



## Company Profile



STO Group was set in 2007 and is a Sino-Germany-Group with three branch companies. These are:

<b>STO Engineering GmbH</b>	Technical Support and Sale
<b>Jinan STO Machinery Co.,Ltd</b>	Producer and Sale
<b>STO Mexico S De RL De CV</b>	Service and Sale

Herbert Gerlach, CEO , has been working in the transformer industry for more than 30 years and is therefore quite familiar with these machines. Thus state-of-the-art products are ensured continuously.

Furthermore Yanchao Lee, Chief Engineer, has gained experience in the transformer industry for even more than 40 years. He is responsible for the machines design, the production and the technology. Compounding the competitive price due to the production in China with the German know-how which leads to outstanding quality, allows the STO group to be a leading supplier in the transformer and generator sector. STO-Products are high in number all over the big cities in the world such as Mexico, Italy or Indonesia, Germany and so on.



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## Summary

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## Automotive Production Line

### Buffer Conveyor



### Product Overview

#### Manufacturing process description

The buffering conveyor is equipped with several tabelars onto which the robot is placing plastic parts coming from an injection molding machine. And bringing the tabelar with the parts to worker station.

#### Tabelar:

The tabelar are used to place the injected part onto. Also the tabelar are transporting the parts from the robot placing area to the worker station. The tabelar should be as light as possible and should be covered with a protection a non-flammable mat/carpet. An edge should be needed to keep the part on the tabelar. It is also equipped with a bumper to slow soften an enter mediate stop when tabelars are moved.

#### Lifting Station:

The lifting station is placed under the robot area. It is used to lift the empty tabelar from a position "lift pos 1" up to the robot placing "lift pos. 2" or "lift pos. 3" When an empty tabelar is ready in level 2 a signal to the robot is required to start placing parts. The parts are placed on the tabelar by the handling system of IMM. When placing of parts is finished the robot send a Signal to lifting station to start next steps.

The tabelar goes then to the buffering conveyor, it is push by the lifting unit. Depending on the height of the lifting station, it either releases the tabelar onto the buffering zone directly or moves first to buffering starting "lift pos. 3" before releasing the tabelar.

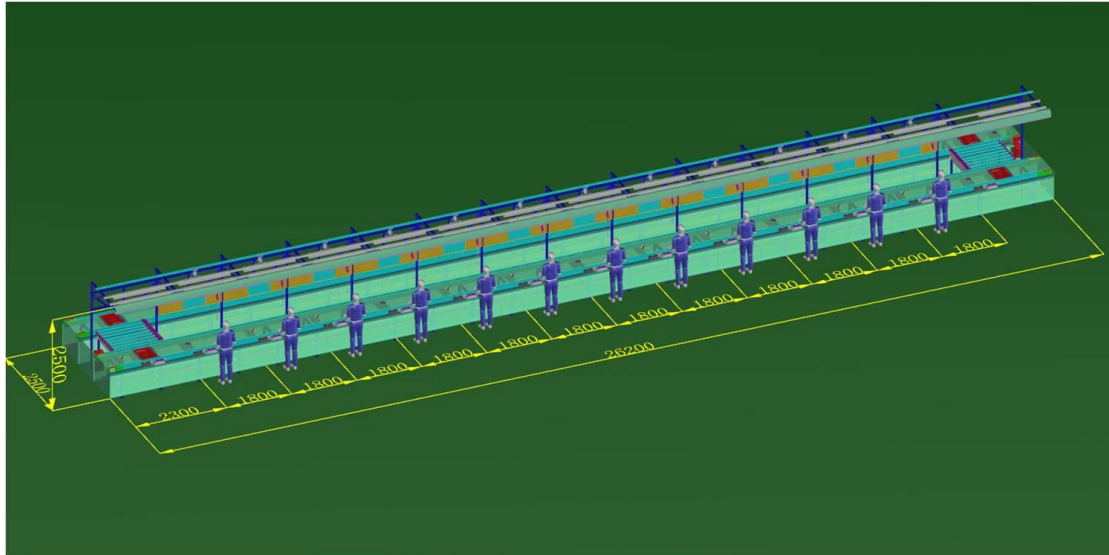
After the tabelar is in the buffering zone the lifting station moves again to "lift pos.1" to pick up new empty tabelar



### **Operational Process Flow**

- . The robots placing plastic parts (coming from an injection molding machine) on the trolley
- . The trolley are transported from the lifting station to the buffer conveyor
- . The trolley are transported from buffer to the worker area
- . The trolley is stopped by a mechanical stopper (worker area) or next buffered trolley
- . The worker flame the parts and then pick up the parts from the trolley
- . The trolley move back to the lift
- . The lifting station is place the trolley under robot area

## Door Pre-assembly Line



### 1. Brief Introduction of the Function

This equipment is used for assembly of the TSV (door trim panel) BR167.

The Door Panel (TSV) must be finished within the setting time and delivered to the next process. The whole line consists 4 lines of front left/ front right doors and rear left/ right doors, are called up in sequence and assembled in order in 60 sec. intervals. And the tact-time will be reset in each second. The 4 assembly lines are front left, front right and rear left and rear right.

### 2. General requirements for processes and the quality of the work

There is no any damage on the components.

--There is no any changes of the components surface such as footprints, bulges, sink marks, scratches etc. on the outside and inside of the parts caused by the work.

-- Ergonomic auxiliary tool and hardware

-- Electronic and pneumatic connections are matched with the respective helpful auxiliary tools (e.g. minimal cable line, accessibility, free movable etc.)