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Company Overview

- Automotive seat related mechanism assembly:
  - Seat Frame, Seat Track, Recliner, Cushion
- Seat inspection equipment
- Factory automation
- Based in Daegu, S. Korea

Patent

9 patents
- Seat torsion spring assembly
- Seat clamping equipment
- Actuating force measuring device
- Seat height pumping spindle
- Access device for inspection & assembly of electric units
- Peripheral device for bolt used for seat assembly
- Jig for seat assembly line

Technical Recognition

- Top Company Technical Evaluation Certification
- Venture, Inno-Biz Certification
- Corporate Research Center Certification

Business Scope

Computer Application Area
- Construction of POP System
- Development of FA Software
- Construction of SIM System
- Development of HMI/MMI System

Electronic Control
- Development of Dedicated Controller
- Development of Measurement Instruments and Sensors
- Development of Wireless Solutions

Seat Assembly Line Solutions

Computer Applications

Electronic Control

Machinery
- Assembly Machinery
- Gauge & Fixture
- Proposal Machinery
- Testing Equipment
- Automatic Equipment

Electric Control
- PLC
- Automated Control
- Automation Equipment
Jig for Seat Assembly

**Patent No:** 10-1729272

**Patent Content:** Jig for Automotive Seat Assembly Line with application of Aluminum Foam; reduces weight while meeting strength requirements

**Result:**
- Strength reinforcement to related parts unnecessary due to reduced weight of jig (installation costs reduced)
- Reduce breakdown of conveyor and related parts due to reduced weight
- Cycle time reduction

Seat Clamping Device

**Patent No:** 10-1668992

**Patent Content:** Seat Clamping Device structured to easily clamp seat of Mounting Bracket Type and non-Mounting Bracket Type on Jig

**Result:**
- Minimize damage to paint layer during seat clamping
- Simultaneous application of Mounting Bracket Type and Non-Mounting Bracket Type
- Reduce jig production costs
Seat Torsion Spring Assembly Device

Patent No: 10-1607449

Patent Content: Seat torsion spring assembly device that allows torsion spring assembly process to be simplified without the worker's help on power seat, which holds the rise & fall control of seat cushion frame assembly and manual height seat

Result:
- Save operations personnel as a result of unmanned automatic assembly
- Shortened assembly time due to increased productivity

Seat Bolt (Peripheral Device) used for Seat Assembly

Patent No: 10-1615716

Patent Content: Method of supply-by-classification and the device of Automotive Seat Bolt (classified by specifications and used for assembly) that can classify supply Bolt (classified by specifications) of seat that is to be assembled.

Result:
- Prevent heterogeneity of bolt assembly
- Prevent assembly failure
# Seat Assembly Line

## Seat Cushion Assembly Line (Complete)

![Seat Assembly Line Image](https://www.uskoreahotlink.com/products/factory-automation/seat-assembly-lines/)

**Line Composition:**

1. Free Flow Conveyor, Jig Pallet, Sound-proof room, Assembly Unloading Equipment
2. Slide/Pumping Height Inspection Equipment, Fool Proof Inspection Equipment
4. IMS. Electric field. Power Inspection Equipment, Portable Inspection Equipment, Recliner Operating Force Inspection Equipment
5. POP System, Entire PLC Control
6. Entire System Tool (EC Tool)

* Cycle Time 35 Sec/each

- See Seat Testing Equipment Catalog for more information on Inspection Equipment
Seat Assembly Line

Lightweight Jig

Overview:

Easy maintenance due to light weight of jig

1. General jig: 80Kg / Lightweight jig: 45kg (subject to change depending on the concept)

2. Conveyor noise reduction due to jig weight reduction

3. Mounting block replacement type makes it easy to handle multiple models

4. Extended life of conveyor chain

POP (Point of Production) System

POP system acts as an infrastructure that connects production plan information of top system with information of production site. It supplies production information in timely manner to ensure efficient production.

Its main functions are:

1. Production real time status monitoring: operation status, production result status, PLC communication
2. Production management: planning management, production result transmission
3. Quality Management: Interlock, product history and statistics data

POP development:

1. Seat Assembly Line Process Management System
2. Seat Track Assembly Line Process Management System

Seat Assembly Line

POP System Brief Sequence

- **RFID**: Transmission of serial number saved in tag as soon as the tag is automatically read.
- **PLC**
  - Relay status
  - Sensor
  - Various Figures
  - Continuous request for BIT Information
  - BIT Information Transmission
  - Automatic Transmission of concluded info.
- **TOOL**
- **Scanner**
  - Automatic Transmission of SCANNED content
- **DB**
  - Product Specification Transmission
  - Transmission of serial number read by Tag
  - Transmit Tag specification received from DB to Industrial PC
- **Industrial PC**
  - Displayed on screen

POP System Current Flow Chart

- **<POP Rack Configuration>**
- **PC**
- **Hub**
- **Terminal Server -1**
- **Terminal Server -2**

- **<1> Loading Process**
- **<2> Assembling Process 1**
- **<3> Assembling Process 2**
- **<4> Assembling Process 3**
- **<5> Tester Process 1**
- **<6> Tester Process 2**
- **<7> Unloading Process**

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<tr>
<th>Serial #</th>
<th>Product #</th>
<th>Product Name</th>
<th>Car Model</th>
<th>Heater</th>
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<td>88500-5V000</td>
<td>UM HEIGHT</td>
<td>UM</td>
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<tr>
<td>2</td>
<td>88500-6V000</td>
<td>UM NORMAL</td>
<td>UM</td>
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</table>

Seat Assembly Line

Automation Line

Products:
1. Power Recliner Auto Assembly Line
2. Seat Mechanism Power Line
3. Seat Mechanism Height Line
4. Seat Mechanism Normal Line

Assembly Equipment

Torsion Spring Assembly Equipment

Characteristic:

1. Torsion Spring automatic assembly applied (used by inserting only Servo Teaching value by specification/car model classifications)
2. Quad-axis Servo Motor applied
3. Cycle Time: 20 Sec (Manual)
4. Save Maintenance cost due to Insert Tool damage prevention, replacement unnecessity

Overview:

IMS ECU default (Limit Setting)
IMS storage and playback tests
MEM 1 storage, playback
MEM 2 storage, playback
Vehicle riding & get off interlock
Assembly Equipment

Seat Covering Wrinkle Removing Robot

Function

Removing the wrinkles of the seat covering back and cushion using steam.

## Assembly Equipment

### Other Assembly and Production Equipment

1. Power Tooth Deburring Machine
2. PWR Recliner Auto Assembly Line
3. MNL Recliner Auto Assembly Line
4. Connector Pin Insert Machine
5. Seat Frame Auto Welding Line
6. Assembly Assembling Jig
7. Multiple Press Machines
8. Multiple Jigs and Checkers

## Clients / Project Experience

### Major Clients

<table>
<thead>
<tr>
<th>Region</th>
<th>Customer</th>
<th>Nation</th>
<th>Division</th>
<th>PROJECT NAME</th>
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<tr>
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<td>LFC Slide Insp</td>
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<td>GM-GSV Track Insp, YDM Insp</td>
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<td>GSB Slide &amp; Electro Insp</td>
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<td>Hyundai</td>
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<td>Insp Equipment</td>
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</table>

**Assembly Line**  Main Conveyor, Jig Pallet, Inspection Equipment (Slide, Height, Electro, IMS, WCS, POD-S), POP (Point Of Production: Lot History Traceability, Product & Inspection Data Management) System, PLC Control, Sound Probe Room (Only Power)

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