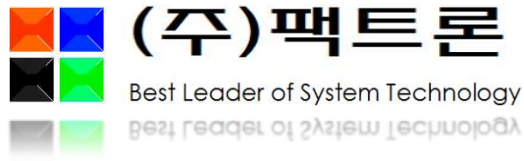


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# FACTRON Co., Ltd Corporation Introduction



Best Leader of System Technology

Best Leader of System Technology

2024

ADDRESS : 610 & 620-TAKRA 1, 176, SEONGGOK-RO, DANWON-GU, ANSAN-SI, GYEONGGI-DO, KOREA

對外秘

-  *Corporate Overview*
-  *Organization*
-  *Core Value*
-  *Development & Manufacturing Performance*
-  *Vision*



# 1. Corporate Overview

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## Major Status

Corporate Name	FCTRON Co., Ltd
Since	January 2008
CEO	Byung-Ki Lee
Staff	Employees : 12 Partner Ship : 20 Company
Business Area	<ul style="list-style-type: none"> <li>▪ Industrial Mechanical Parts and Materials</li> <li>▪ Industrial Machine Software Manufacturing Development</li> <li>▪ Secondary Battery Equipment Manufacturing Industry</li> <li>▪ OLED &amp; LCD &amp; Semiconductor &amp; Solar Equipment Manufacturing Industry</li> <li>▪ Line Automation of Automobile Production Process (line automation of electrical components, smart keys, M-F switch)</li> <li>▪ Factory Automation Equipment Design/Manufacture and Set-up</li> <li>▪ Fourth Industrial Revolution Smart Manufacturing Convergence Technology</li> </ul>
Location	Office : 620-Takra 1, 176, Seonggok-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Korea Factory : 610-Takra 1, 176, Seonggok-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Korea
Contact	TEL : + 82 - 31 - 433 - 0223 FAX : + 82 - 31 - 433 - 3230  CEO : + 82 - 10 - 5393 - 3935 E-Mail (CEO) : <a href="mailto:by-k-lee@factron.biz">by-k-lee@factron.biz</a>

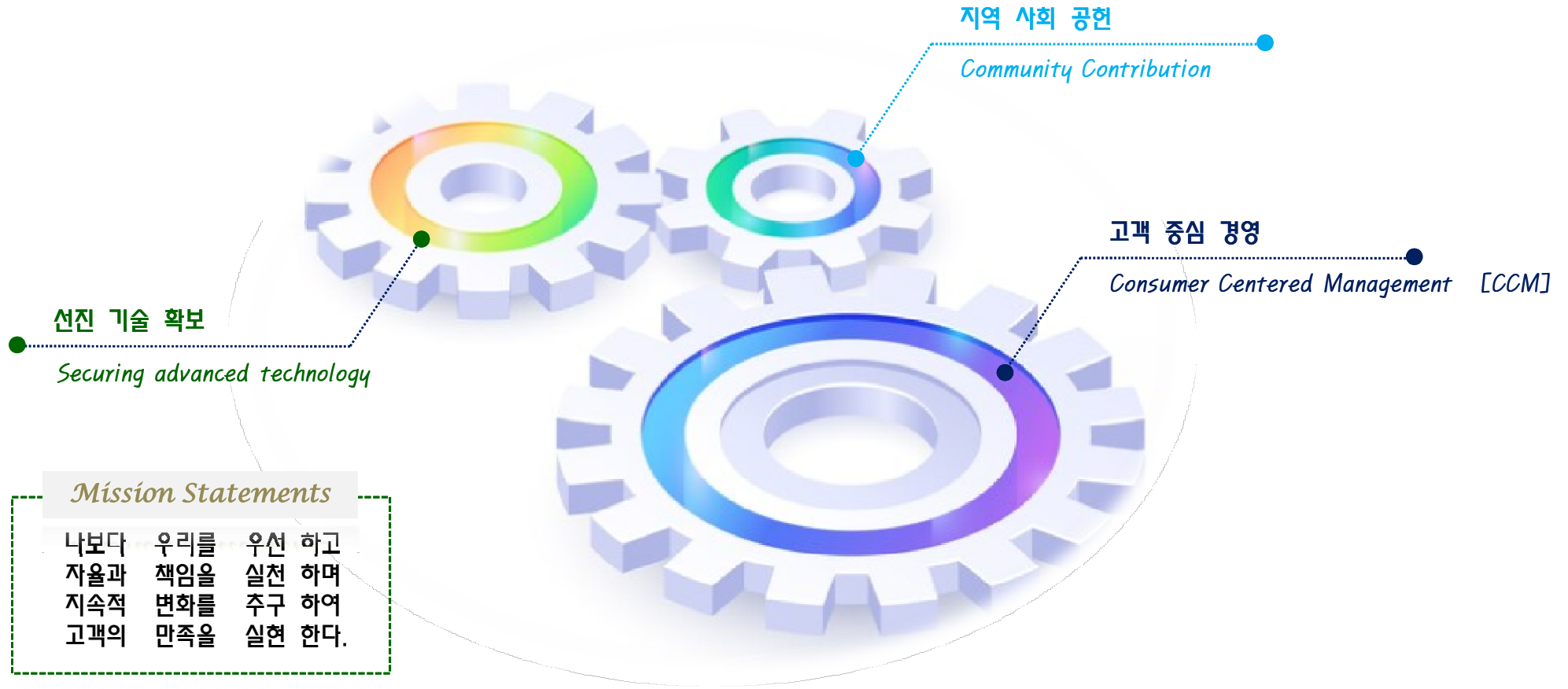


Byung-Ki Lee  
CEO

# 1. Company Overview

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## ▶ Management Philosophy



# 1. Company Overview

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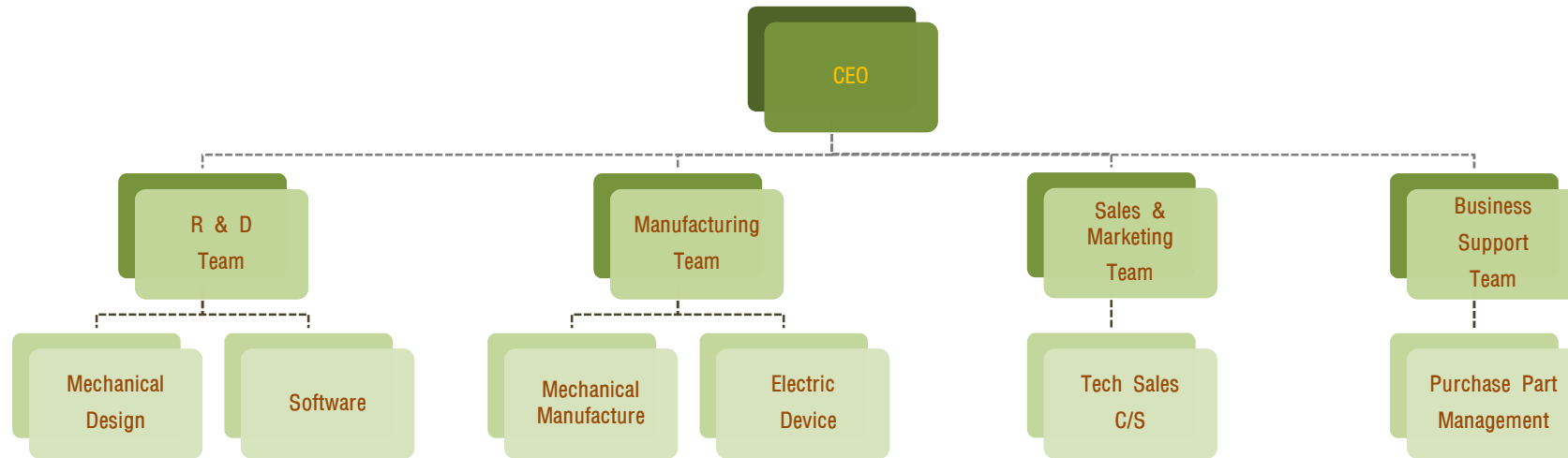
## Key Personnel

Part	Personal History
CEO	<ul style="list-style-type: none"> <li>• Design/Production of Process Automation Facilities in Semiconductor, FPD, Solar, Automotive, and Secondary Battery</li> <li>• Develop Customized Optimization Solutions</li> <li>• Development of Enterprise Carbon Neutral Solutions</li> <li>• Development of Convergence Technology for Production and Manufacturing of Enterprises</li> </ul>
Design Team Leader	<ul style="list-style-type: none"> <li>• Design of Process Automation Facilities in Automotive, Semiconductor, FPD, Solar, and Secondary Battery</li> <li>• Customized Optimization Design</li> <li>• Development of Smart Manufacturing/Convergence Technology in Enterprises</li> <li>• Developing Next-Generation Manufacturing Innovations</li> </ul>
Design Team Member	<ul style="list-style-type: none"> <li>• 2D_3D Design</li> <li>• Design of Engineering Structural Analysis</li> </ul>



## 2. Organization

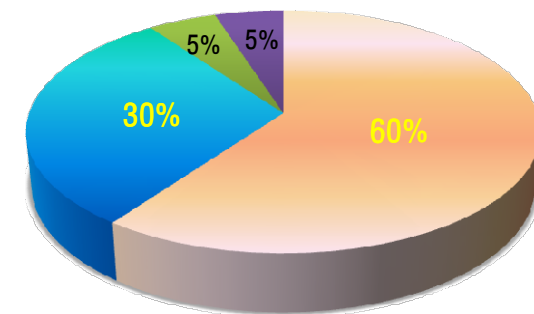
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### ► Our manpower

Category	R & D Team	Manufacturing Team	Sales & Marketing	Business Support Team	Total
Class "A" [More Than 15 Years]	8	5	1	–	14
Class "B" [More Than 5 Years]	–	–	–	1	1
Class "C" [Less Than 5 Years]	4	1	–	–	5
<b>Total</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>20</b>

■ Class A ■ Class B ■ Class C ■ Support



### 3. Core Value

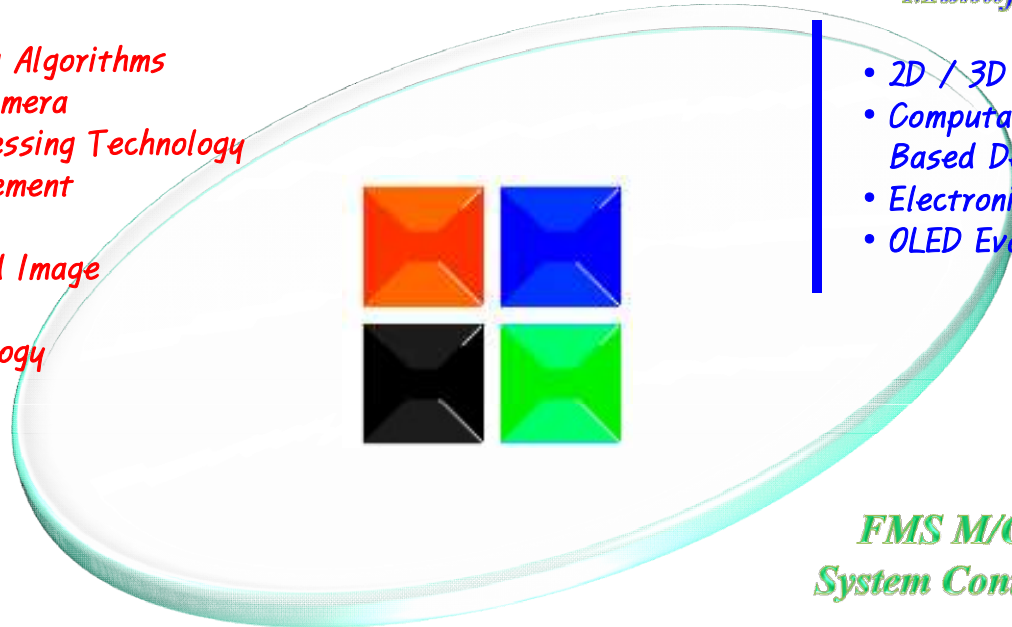
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#### 2D/3D Image Processing

- 2D / 3D Image Processing Algorithms
- Area / Line Scan (TDI) Camera
- Mono / Color Image Processing Technology
- Defect Detection, Measurement Algorithms Technology
- High-Capacity High-Speed Image Processing Technology
- Real Time Review Technology

#### System Design Manufacturing

- 2D / 3D Mechanical Design
- Computational Analysis Based Design
- Electronic Design and Wiring
- OLED Evaporator Design



#### Vision Optics

- Automation Equipment Optical Design
- Inspection Equipment Optical Design
- Optical Module Development

#### FMS M/C System Control

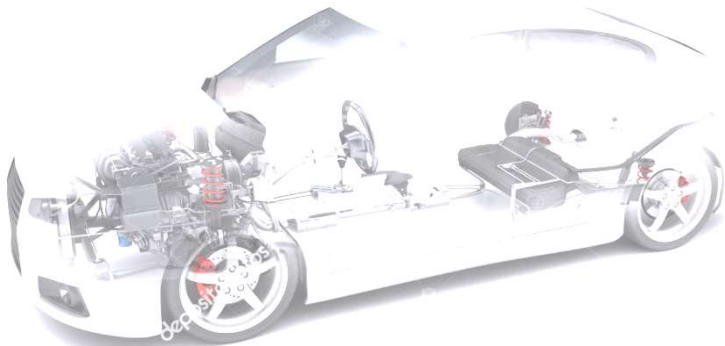
- Automation Equipment Integrated Control Technology
- Inspection Equipment Integrated Control Technology
- Robot, Servo, UMAC Control Technology
- CIM Corresponding Technology
- PC, PLC Control

## 4-1. Development

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### Auto Mobile

- Actively engaging in sales and service activities targeting leading customers in auto mobile sub-segments, providing customized products and technologies that meet their specific needs, continuously refreshing the latest technology directions and routes in the auto mobile sub-industry ;
- Continuously exploring potential markets to cultivate sustainable products and technologies for the company in the future ;
- Accompany potential small customers in the segmented field and grow with them together ;



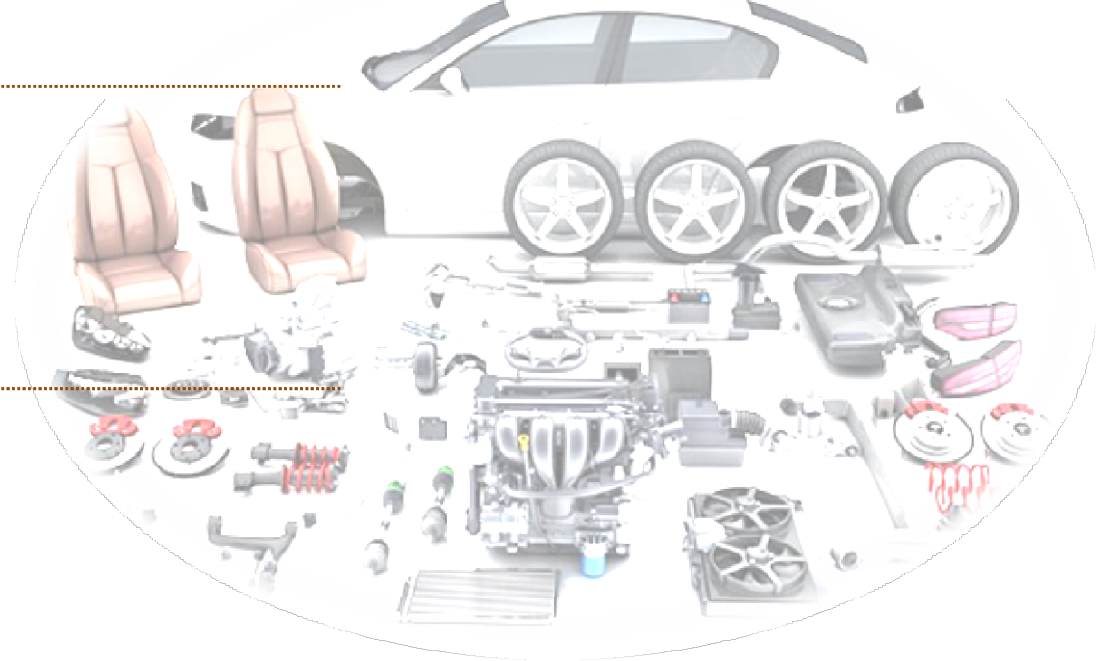


# 4-1. Development

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Auto Mobile

Field	Development History
Switch	<ul style="list-style-type: none"> <li>• Multi Function Switch set</li> <li>• W / Remote Control Switch set</li> <li>• C / Pad Switch set</li> <li>• Paddle Switch set</li> <li>• P / Window Switch set</li> <li>• Center Fascia Switch set</li> <li>• Consol Switch set</li> <li>• Keyboard Switch set</li> </ul>
Key Set	<ul style="list-style-type: none"> <li>• Key Reading M/C</li> <li>• Smart Key Assembly &amp; Inspection M/C</li> <li>• Key Set Auto Assembly M/</li> </ul>
ECT*	<ul style="list-style-type: none"> <li>• Radar Assembly &amp; Inspection line</li> <li>• Bobbin &amp; Stick Coil Winding M/C</li> <li>• ESCL Auto Assembly M/C</li> <li>• High Voltage Box Assembly Line</li> <li>• Molding Line Automation</li> </ul>



# 4-1. Development

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## Auto Mobile

## Business Area For Auto Mobile

Engine Housing Leak Test System



Smart Key Assembly & Inspection System



Steering Wheel Switch Part Assembly & Inspection System



Switch Laser Welding System



Key Set Assembly System



Window Switch Assembly & Inspection System



Coil Winding System

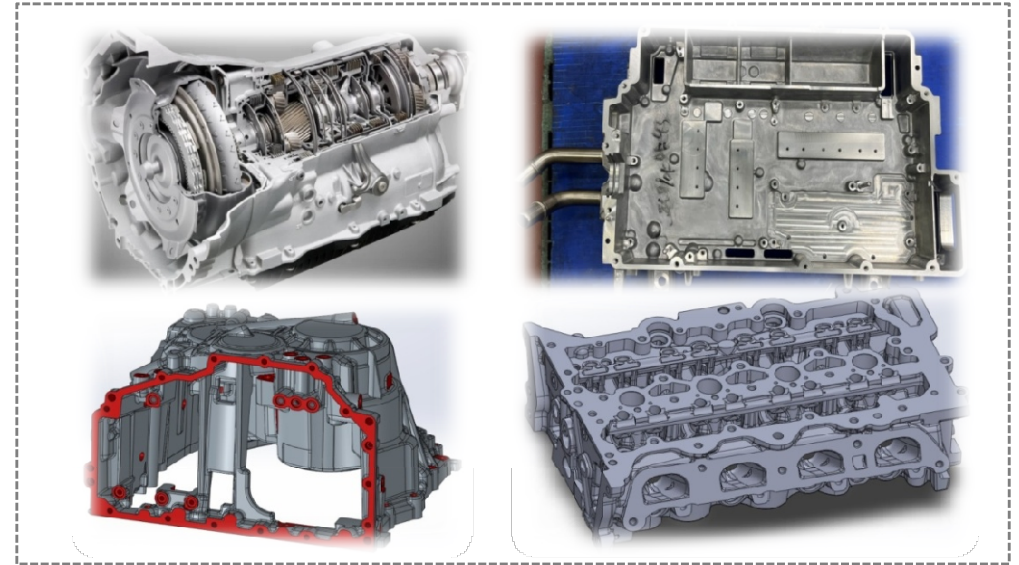
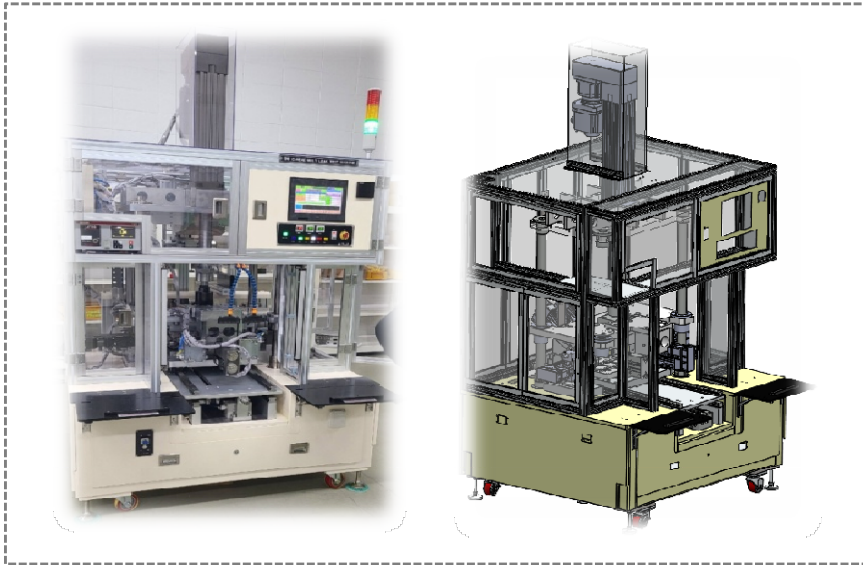


# 4-1. Manufacturing Performance

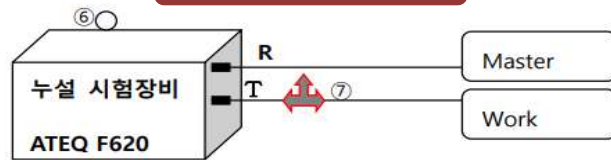
Auto Mobile

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## Leak Test System



### LEAK TEST 개념도



- 다양한 제품의 형상 특성에 맞는 Masking 후 고압의 청정 공기를 주입하여 유관 검사에 한계가 있는 미세한 주조 기공, 균열, 수축, 충전 부족 등 다양한 주조 불량에 의한 Leak 를 검출하는 장비 입니다.

### System Specification

No	항 목	SPEC	비 고
1	전원 사양	AC220V, 60Hz, 10KW, 30A	
2	Air Pressure	5 Bar	
3	Leak Test Area	기본 3종 (고객 사양 대응)	전체계 ,IN/EX ,W/J..
4	System Size	1,400 x 1,200 x H2,500	
5	Tact Time	120 Second이내	감사 체적에 비례함.
6	Leak 검출 정밀도	±1.2cc 이내	

# 4-1. Manufacturing Performance

Auto Mobile

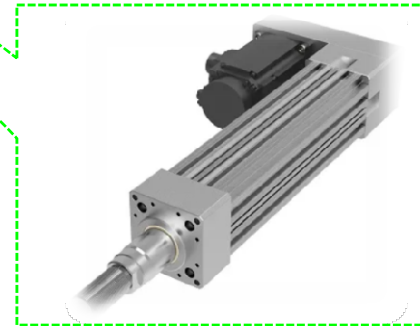
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## Leak Test System



### 3-1. Leak Check 용 Actuator 위치 가변 Servo Cylinder 적용.

- (주)팩트론 특허 출원 : AC Servo Motor Press Actuator 를 이용한 누설검사 장치 및 누설검사 방법
- 종래의 장비는 유압 Cylinder를 적용하여 배관의 누유 및 유압 Unit의 추가적인 설치 공간이 필요했음.



#### •Servo Cylinder 장점 \*

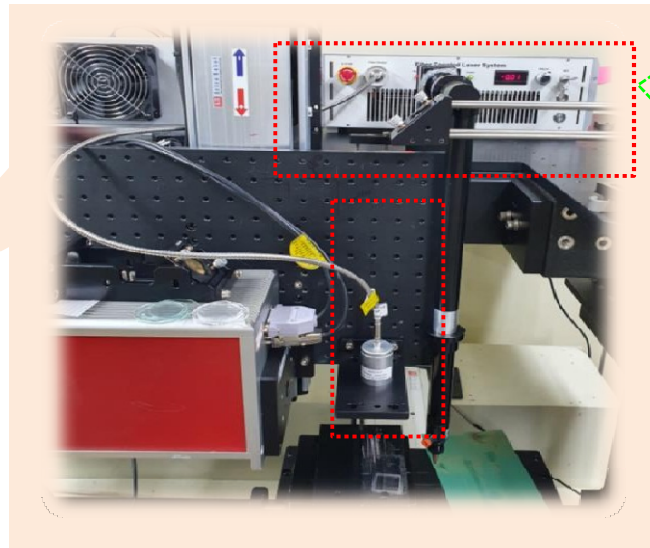
1. 다양한 제품의 Masking 위치 가변 가능.
2. Motor의 torque 제어로 주력 제어 기능.
3. 유압과 달리 추가적인 Unit 불필요.
4. 작업자 중심의 간편한 장비 조작 및 운용.

# 4-1. Manufacturing Performance

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## Laser Welding System



### Laser Description

- Type : Fiber
- Wavelength : 980nm
- Max Power : 100W
- With Fiber Collimator Optics

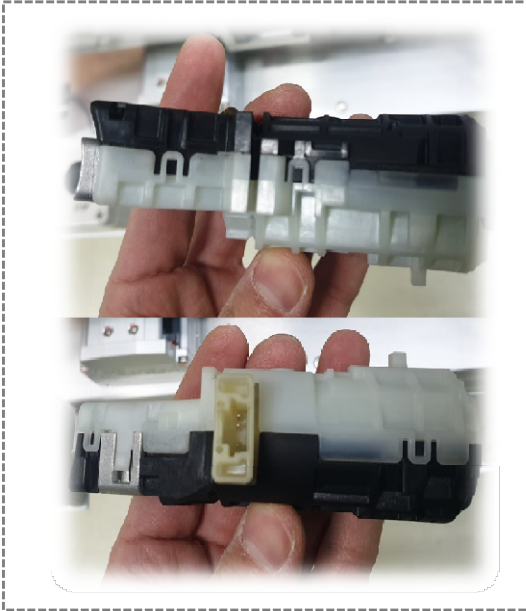
Fiber Core Diameter (μm)	Divergence (diverging)	Divergence (focused)	Beam(mm) at focused distance(cm)			
			@4-5cm	@10cm	@20cm	@30cm
100	6-178mrad	6-128mrad	200-250um	1-1.1mm	1.5-1.8mm	2-3.2mm
200	10-143mrad	10-125mrad	300-350um	1.4-1.5mm	1.7-3.2mm	2.3-4.8mm
400	19-172mrad	19-115mrad	700-800um	2.4-2.7mm	4-5mm	6-7.5mm

# 4-1. Manufacturing Performance

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## Laser Welding System



Parameter	
Sample Thickness	4 [mm]
Height	80 [mm]
Speed	38 [mm/s]
Power	103 [W]

Parameter	
Sample Thickness	2 [mm]
Height	100 [mm]
Speed	50 [mm/s]
Power	75 [W] ▶ 65 [W]

- ❖ 자재에 따라 Power와 가공 Speed Different
- ❖ 가공 속도를 높이하고자 할때는, Laser Power 를 높이거나, 다른 파장의 Laser 를 고려해야합니다.
  - 가공 Speed 와 Laser Power 는 정비례하지 않습니다.
  - Laser Power 를 Up 할 경우, 열 영향으로 인하여, Melting 부분 등의 품질에 영향을 미칠 수 있습니다.
  - Laser Power 에 따라 System Price 가크게 차이 날 수 있습니다.

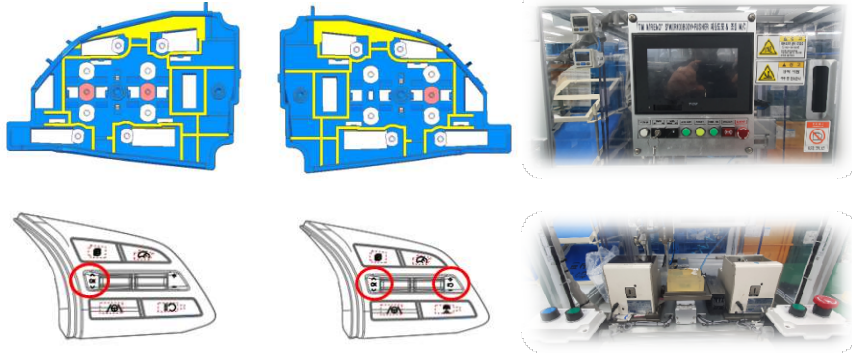
# 4-1. Manufacturing Performance

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## LX2 PE W/REMO Switch Process

### 1. Body + Pusher Grease Dispenser & Assembly System

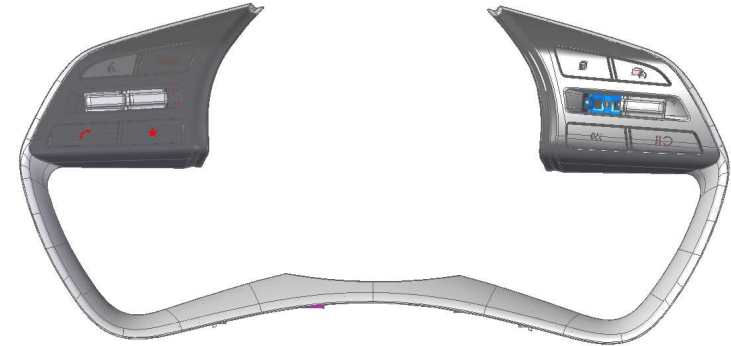


#### System Specification

1. 점 도포 Type 설비 제작(One Point 이동 도포)
2. PUSHER 습 동부 Grease Dispenser
3. Grease After Pusher Part Assembly
4. Grease LEAK 없을 것
5. 제품 안착 감지
6. 제품 안 / 탈착 용이
7. 제품 유동 없을 것

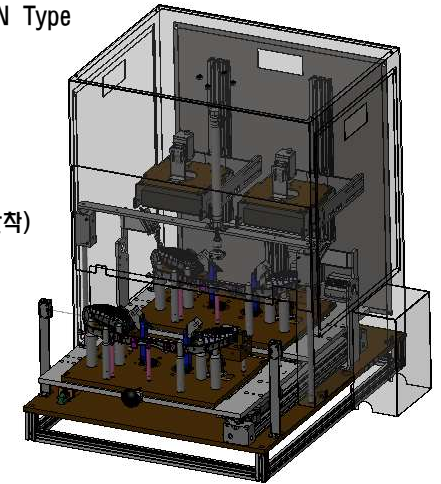


### 2. Assembly Inspection System



#### System Specification

- PC 검사기 Type , Connector CLIP PIN Type  
안착 Jig Apply
- Housing Auto Insert 및 Clamp
  - Jig 교체가 용이
  - With Bar\_Code Printer & Scanner
  - Vision Inspection (2CAM)
  - Vision Inspection Jig (LH+RH 동시안착)
  - 암실 Cover, DOT 각인 적용
- 접점 검사
- 접점 검사 Jig (LH+RH 동시안착)
  - Light Master
  - SCREW 감지 적용
  - 암실 Cover, DOT 각인 적용



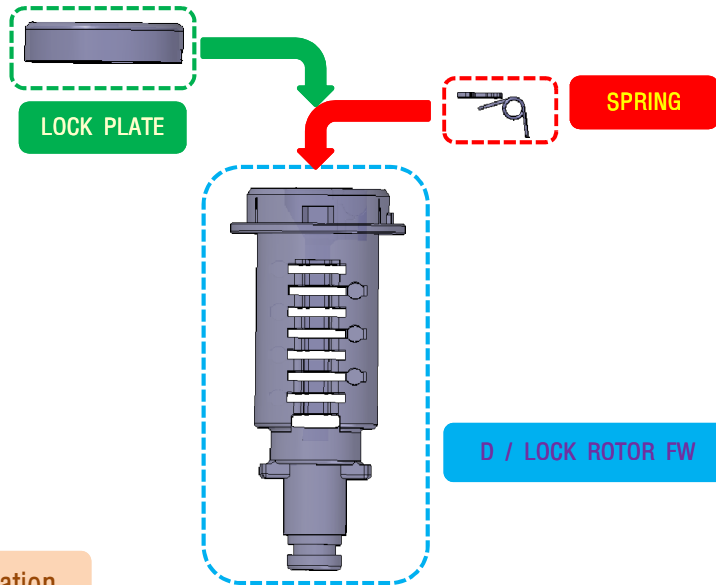
# 4-1. Manufacturing Performance

Auto Mobile

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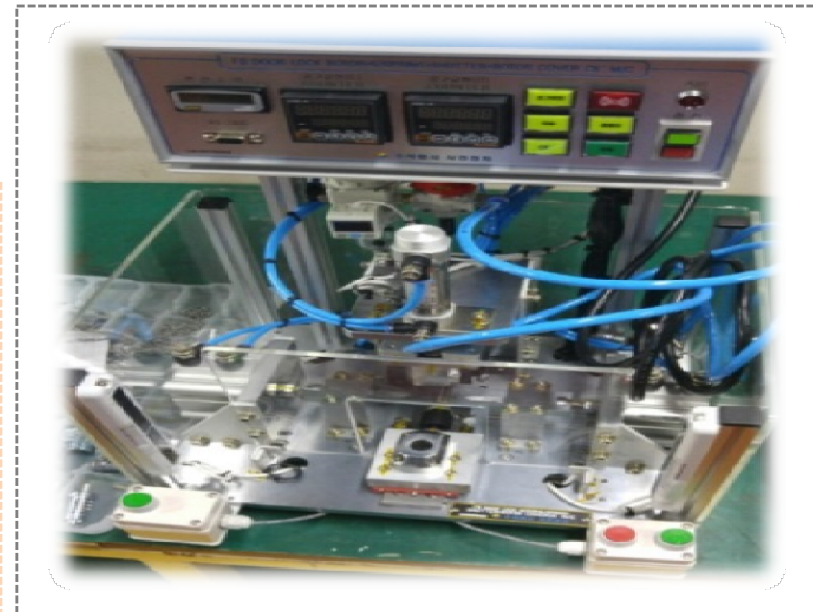
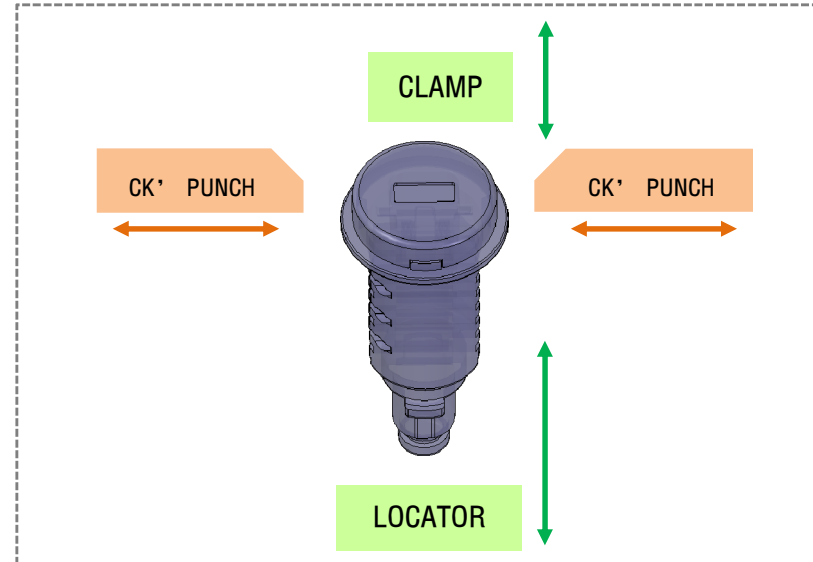
## XDD Key Set Assembly System

### 1. D/LOCK ROTOR CASE CK' M/C - LOCATOR



### System Specification

1. ROTOR + SPRING + SHUTTER + COVER + BLANK KEY  
조립 후 안착
2. Locator 교환 형  
- XDD D/LOCK ROTOR 용 Locator 1 종 제작
3. 180° 2개소 CK'
4. XJI FUEL ROTOR CK' M/C 공용





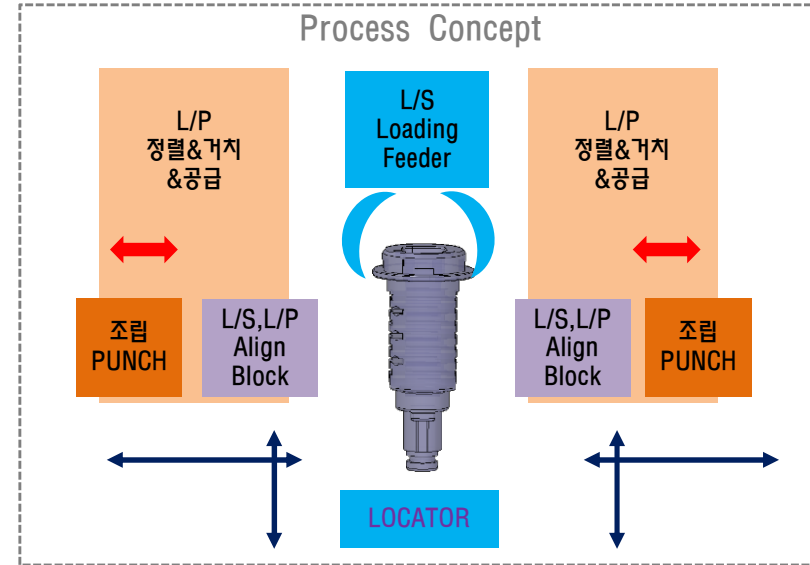
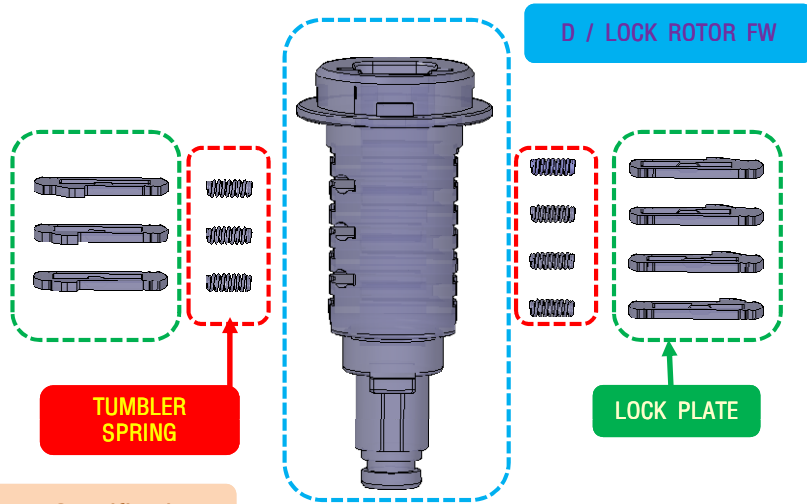
# 4-1. Manufacturing Performance

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## XDD Key Set Assembly System

### 2. D/LOCK ROTOR + L/S L/P Auto Assembly System



#### System Specification

1. 1 구형 Locator 제작 (교환 방식)
  - D/LOCK F/W 사양
2. Bar Code Reading 하여 Key Code Check
  - 스캐너 설치
3. L/S 누락 감지 기능
4. 7단 L/S,L/P Auto Align 후 조립
  - L/S, L/P Align Block 조립 Pitch 에 맞춰 Up/Down Transfer
5. 동작 순서 (말줄 : 작업자 동작)
  - ROTOR Loading -> Bar Code Reading -> L/S,L/P Align
  - > L/S 누락감사 -> Button Push -> L/S, L/P 조립 -> Key Insert -> 제품 취출

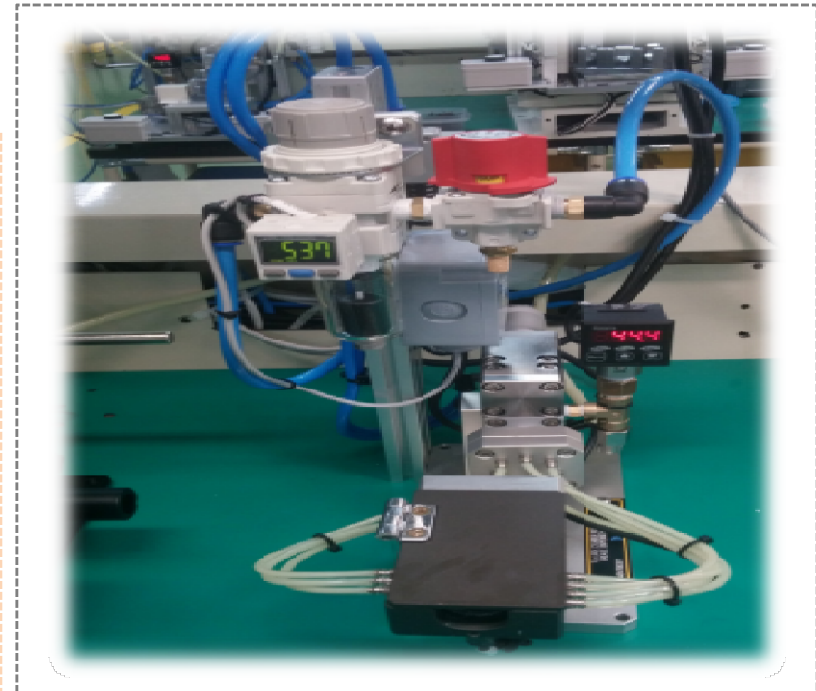
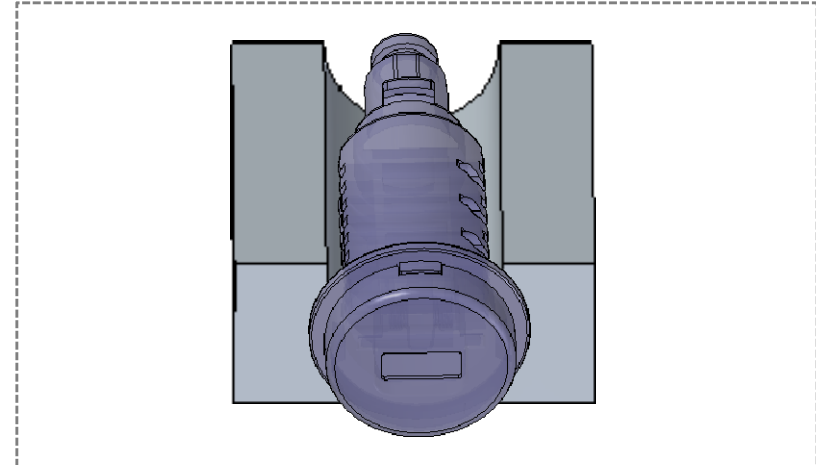
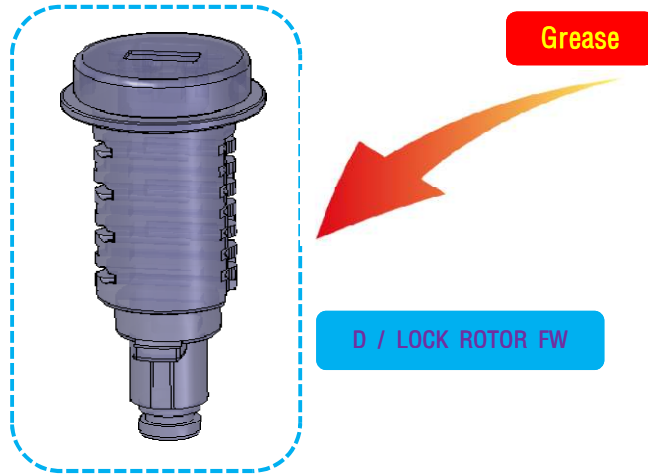
# 4-1. Manufacturing Performance

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## XDD Key Set Assembly System

### 3. D/LOCK ROTOR ASS' Y Grease Dispenser



### System Specification

1. 정량도포 Valve 사용(태화 V/V)    2. 제품 감지 Sensor 2개 설치
3. GS' 도포 포인트  
- LOCK PLATE 조립 부
4. 도포부의 전체 폭은 250mm를 넘지 않을 것  
- SER' UNIT을 포함한 폭
5. CON' T BOX 사이즈는 LF 사이즈와 동일 - W\*D\*H : 250\*250\*100
6. 누유 방지 O-RING 설치
7. BASE에 고정 HOLE 설치
8. Grease Nozzle 청소 Valve 적용
9. 사양 - 1 SET  
10-1) D/LOCK ROTOR (FW)

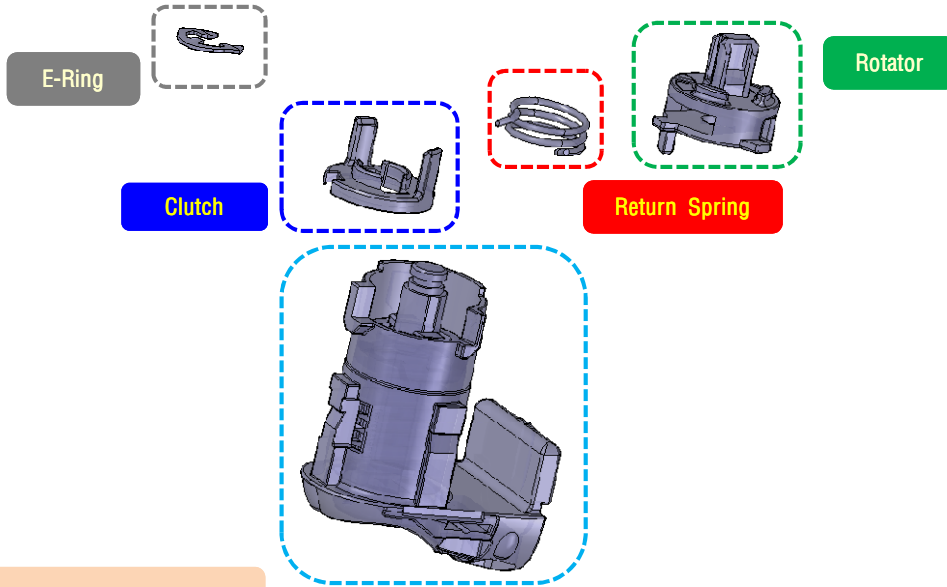
# 4-1. Manufacturing Performance

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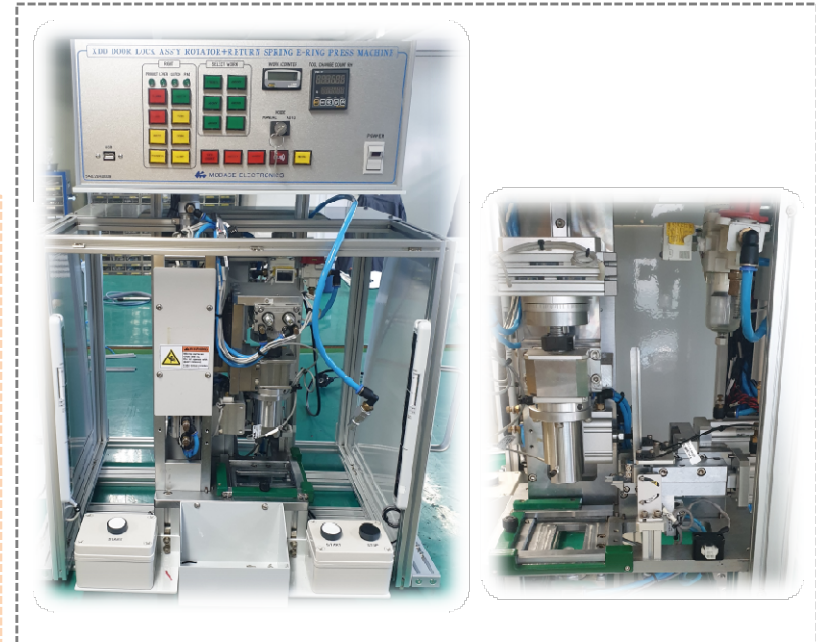
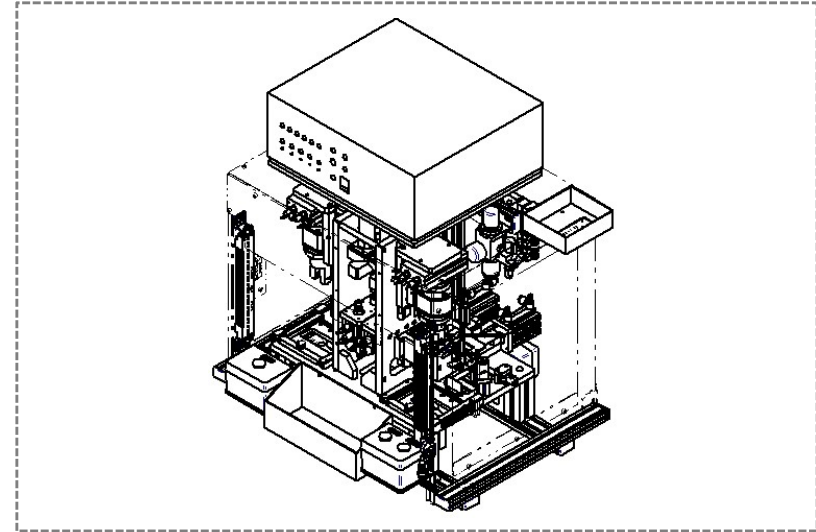
## XDD Key Set Assembly System

### 4. D/LOCK ROTOR ASS'Y + LOCATOR + R/SPRING Assembly System



#### System Specification

1. Urethane Coating (JF 기준)
2. 사양 : 총 1종
  - 2-1) ROTOR CASE(FW)
    - ※ CLUTCH + RETURN SPRING을 ROTOR CASE 가 조립
    - ROTATOR 상부 안착
    - Spring 회전 조립 후 E-Ring Insert
3. JIG 에 제품 사양 및 설비 번호 각인
4. FW 전용 설비로 제작 (Locator 안착 부 1구)
5. 향후 LH 적용을 위해 Locator 교체 타입으로 제작
6. FW, NFW 공용으로 제작 (사양 선택)
6. 생산 수량, Tool Change Counter Apply
7. E-RING 부족감지 센서 설치
8. Insert Punch Spare 3 EA



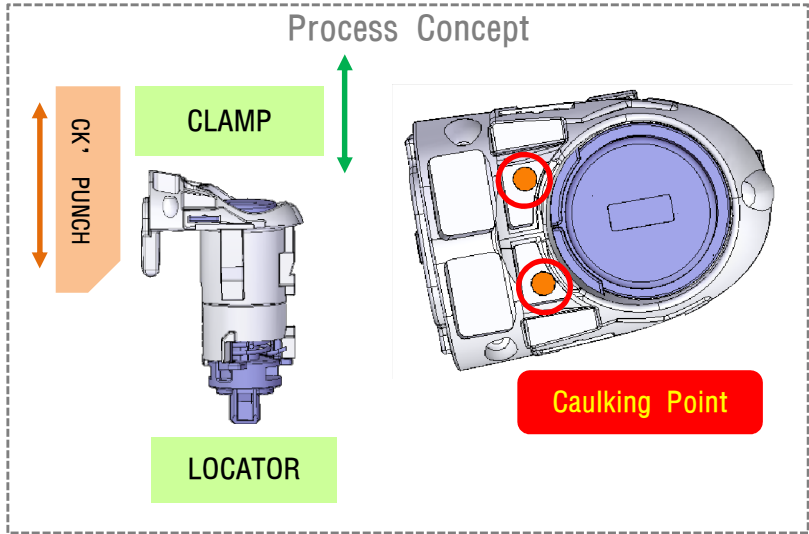
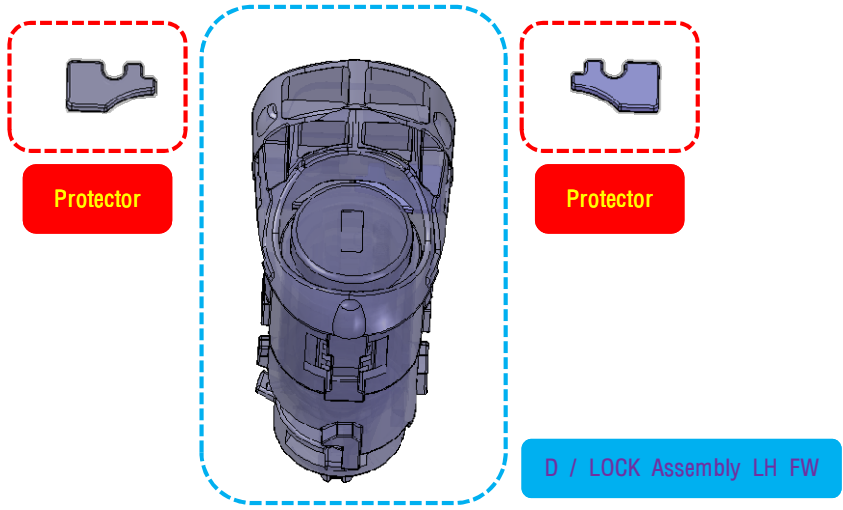
# 4-1. Manufacturing Performance

Auto Mobile

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## XDD Key Set Assembly System

### 5. D/LOCK ROTOR ASS' Y + Protector CK' System



### System Specification

1. D/LCOK ROTOR ASS' Y + PROTECTOR 조립 후 안착
2. Locator 교환타입
3. Locator Forward → 상 측 에서 제품 Clamp → Caulking
4. CK' PUNCH Spare 3 Set 제작

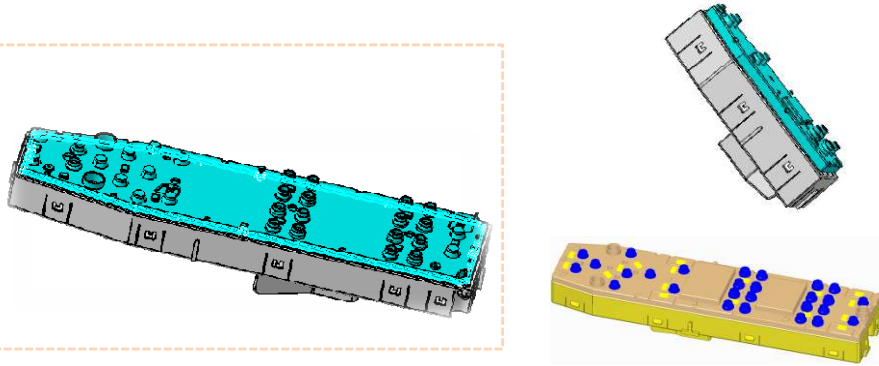
# 4-1. Manufacturing Performance

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## CV1a PW Switch Process

### 1. Rubber + P.C.B CPT Ionizer

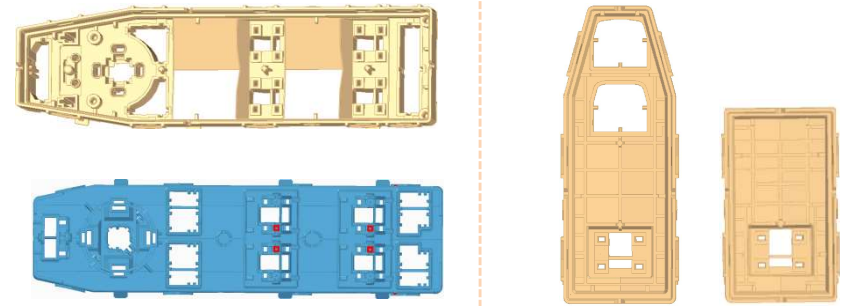


#### System Specification

1. 제품 감지 후 이온샤워 실시
2. Ionizer Blower 시간 설정 Type
3. Ionizer Blower 1 구

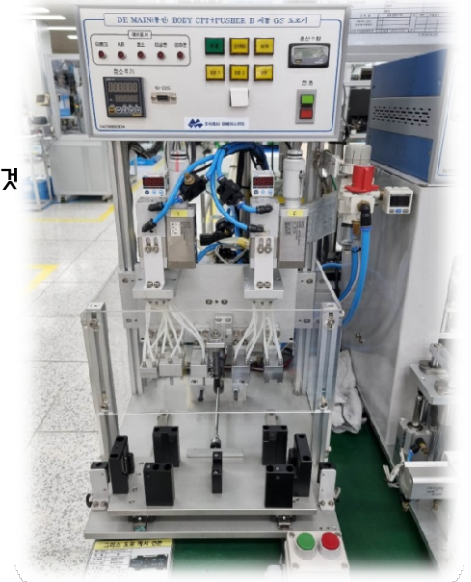


### 2. Body + Pusher Grease Dispenser System



#### System Specification

1. Block 도포 Type 설비 제작
2. Pusher 습 / 동부 Grease 도포 할 것
3. Grease Valve 작동 시간 조절 형
4. Grease Leak 없을 것
5. 제품 안착 감지
6. 제품 안 / 탈착 용이 할 것
7. 제품 유동 없을 것
8. BODY 역방향 안착 후 도포



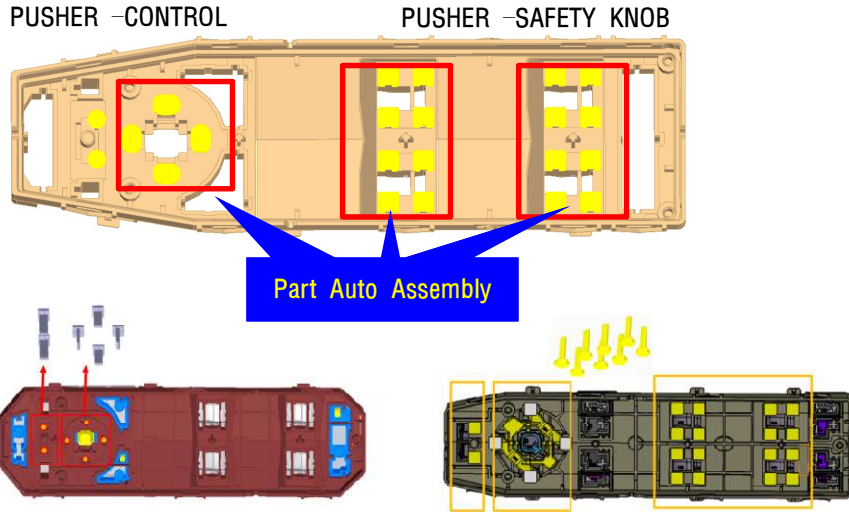
# 4-1. Manufacturing Performance

Auto Mobile

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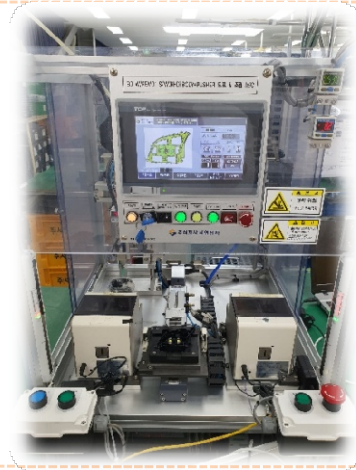
## CV1a PW Switch Process

### 3. Body CPT + Pusher Auto Assembly System

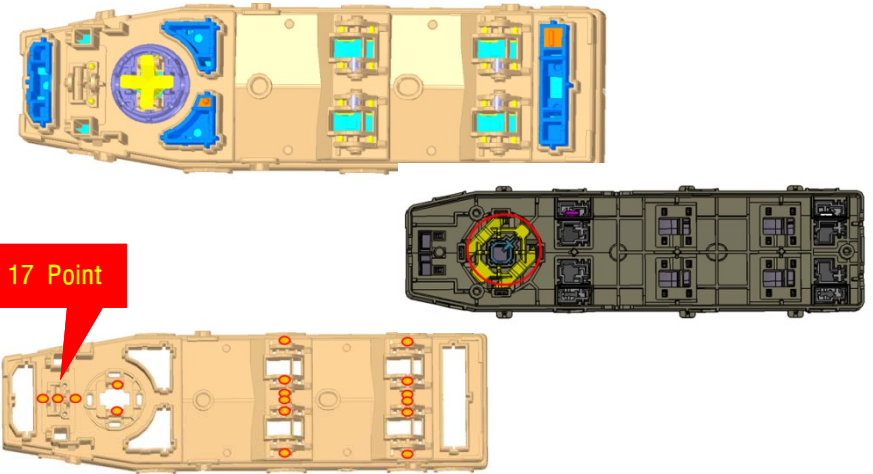


#### System Specification

1. BODY 역방향 안착 할 것
2. 안착 JIG 교체 TYPE 으로 제작 할 것
3. 제품 유동 없을 것
4. 안 / 탈착 용이 할 것
5. PUSHER 2종 공급 및 조립 (CONTROL ,SAFETY 상이)
7. BODY CPT 안착 지그 KNOB 류 하부면 도피 가공 할 것
8. C/T 60초 이내로 조립 완료 할 것
9. NE1a PW BODY CPT + PUSEHR 자동조립 M/C 공용화 할것(가능 여부 검토)



### 4. Body + Knob Grease Dispenser System



#### System Specification

1. Block 도포 Type 설비 제작
2. Grease Valve 작동 시간 조절형
3. Grease Leak 없을 것
4. 제품 안착 감지
5. 제품 안 / 탈착 용이 할 것
6. 제품 유동 없을 것
7. 도포 Point 참조 할 것
8. BODY 정 방향 안착 후 도포 (배면 부 CASE CPT 안착 가능토록 JIG 가공)



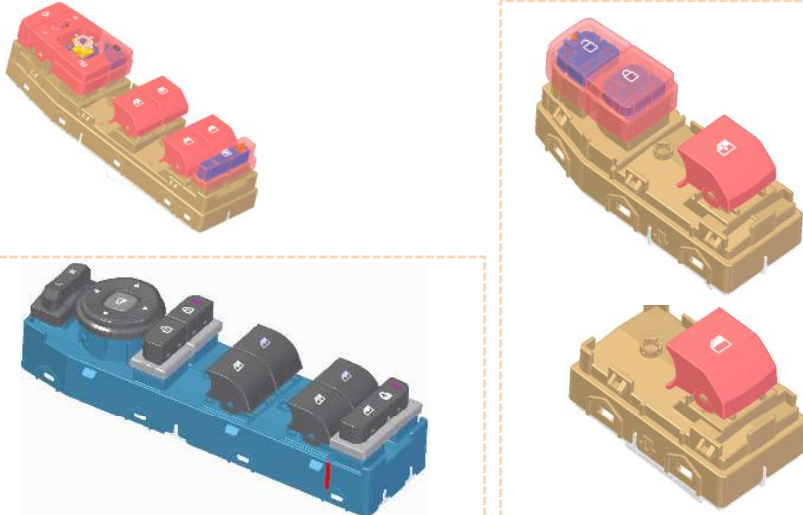
# 4-1. Manufacturing Performance

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## CV1a PW Switch Process

### 5. Part Assembly Inspection System



#### System Specification

- PC 검사기 타입 ,
- Connector CLIP PIN 타입 (16PIN / HS CAN)
- Bar Code Printer / Scanner 포함 할 것
- Vision 검사 부
- Vision 검사기 LOCATOR 제작 (1EA제작)
- 점점 검사 부
- 점점 검사기 LOCATOR 제작 (1EA제작)
- LOCATOR 교체 TYPE 적용
- SCREW 감지 적용
- 점점 검사 부
- MAIN 안착 LOCATOR 제작 (1EA제작)



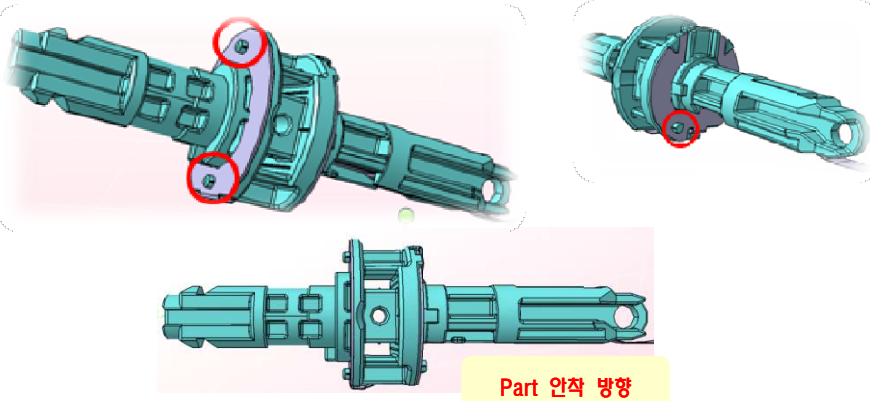
# 4-1. Manufacturing Performance

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## CL4 M-F Switch Process

### 1. Light Knob Holder + F.P.C.B 열 CK' System

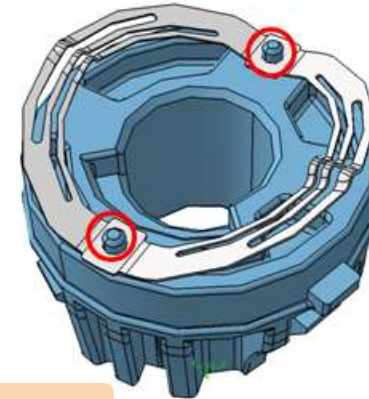


#### System Specification

1. 제품 안 / 탈착 용이 할 것
2. LIGHT CONTACT 방향 2개소, FOG CONTACT 방향 1개소 동시 열CK' 실시
3. 열CK' 높이 조절 TYPE
4. 용작 시 제품 유동 없을 것
5. WIPER KNOB HOLDER 공용화 할 것  
- SIG', WIP' Caulking Punch 동시 동작
6. 검사 순서
  - 1) 제품 안착 후 이송, 열CK' 실시
  - 2) 제품 초기 위치 이동, 탈착

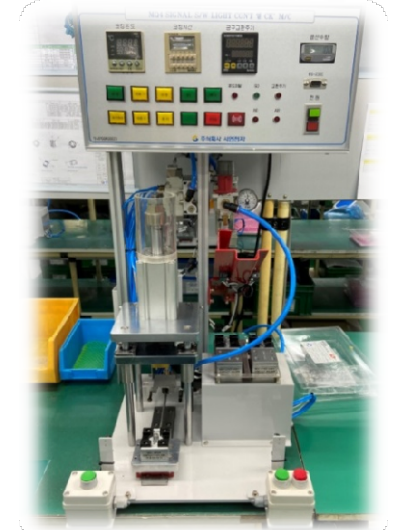


### 2. A/LIGHT CONT' HOLDER CPT 열 CK' System



#### System Specification

1. CK' 높이 조절 TYPE 적용
2. 점점 별 LAMP 점등
3. GO / NO Gauge 제작
4. Ng Box 설치
5. LOCATOR 교환 타입
6. A/LIGHT & RR WIPER CONT' HOLDER 공용
7. 검사 순서
  - 1) 제품 안착 후 이송, 열CK' 실시
  - 2) 높이검사 실시
  - 3) 제품 초기 위치 이동, 탈착





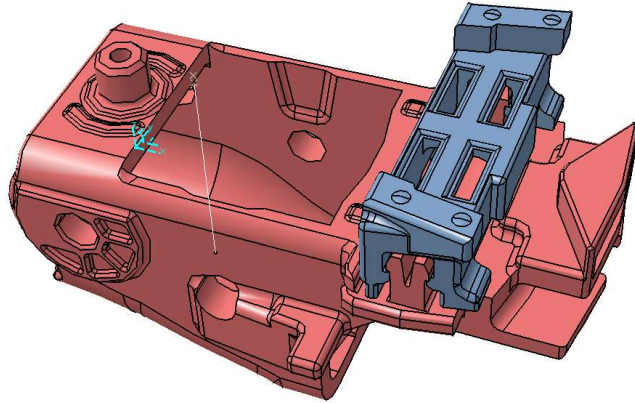
# 4-1. Manufacturing Performance

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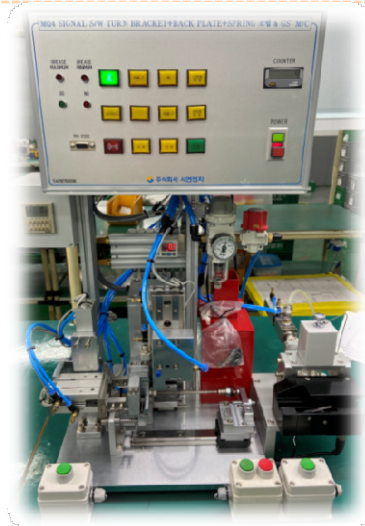
## CL4 M-F Switch Process

### 3. TURN BRACKET CPT 조립 & GS' System

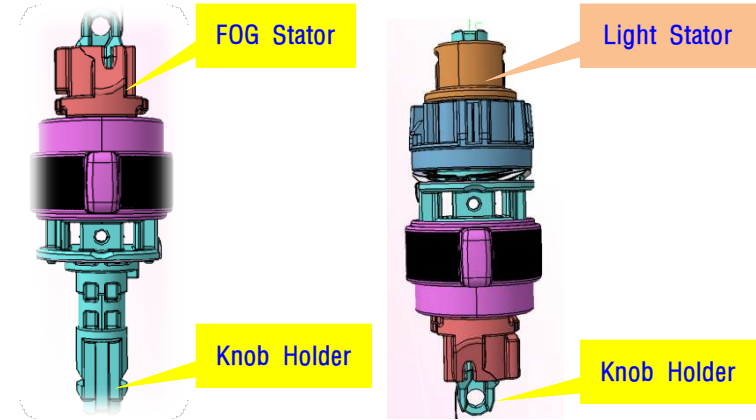


#### System Specification

1. T/BRACKET, B/PLATE, B/SPRING 자동 조립  
- 3종 제품 개별 안착
2. B/SPRING 누락 검사  
- 검사 구에 조립 제품을 통과시켜 유무 검사
3. GS' 도포  
- 제품을 삽입 안착 하여 도포

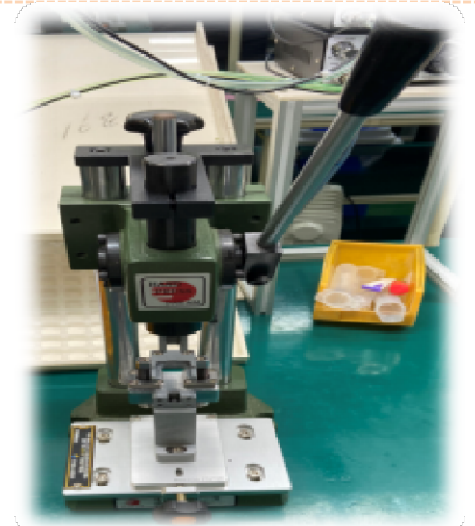


### 4. FOG&LIGHT STATOR PF' (HAND PRESS) System



#### System Specification

1. K/HOLDER+KNOB CPT+STATOR 가 조립 후 안착
2. HAND PRESS TYPE
3. FPCB 간섭 부 도피
4. FOG STATOR, LIGHT STATOR 동시 Insert
5. LH, RH 공용 사용



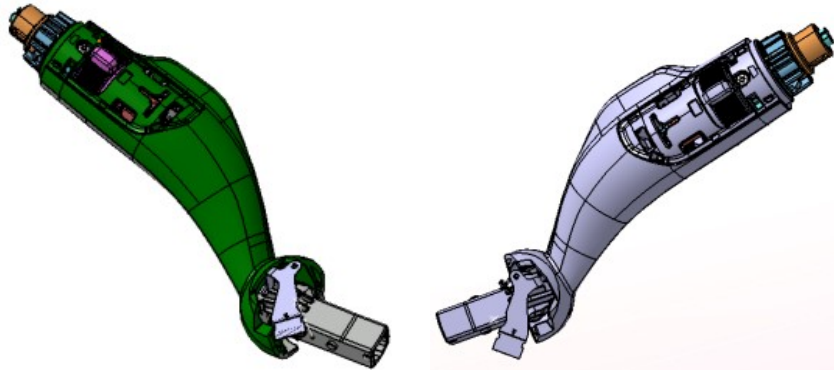
# 4-1. Manufacturing Performance

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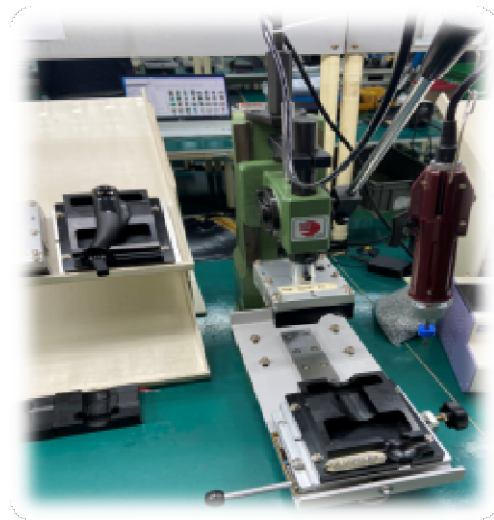
## CL4 M-F Switch Process

### 5. L/L/UPPER + L/COVER + DECO PF' (HAND PRESS) System

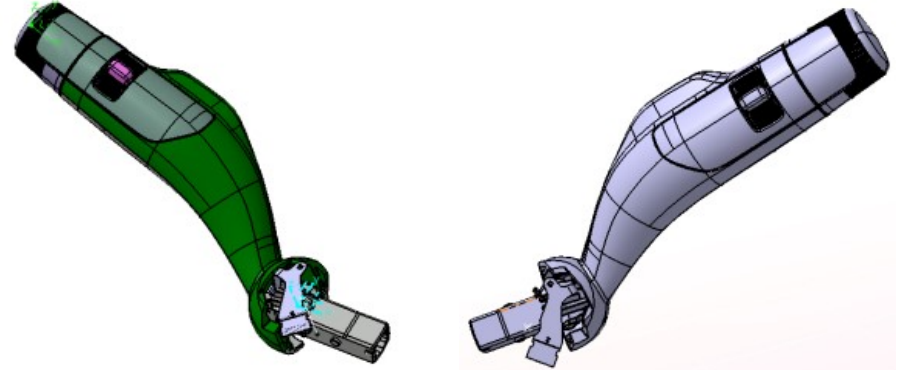


#### System Specification

1. 안착 / 탈착 용이 할 것
2. 제품 Scratch 없을 것
3. LH RH 공용 사용
  - 안착 부, Punch 부 교환방식
4. HAND PRESS TYPE
5. 체결 받침대 겸용
6. DECO Insert Jig 겸용



### 6. LIGHT LEVER CPT+K/UPPER PF' M/C System



1. 상하 단 동작 설비
2. LH RH 공용 사용
3. 하측 Locator 열처리
4. 제품 감지 sensor



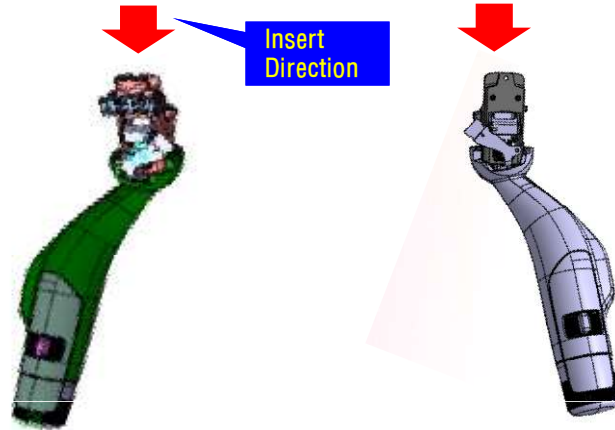
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## CL4 M-F Switch Process

### 7. L/LEVER CPT + T/BACKET PF' (HAND PRESS) System

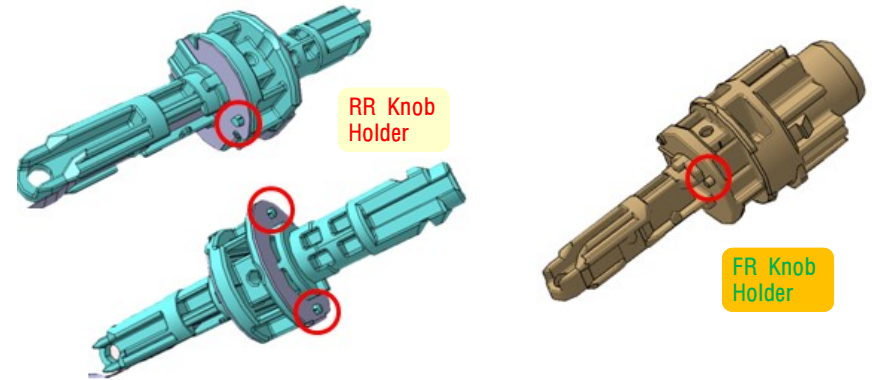


#### System Specification

1. LEVER CPT+ BRACKET 가 조립하여 안착 후 Insert
2. LH RH 공용 사용  
-. 안착 부, Punch 부 교환방식
3. HAND PRESS TYPE

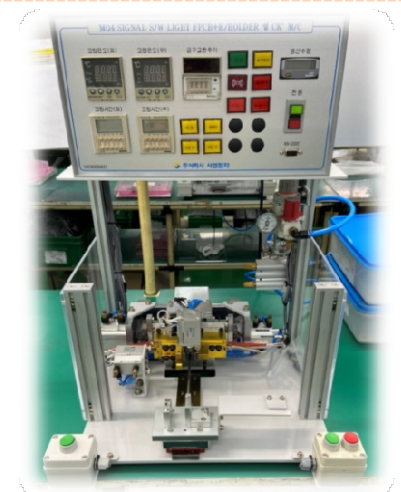


### 8. WIPER KNOB HOLDER + FPCB 열CK' M/C System



#### System Specification

1. 제품 안 / 탈착 용이 할 것
2. RR HOLDER, FR HOLDER 공용 사용  
-. RR WIPER CONTACT 방향 2개소, INT CONTACT 방향 1개소 동시 열CK' 실시  
-. FR WIPER KNOB HOLDER Insert 1개소 열CK' 실시
3. 열CK' 높이 조절 TYPE
4. 용착 시 제품 유동 없을 것
5. LIGHT KNOB HOLDER 공용화 할 것  
-. SIG', WIP' 코킹 펀치 동시 동작
6. 검사 순서  
1) 제품 안착 후 이송, 열CK' 실시  
2) 제품 조기 위치 이동, 탈착



# 4-1. Manufacturing Performance

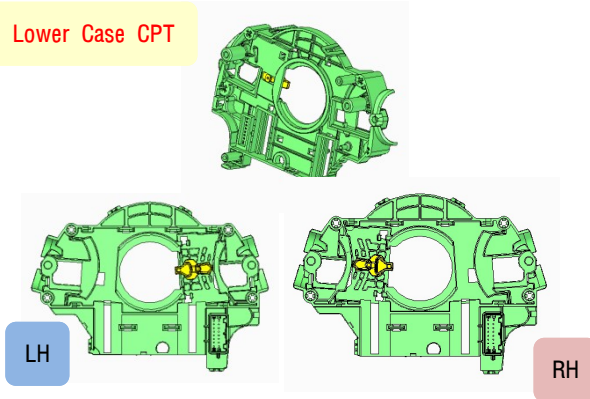
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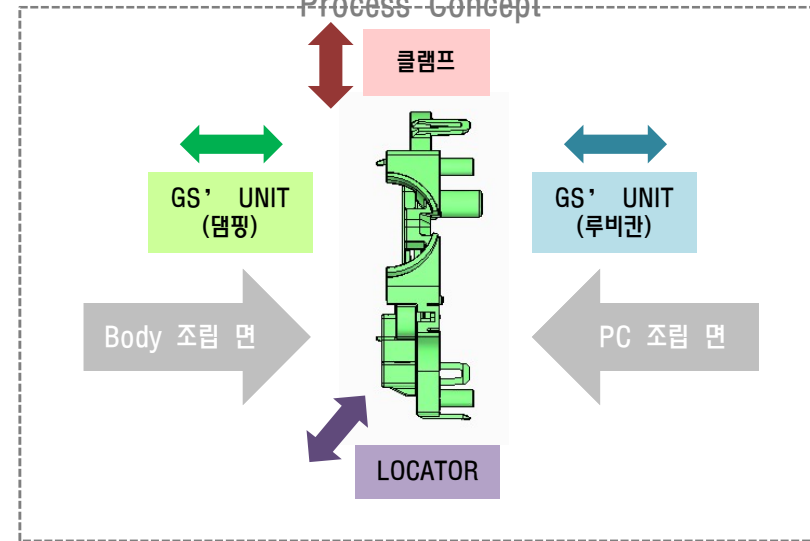
## CL4 M-F Switch Process

### 9. CASE LOWER GS' 도포 M/C System

Lower Case CPT



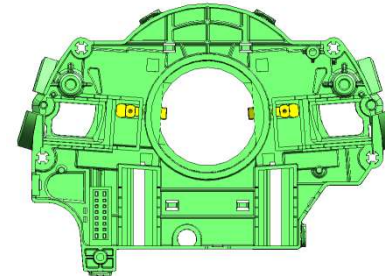
Process-Concept



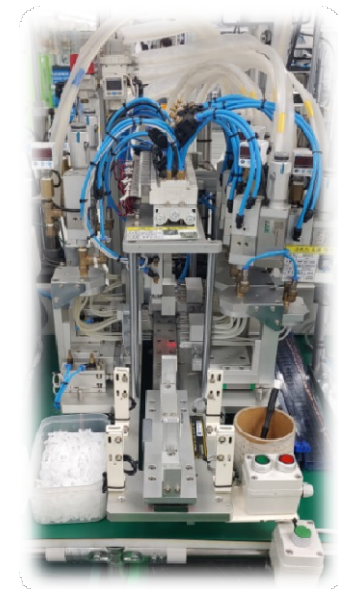
### System Specification

1. Control Box 분리형
  - 기구 부 배선 길이 : 1m
  - 기구 부의 전후 길이는 600mm를 넘기지 않을 것
2. 제품 양면 도포(GS' 2종 사용)
  - 개략도 와 같이 세워서 안착
  - Locator 전진 후 도포
  - GS' 도포 펌프 2대 사용
3. 제품 고정용 Clamp 설치
4. LH, RH 공용 사용
  - 사양 선택 기능 구현
  - 루비칸 도포 포인트 공용 사용
  - 댐핑 도포는 사양 별 개별 전진 및 도포

LH&RH 공용



- 댐핑 개선형(44-321 KR)
- 루비칸



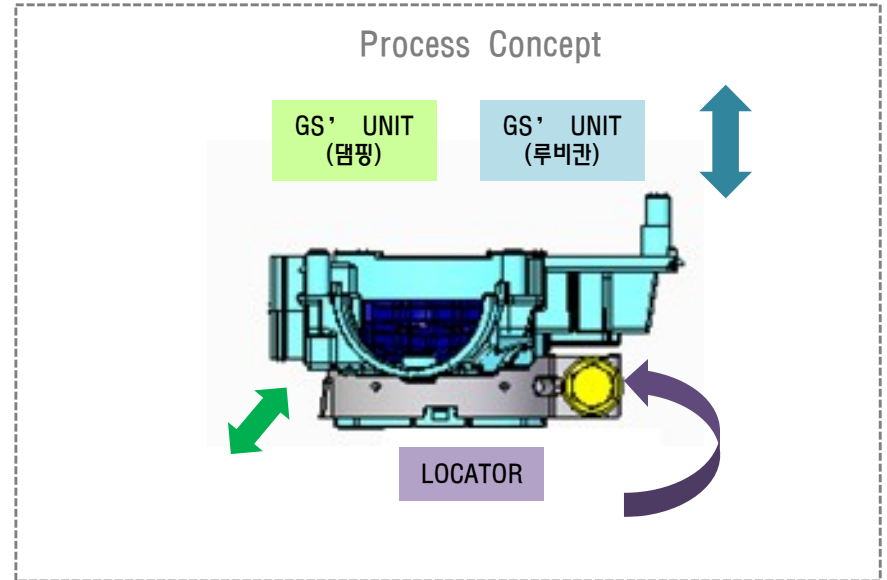
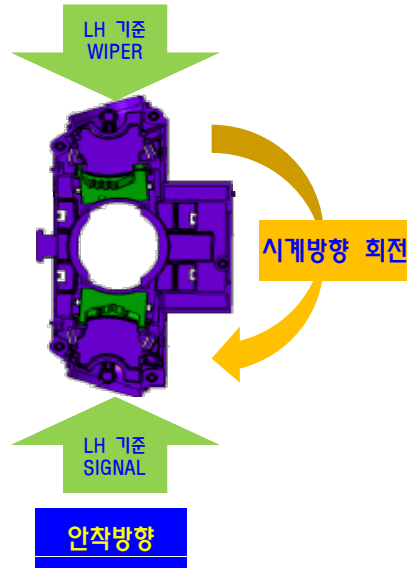
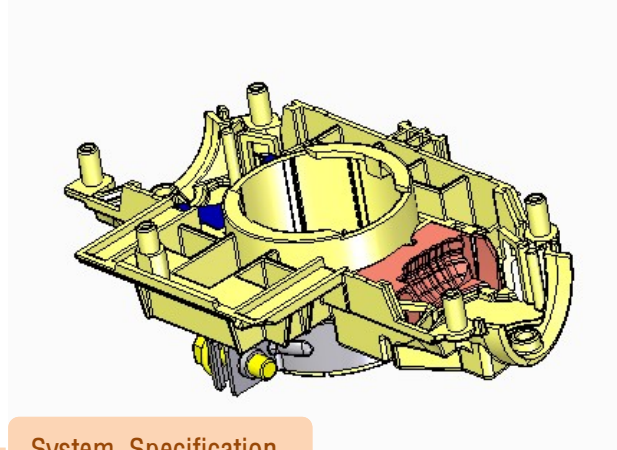
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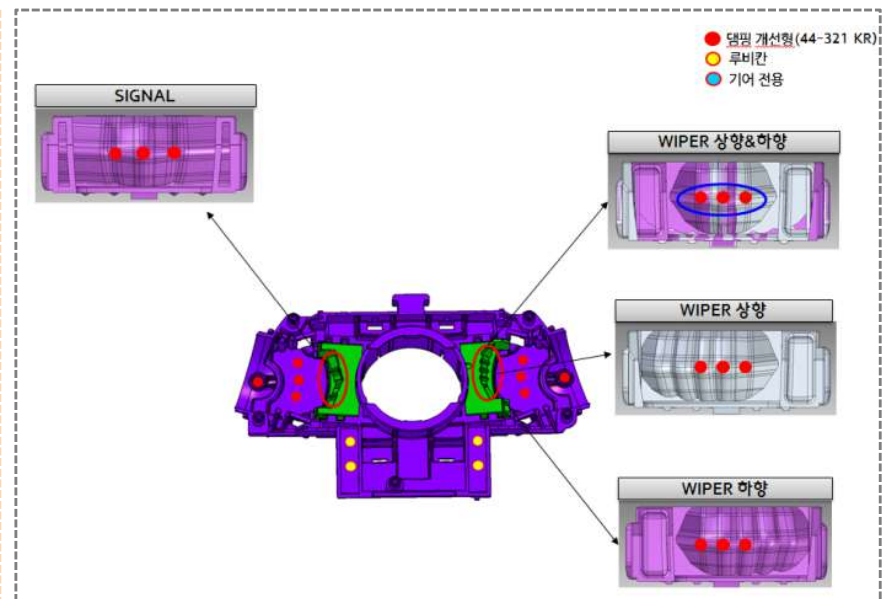
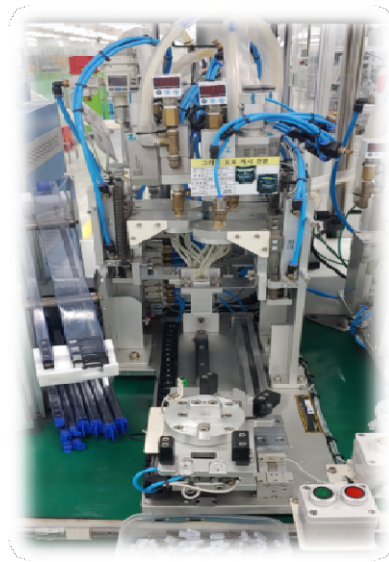
## CL4 M-F Switch Process

### 10. BODY CPT GS' 도포 M/C System



### System Specification

1. Control Box 분리형
  - 기구 부 배선 길이 : 1m
  - 기구 부의 전후 길이는 600mm를 넘지 않을 것
2. GS' 2종 도포
  - Locator 전진 후 도포
  - GS' 도포 펌프 2대 사용
  - PLATE 도포 부 제외하고 상하 방향 도포
  - PLATE 도포는 하강 후 전진하여 홈 안쪽 도포
3. LEVER CPT 조립받침 겸용
  - 바디 회전 기능 구현
    - ↳ 회전 Button 설치
    - ↳ 회전 후 작업자가 제품 탈착 하면 자동 원위치 복귀 (제품감지 Sensor 1초 이상 미 감지 시 원위치 회전)
4. LH, RH 공용 사용
  - 도포 포인트 공용



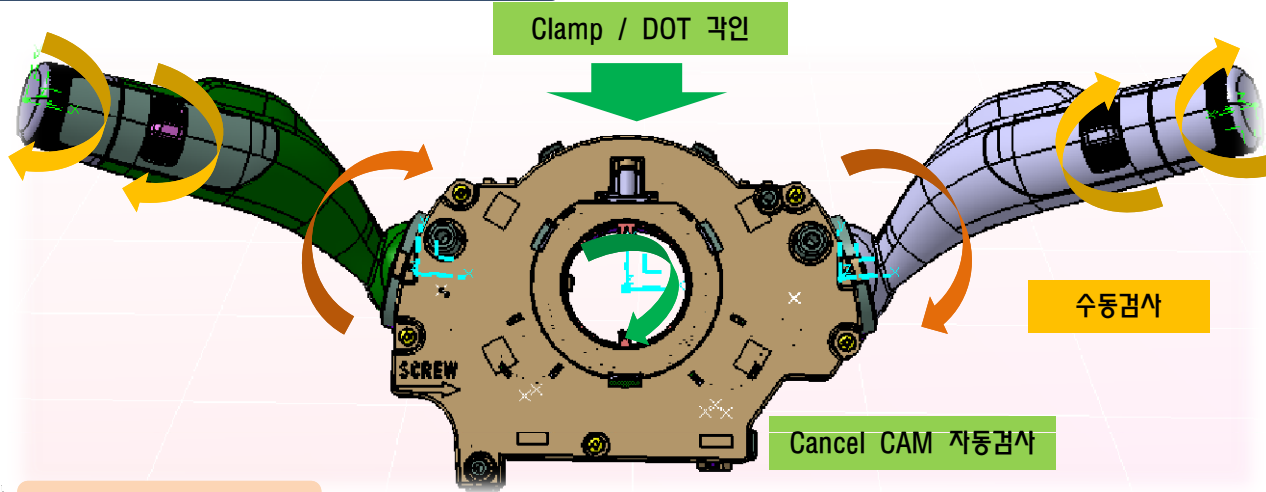
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## CL4 M-F Switch Process

### 11. Part Assembly 완성 Inspection System

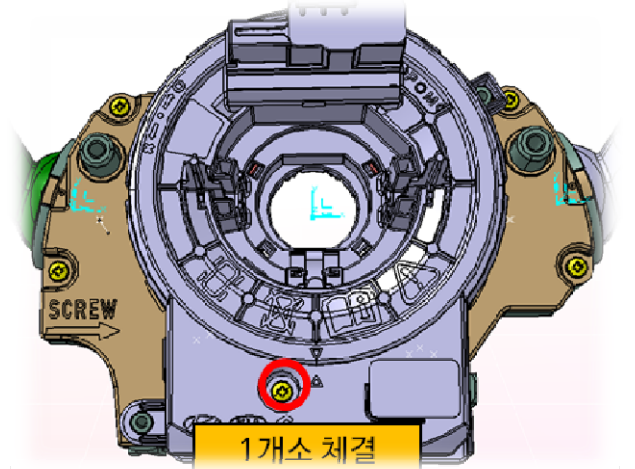


#### System Specification

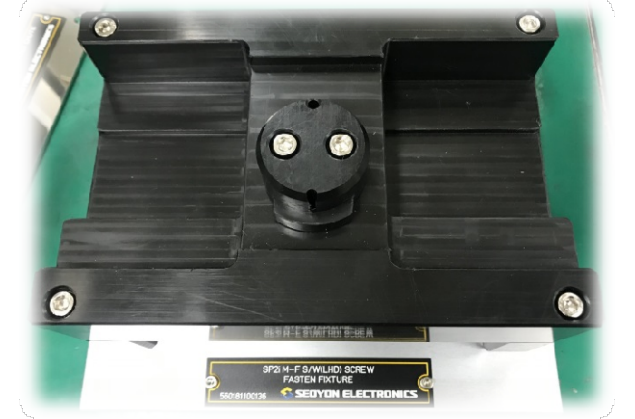
1. PC TYPE, CLIP PIN TYPE Housing 제작
2. SIGNAL/WIPER LEVER 점점검사 수동 실시
3. 제품 안착 기구 부 제작
  - ↳ Clamp, CANCEL CAM 회전 자동
4. FOG/LIGHT/VOLUME/RR WIPER 수동 검사
5. TURN/WIPER/DIM' / WASHER 수동 검사
6. LHD/RHD 공용화
7. DOT 각인, Label Print 및 Bar Code Scan
8. NG Box 제작
9. Vision Inspection



### 12. SRC + Screw 체결 받침대



1. Column 조립 부 활용하여 안착
2. 안착가이드는 최소 사이즈 적용



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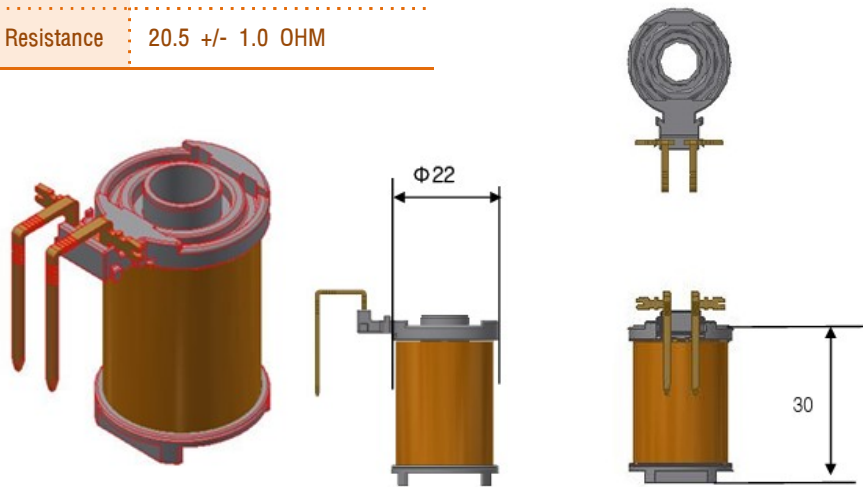
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## Stick Type Winding System \_ Auto Mobile Antenna Line

### System Specification



Bobbin	Nylon 수지 PA66 GF45
Terminal	C2680 0.8t + 주석도금
Coil	1AIW 0.27, 1420 TURN
Resistance	20.5 +/- 1.0 OHM



1	System Name	CCV Coil Winding & Assembly System	
2	Work	CCV CN7	
3	공정	완제품	CCV Bobbin Assembly
		Type	Auto Loading
		Capacity	1,500,000 EA (Year)
		가동시간	4,800 Hours/Year
		Cycle Time	10 Second [Winding Apply 5 Sec 단축] [Machine Cycle Time]
4	Utility	가동률	90 %
		Electric	Φ 3 380VAC
		CDA	5 Bar
5	System 구성	운용 온 / 습도	0 ~ 40 °C, 5 ~ 85 %
		Bobbin, Terminal 1, Terminal 2, Loading Unit	
		Terminal Press Unit	
		Winding Unit	
		Welding Unit	
		Vision Inspection Unit	
		Resistance Surge Inspection Unit	
		NG / Good / Un_Loading Unit	

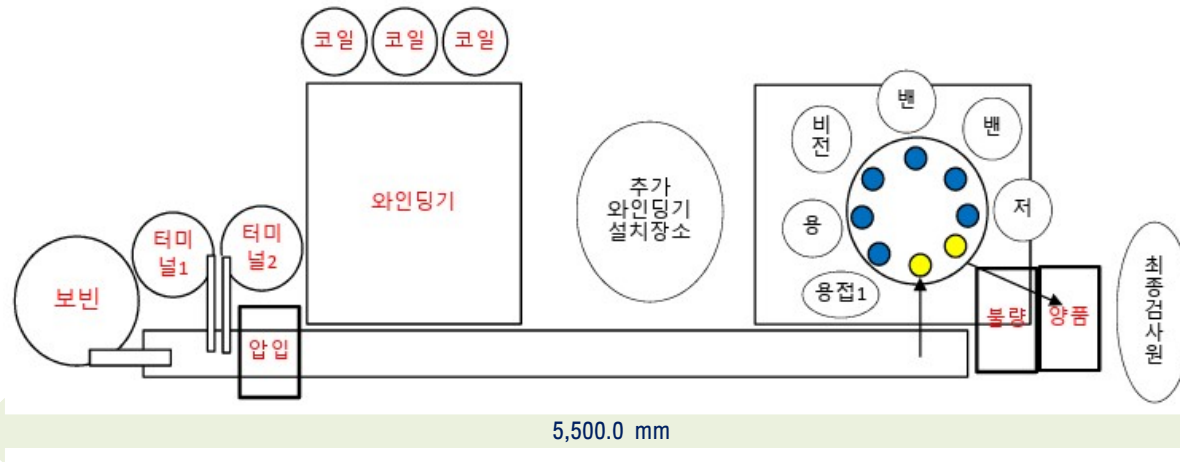
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## Stick Type Winding System \_ Auto Mobile Antenna Line

Process	CCC-S061	CCC-S062	CCC-S063	CCC-S064	CCC-S065
Process Name	Terminal Insert	Winding	Hot Staking	Bending	Resistance / Appearance Inspection
Ref To Picture	Terminal 1, 2 	1AIW 0.27 			
Process No	Terminal Insert	Coil Winding	Resistance Welding	Terminal Bending	Resistance Inspection Appearance Inspection
Contents		Resistance 20 +/- 1 OHM Coil Tension 150 +/- 20 gf	전압 / 전류, 외관, 단면 Coil 손상 여부, Welding 여부		
F / Proof			Welding Monitoring, Welding Length	Bending 접촉 검사	Resistance 20 +/- 1 OHM 외관 손상 없을 것





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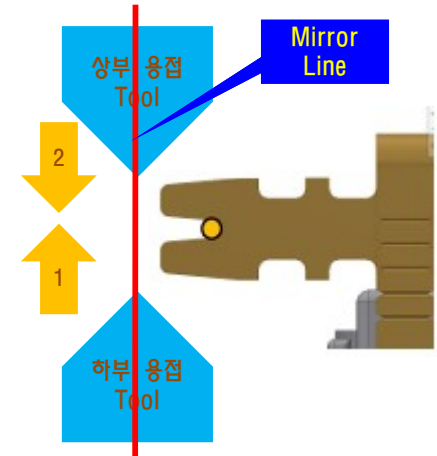
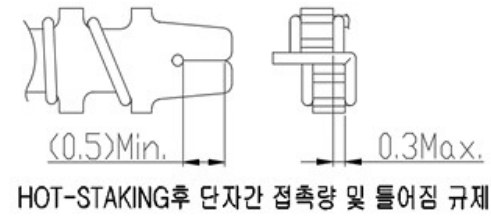
## Stick Type Winding System \_ Auto Mobile Antenna Line

### Typical Process

#### Welding Process

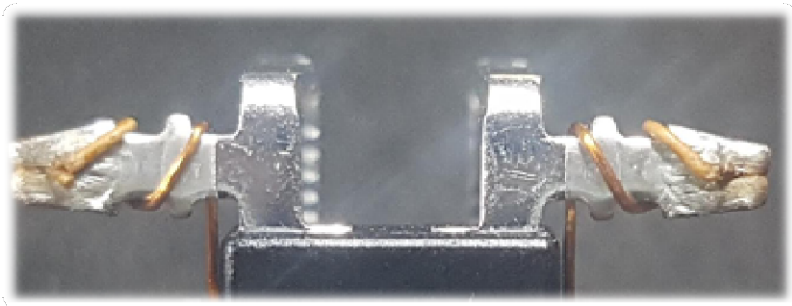
1. 용접 Tool 다 회 사용 가능 하도록 위치 변경 가능 할 것.
2. 용접 Tool 뒤집어 사용 가능 하도록 대칭으로 만들 것.
3. 용접 Tool 접촉 후 용접 Tool 거리와 용접 전류 흐른 후 용접 Tool 거리 차 관리 할 것.  
[LVDT (Laser 변위 Sensor) 로 용접 거리 측정 Good/NG 판정]
4. 용접 Tool 접촉 압력 하중 관리 할 것.  
(용접 후 하중 값 관리로 Good / NG 판정)  
하중 : TBD 15 kgf (용접 Head Apply)  
용접 전류 / 전압 : TBD 1.5 KA/1.5V
5. 용접 / 검사 Data PC 저장, 표기 일시, 전류, 시간 (용접 Monitoring), 하중, 변위, 저항
6. 용접 Fume 배출 배기 Port 설치 (진공 생성은 별도 설치)

전류 : 1.8 KA  
Time : 0.75 Sec



#### Vision Inspection Process

1. 시, 종선 Coil 위치 및 용접 여부 Vision 검사 (1 EA Camera 시 종선 동시 검사)

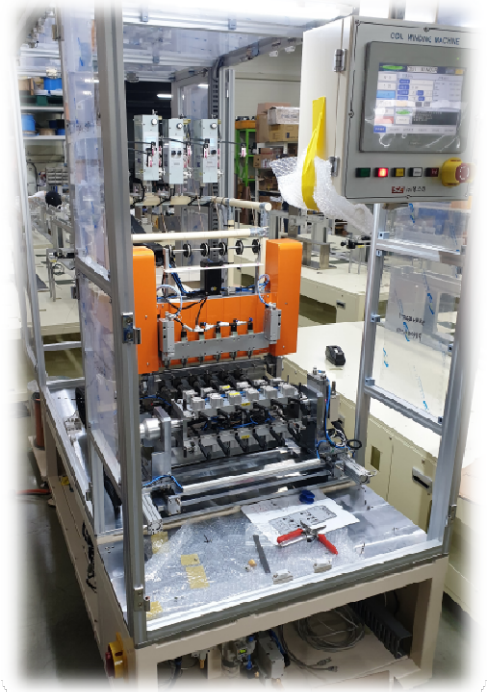
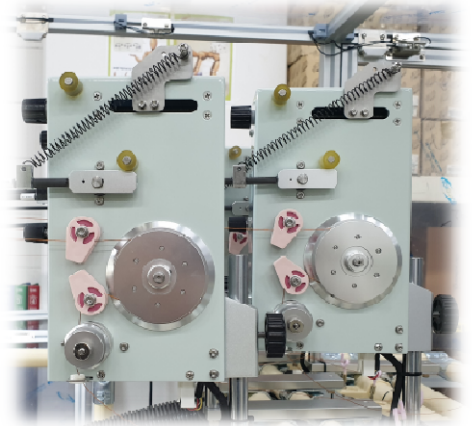
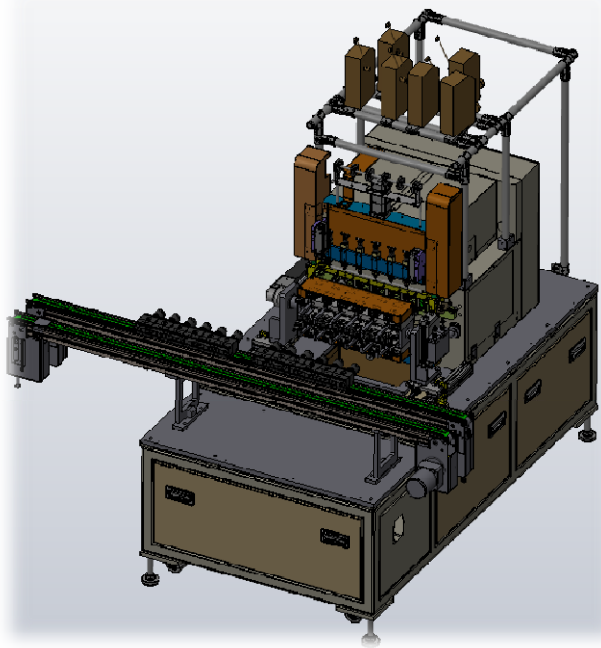


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Stick Type Winding System \_ Auto Mobile Antenna Line



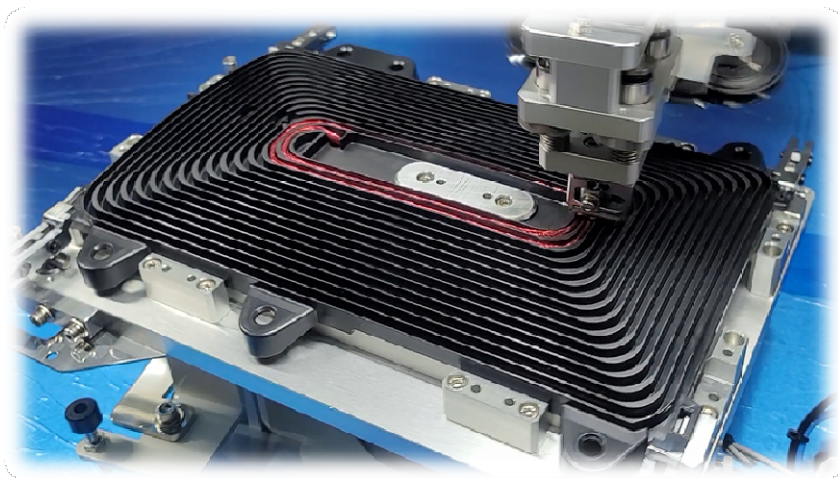
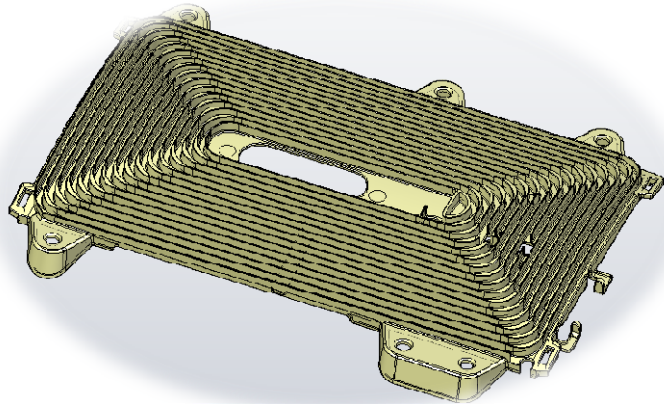
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## IH Coil Winding System



### System Specification

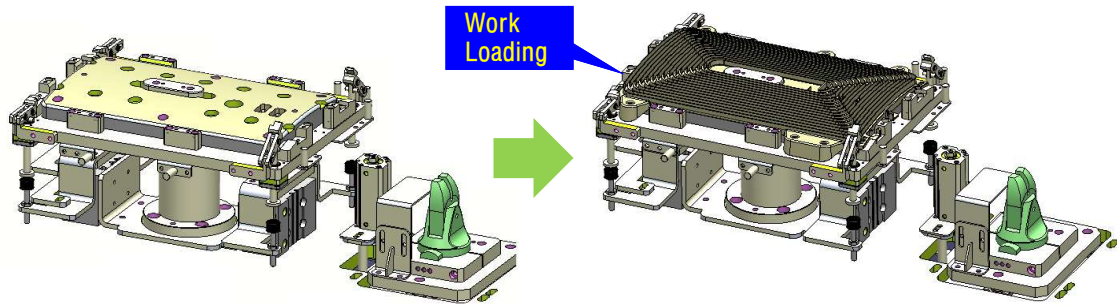
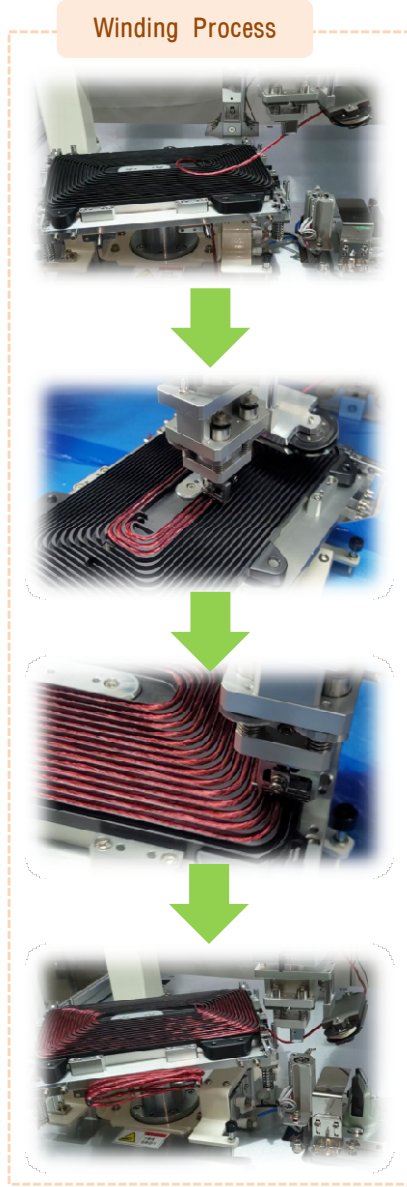
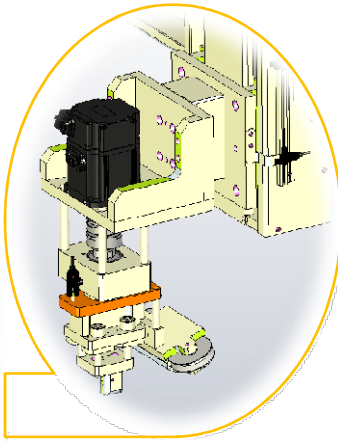
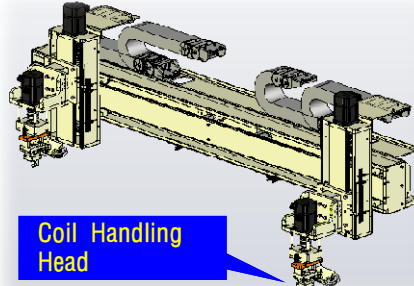
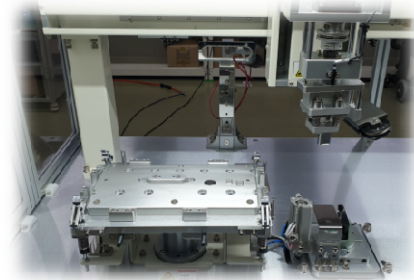
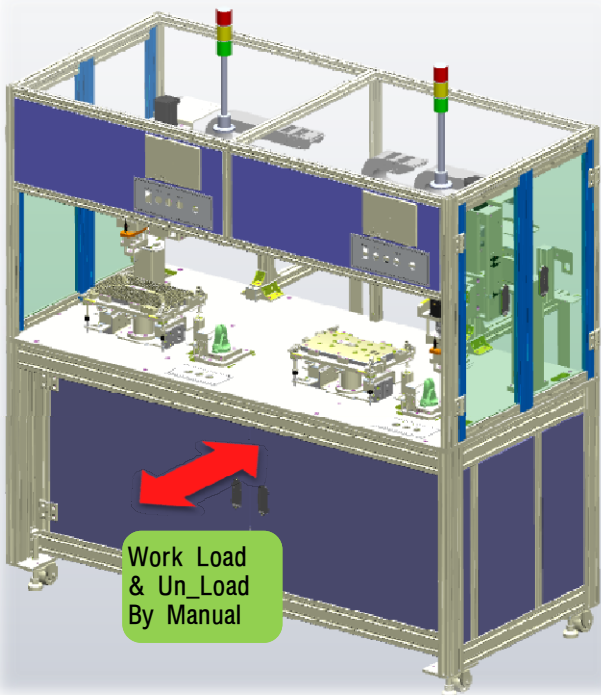
ITEM		FC3058 IH COIL WINDING M/C
제품		IH MODULE COIL BASE
IH MODULE COIL BASE		COIL : $\varnothing 3.61$
Ambient temperature Range For Assured Performance		5°C ~ 35°C(41 ~95°F)
Power Source		220V AC, 50/60 Hz
Compressed Air		4-6kg/cm <sup>2</sup> G at Oil Free Dried Air
Component	SPINDLE	BASE 안착 및 회전
	X-AXIS ROBOT	COIL NOZZLE을 좌우로 이동
	Z-AXIS ROBOT	COIL NOZZLE을 상하로 이동
	$\varnothing$ -AXIS	COIL NOZZLE을 상하로 이동
	Control Board	PLC, Relays. Controller, Operation Switch, Sensor
Outside L × W × H mm		1700 × 800 × 1700
Weight		500 Kg

# 4-1. Manufacturing Performance

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## IH Coil Winding System



# 4-1. Manufacturing Performance

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## Smart Key Assembly Inspection Automatic Auto Mobile Line

Subject : PD & TL FOLD' G TX Type Auto Assembly System



No	Process	FP' 항목
1	PCB ASSY + L/CASE 열CK'	2
2	Screw 체결	3
3	암 전류 / 전압 검사 + BATTERY 조립	2
4	BATTERY COVER 조립 & SCREW 2EA 체결	1
5	LOGO 부착	1
6	완성 검사	4
7	Battery Cover Laser 각인	1
8	LABEL 부착	1
Total		15

구분	현황
Cycle Time	12 Second
System Size	5.1 m x 3.5 m
ITEM	PD & TL FOLD' G TX
TYPE 교체	JIG 교체 방식 ( PD / TL )

### System Specification

부품 명	PD TYPE	TL TYPE	포장사양
L/CASE			
U/CASE			
Battery Cover			
L/C Cover		-	

# 4-1. Manufacturing Performance

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### Smart Key Assembly Inspection Automatic Auto Mobile Line

### Progress Description

공정 번호	공정 내용	PD TYPE	TL TYPE	FP' 항목	
				주요 항목	적용개소
1	PCB ASSY + L/CASE 열CK'			1. 열 Caulking 부 온도 Control (F/P' ) 2. PCB 2D Bar Code Scan (사양 F/P')	2
2	L/CASE + CAM CPT + U/CASE			-	-
3	PD : Screw 체결 (4개소/별나사) TL : Screw 체결 (2개소)			1. PCB 이중 검사 (Scanner / FP' ) 2. Button 이중 검사 (Camera / FP' ) 3. SCREW 체결력 관리 (F/P' ) - 1.0 ~ 2.0 kgf.cm (실시간 관리)	3
4	암 전류 / 전압 검사 + BATTERY조립			1. Battery 전압 검사 (F/P' ) 2. PCB 암 전류 측정 (F/P' )	2
5	BATTERY COVER ASS' Y & SCREW 2EA 체결			-	-
6	LOGO 부착	-----		1.LOGO 부착 여부 (F/P')	1
7	완성 검사			1. TP 누락 & 이중 검사 (F/P' ) 2. LED 점등 검사 (F/P' ) 3. 기능 검사 (F/P' ) 4. SCREW 6개 체결 누락 검사 (F/P' )	4
8	Battery Cover Laser각인			1.Laser 각인 부 Scan 실시 (F/P' )	1
9	L/COVER 조립 & LABEL 부착		-	-	-
10	외관검사			-	-

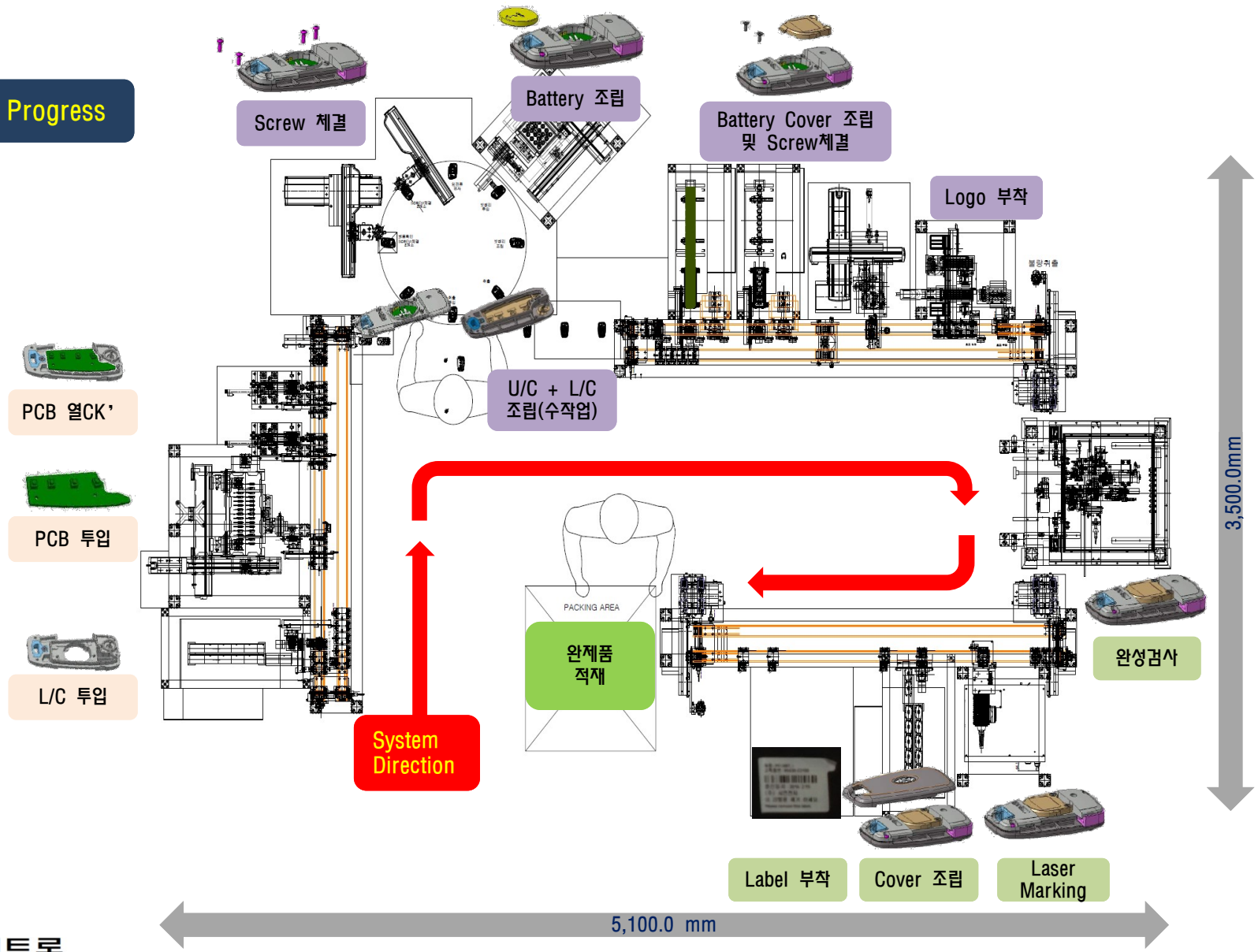
Total ( 총 29 Progress 구성 )

# 4-1. Manufacturing Performance

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## System Progress

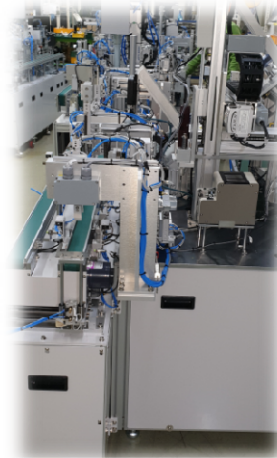
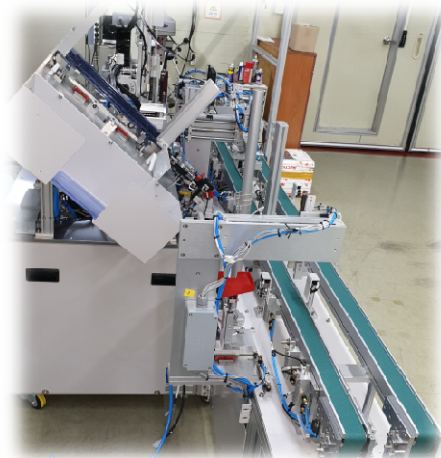
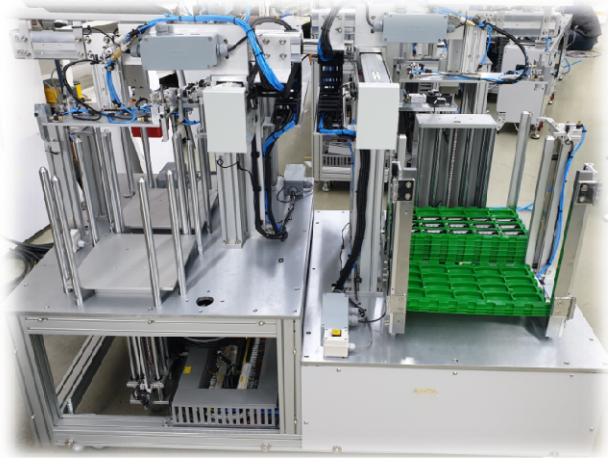


# 4-1. Manufacturing Performance

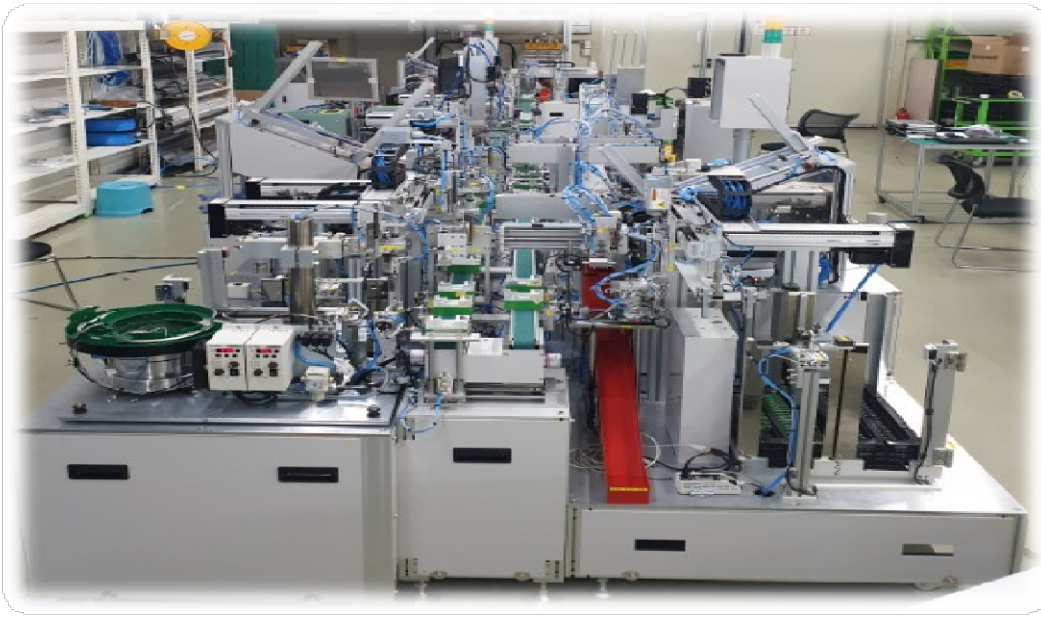
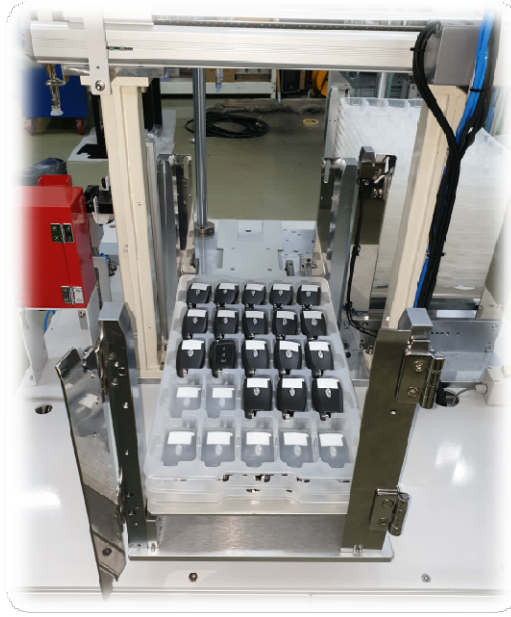
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Smart Key Assembly Inspection Automatic Auto Mobile Line



System Picture





## 5. Vision

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### ▶ Our Vision

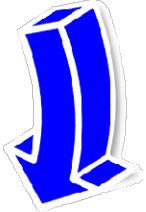
우리의 비전

We are committed to :  
growing the best equipment and service provider

# 5. Vision

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## Our Partner



Head Office & Location

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*Customer Customization Solution Development Company*

***Thank you for your attention***

