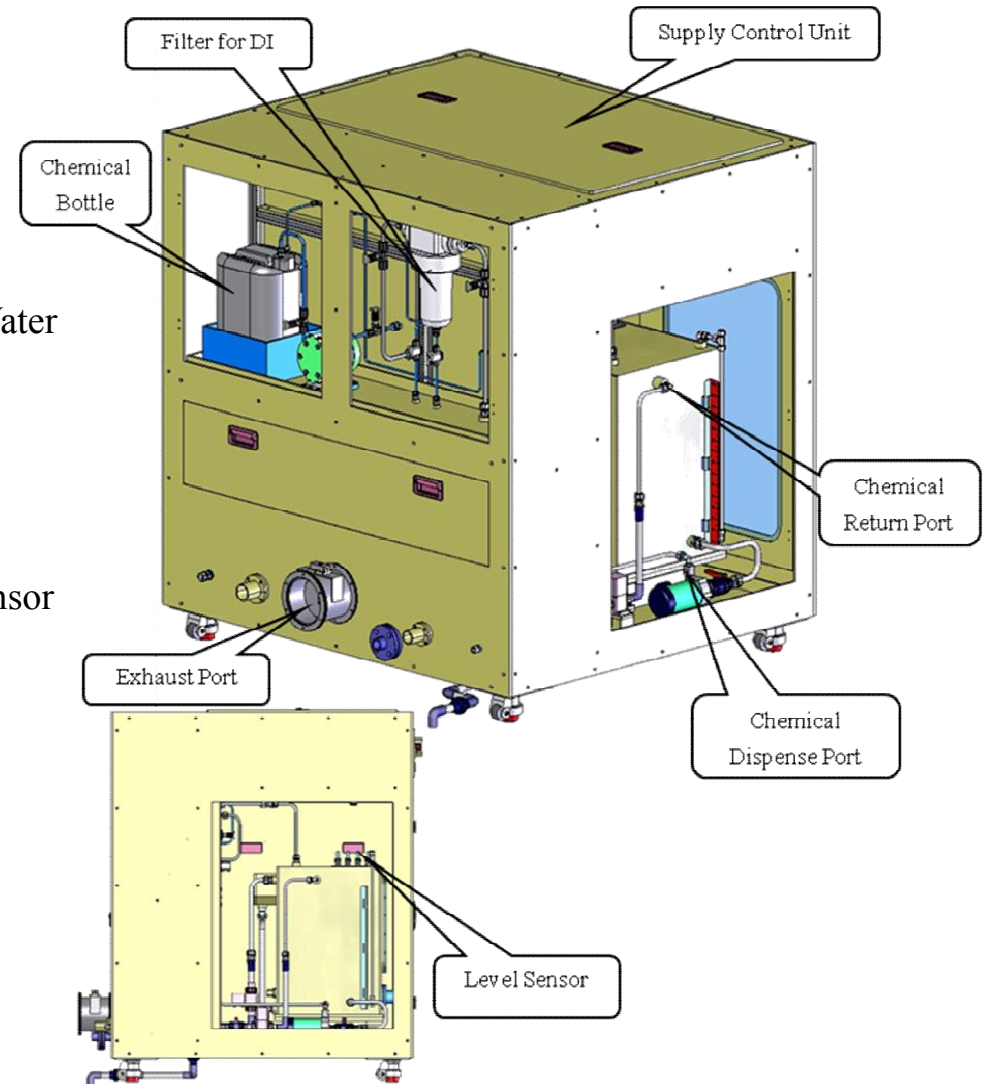
- Mask Case Grip(Centering)
 - : Air Cylinder : 4Axes
- Handling Size : Mask 800x960x8mm (Quartz)
Mask 800x960x7.6mm (Soda lime)
- Mask Case Up/Down : Auto Adjusting by AC Servo Motor
- Mask Case Opener
 - : By Air Cylinder or Motor



16. Chemical Supply Module (Type: External or Internal)

1) Specification

- (1) Chemical: Detergent(KOH or TMAH)
- (2) Chemical Dispense Method: by pump
- (3) Chemical Tank System
 - a) Chemical : Detergent(LCSS and CCSS (KOH5%))+DI Water
 - b) Tank Volume : 150 liters * 2
 - c) Tank Material : HT-PVC
 - d) Tank Level Sensor : Floating Type
- e) Chemical Mixing Method : Automatic Mixing by weight sensor
- f) Chemical Circulation: by Pump
- g) Temperature Control : $23 \sim 50^{\circ}\text{C} \pm 1$ by 12kW Heater
(Heating Time : 40min)
- h) Tank Refill Method : LCSS and CCSS
- i) Detergent Mixing Ratio : 0.01% ~ 5%



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