

Automotive Interior Parts Production Machinery



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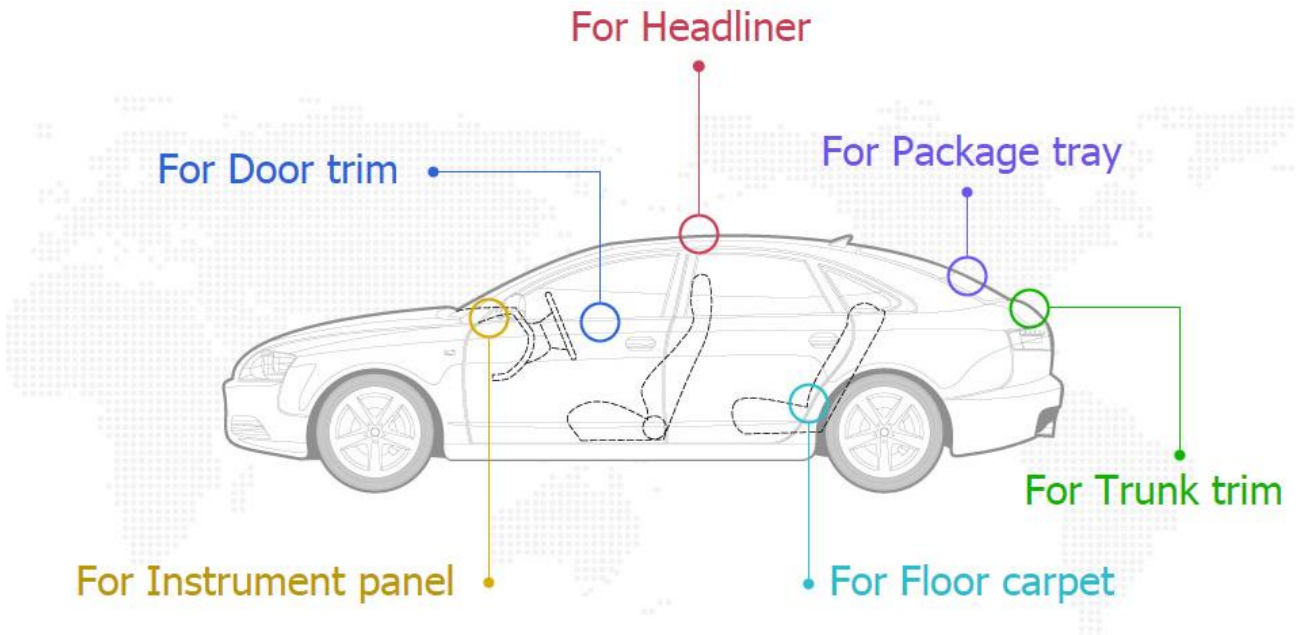
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Company Overview



Automotive Interior Parts Equipment



Engineering Capabilities

Actively looking for challenging opportunities to increase our capabilities and extend our expertise.

Design and engineering support includes:

- CATIA
- AUTO CAD
- CAE
- SOLID WORKS 2016 x64 Edition
- INVENTER 2016

Production Range



Applications

● For Door trim

- IMG VACUUM FORMING M/C
- VACUUM FORMING M/C
- EDGE FOLDING M/C
- HEAT JOINING M/C
- HOT AIR JOINING M/C
- INFRARED JOINING M/C
- ULTRASONIC JOINING M/C
- ASSEMBLY CONVEYOR
- PUNCHING& TRIMMING M/C

● For Trunk trim

- FORMING LINE

● For Headliner

- FORM'G LINE (PU WET TYPE)
- FORM'G LINE (PU DRY TYPE)
- FORM' G LINE(SUPERLITE)
- EDGE FOLDING M/C
- HOT MELT SPRAY M/C
- WATERJET CUTTING SYSTEM

● For Instrument panel

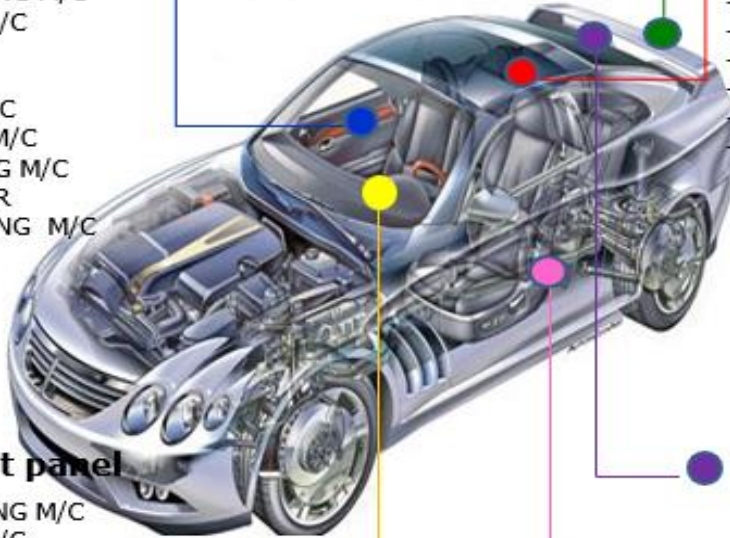
- IMG VACUUM FORMING M/C
- VACUUM FORMING M/C
- HOT AIR JOINING M/C
- KNIFE TRIM & PIERCING M/C

● For Package tray

- FORMING LINE

● For Floor carpet

- FORMING LINE



Production Range



Main Types of Machinery



Vacuum forming



Vacuum laminating



Edge folding



Hot air staking



Ultrasonic welding



Headliner forming line

Technical Capabilities



- ❖ Domestic Patent Rights: 9
- ❖ International Patent Rights: 4
- ❖ Utility Model Patents: 22



ISO 9001

CE Certificate

Technical Capabilities



Our Strength

Turnkey System Supplier

- From design to after-service turnkey project enforcement available

Project Experience with Global Tier1 Customers

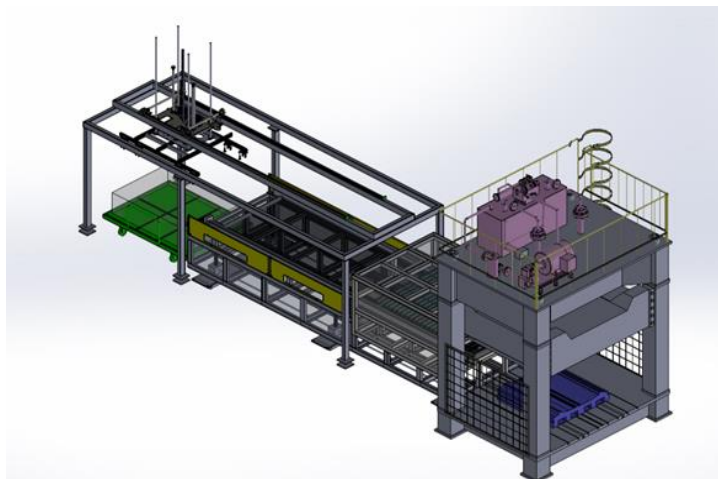
- Faurecia, Johnson Controls, Visteon, IAC, Kasai, Shigeru, Seoyon E-wha
- Thermoforming 34 units
- Headliner forming line 22 units

Comply with Global Standard

- CE, OSSA, GOST-R Global safety standard

Short Production Lead Time

- Cost competitive
- General production lead time: 4 month from PO



Technical Capabilities



Design Capabilities



■Engineering ■Tools ■Equipment ■Prototyping

Technical Capabilities



Technology meeting



Machine production



Trial test (T1, T2)



Packing



Installation



Commissioning

Product Line

1. Vacuum Forming



IMG Vacuum Forming Machine

The IMG vacuum forming process provides the best grain definition on the molded part as the heated sheet material is imprinted / vacuum formed into an upper female grained mold surface. IMG vacuum forming process is proven as the highest grain definition in this industry.

◆ Type

- Single station
- Inline station
(Sheet loading/Roll loading)

◆ Combinable Technologies

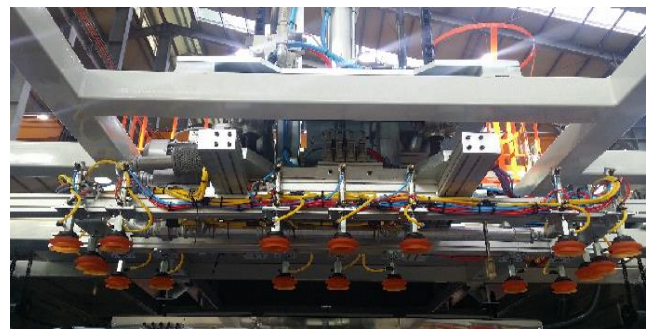
- Cutting and trimming solutions
- Pre-edge folding

◆ Applications

- Door trim
- Instrument panel
- ABC pillar

◆ Main functions & Advantages

- Multiple processes
- Vacuum forming and laminating with IMG
(In-mold-graining) at once



Product Line

2. Vacuum Laminating



Press Laminating Machine

Used for interior car leather materials without elasticity or materials not suitable to process by vacuum laminating due to several sewing lines on the fabric. The processing improves quality of grain, soft-touch surface.

◆ Type

- Pneumatic press
- Hydraulic press

◆ Combinable Technologies

- Glue spray
- Drying oven
- Edge folding



◆ Applications

- Center panel
- Armrest
- Pillar
- Package tray

◆ Main functions & Advantages

- Non complex machinery structure
- Automatic tool change



Product Line



3. Vacuum Forming and Laminating

Vacuum Forming and Laminating Machine

Vacuum forming and laminating machine is used for forming automotive interior skins over numerous injection mold plastic substrates. This process guarantees optimum quality for finished products, while saving on capex costs.

◆ Type

- Single station
- Inline station
(Sheet feeding/Roll feeding)

◆ Combinable Technologies

- Vacuum forming and laminating
- Vacuum forming and laminating with IMG process
- Cutting and trimming solutions

◆ Applications

- Door trim
- Instrument panel
- ABC pillar

◆ Main functions & Advantages

- Non complex structure



Product Line

4. Edge Folding

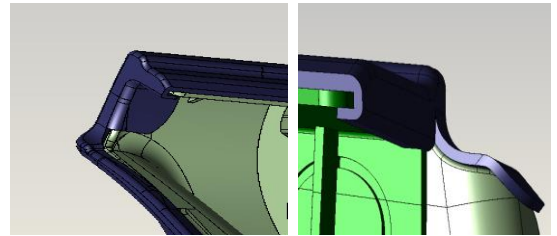


Edge Folding Machine

Edge folding machine folds skin to the back side of substrate as a finishing process to hide the cutting part from outside.

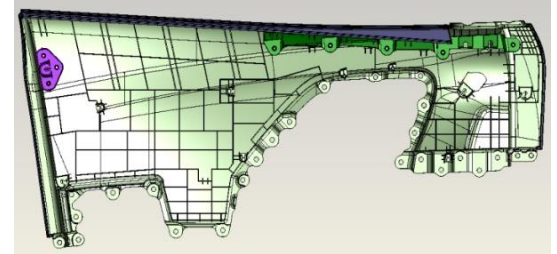
◆ Type

- Single station, multi station machine
- Bond type, bondless type
- Simultaneous folding type (skin + substrate)



◆ Combinable Technologies

- Vacuum lamination and press lamination
- Bond gluing machine



◆ Applications

- Door trim
- Instrument panel
- Headliner
- ABC pillar



◆ Main functions & Advantages

- Clean and blemish free
- High productivity

Product Line

6. Forming Line



Headliner Forming Line

Headliner forming line is suitably developed for diverse materials and manufacturing methods. Can be built according to customer's specifications.

◆ Type

- PU wet type
- PU dry type
- SUPERITE type

◆ Material

- F10
- Natural Fiber

◆ Combinable Technologies

- Full automatic
- Semi automatic

◆ Applications

- Headliner

◆ Main functions & Advantages

- Optimized solution for customized materials and methods



Product Line

5. Joining



Hot Air Joining Machine

Hot air joining is a process focusing hot air on a specifically designed stud when forming under pressure with a cold metal stake into the desired shape, such as domed or flat rivet.

◆ Type

- Single station
- Multi station

◆ Combinable technologies

- Assembly conveyor



◆ Applications

- Door trim
- Instrument panel

◆ Main functions & Advantages

- Excellent assembly quality
- Low welding force
- Less design restriction on products



Product Line

5. Joining



Ultrasonic Joining Machine

Ultrasonic welding of thermoplastics causes local melting of the plastic due to absorption of vibration energy. The vibrations are introduced across the joints. Complex injection molded thermoplastic parts can be easily joined without bolts, nails, soldering materials.

◆ Type

- Single station
- Multi station

◆ Combinable Technologies

- Assembly conveyor

◆ Applications

- Door trim
- Instrument panel

◆ Main functions & Advantages

- The fastest joining process
- The best energy efficiency
- Surface to surface adhesion available



Product Line

5. Joining



Heat Joining Machine

The riveting process creates irresolvable interlocking bonds achieved by forming or reforming of thermoplastics. In most cases, only point-shaped or segmented joints are processed. In contrast to welding of two components, hermetic joints cannot be achieved.

◆ Type

- Single station
- Inline station

◆ Combinable Technologies

- Assembly conveyor

◆ Applications

- Door trim
- Instrument panel

◆ Main functions & Advantages

- Non complex design and easy maintenance
- Low capex investments



Product Line

5. Joining



Infrared Joining Machine

Infrared welding is a fast and clean alternative plastic components welding. Through infrared welding, you can join plastic components with the use of electric quartz glass infrared emitters. High productivity and energy efficiency due to instant heat on/off, and rapid set-up without touching of the heating elements.

◆ Type

- Single station
- Multi station

◆ Combinable Technologies

- Assembly conveyor
- Transfer type

◆ Applications

- Door trim
- Instrument panel
- Head liner

◆ Main functions & Advantages

- Excellent assembly quality
- Low welding force
- Remarkable energy efficiency



Product Line

5. Joining



Hot Melt Gluing Machine

Hot melt gluing machine is used to apply hot melt to the headliner substrate by robot and adheres to many types of modules to the headliner.

◆ Type

- Single station
- Shuttle type

◆ Applications

- Headliner

◆ Main functions & Advantages

- Convenient operation
- Easy quality adjustment



Product Line

6. Forming Line



Forming Line (Carpet, Package Tray)

The thermoplastic materials which were loaded to the oven by manual or transferred to forming zone and pressed on cooling mold after heating.

◆ Type

Sort by transfer method:

- ◎ Mesh belt oven
- ◎ Side clamp oven
- ◎ Mesh pallet oven
- ◎ Frame free flow oven

Sort by heater:

- ◎ Ceramic heater
- ◎ Sheath heater
- ◎ Halogen lamp
- ◎ Hot plate
- ◎ Hot air

◆ Combinable technologies

- Various heaters, Feeding method

◆ Applications

- Carpet, package tray, trunk trim, thermoplastic part

◆ Main functions & advantages

- Optimized solution suitable for customized material, quantity, method



Product Line

7. Cutting



Water Jet Cutting System

Water jet cutting system is used to cut the outer line or holes through the nozzle spraying above 3000BAR high pressure water with producing data. Handling EO data or model change easily due to easy jig replacement; robot data reset can be easily arranged.

◆ Type

- Single station type
- Shuttle type

◆ Combinable Technologies

- Water jet
- Robot vacuum nest jig

◆ Applications

- Headliner
- Carpet

◆ Main functions & Advantages

- 3D cutting operation available at the corner area
- Rapid and flexible treatment about data modification
- Suitable for small quantity batch production



Product Line

8. Assembly



Assembly System

Part of the vehicle interior part assembly line; improves operator's convenience by tilting functions and contributes to mass production without manual loading or unloading.

◆ Type

- Free flow conveyor
- Oval conveyor
- Transfer type

◆ Combinable Technologies

- Substrate movement by robot
- Most of staking machinery

◆ Applications

- Door trim
- Instrument panel

◆ Main functions & Advantages

- Easy cross production
- Shorten cycle time
- Compatible with manual work and machine operation



Clients



Clients





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