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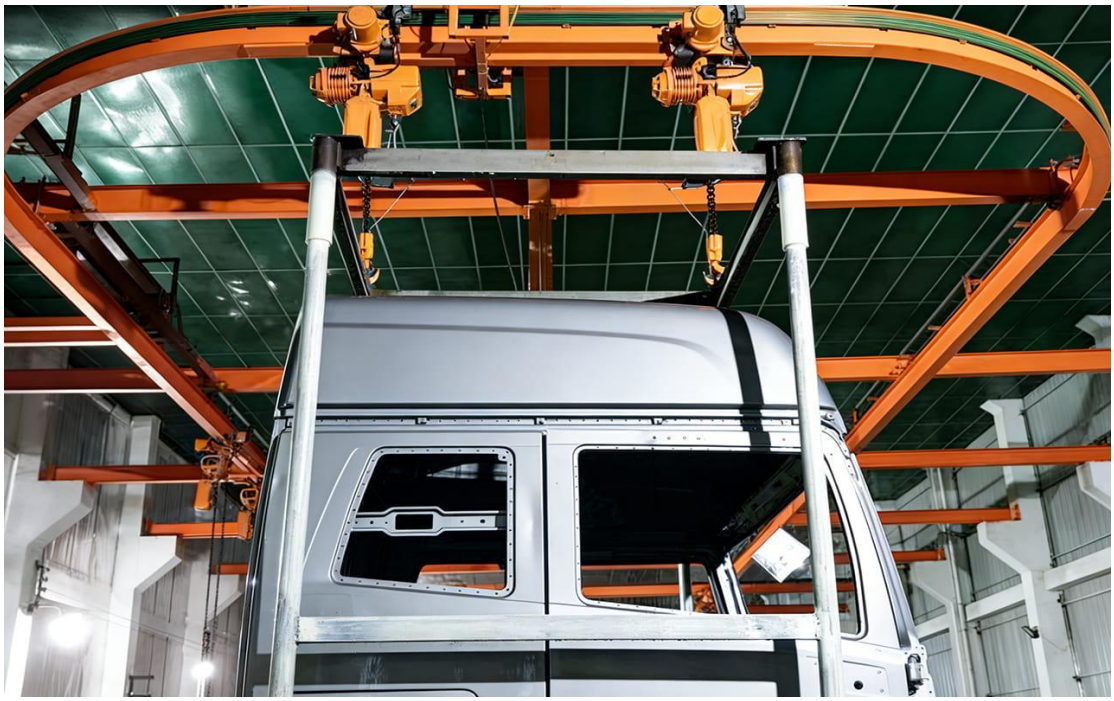
Self-Propelled Hoist Conveyor E-Coating Line



In the automotive electrophoretic coating manufacturing process, the pretreatment of the vehicle body — including E-coating and electrostatic spraying — consumes a significant amount of resources. Therefore, the introduction of advanced conveying systems for automotive E coating lines not only helps vehicle manufacturers enhance their competitiveness, but also contributes to energy saving and emission reduction.

In modern automotive body pretreatment lines, mechanized and automated conveying equipment is the core of the E coating line. It ensures superior electrophoretic coating performance, improves the corrosion resistance of the vehicle body, and guarantees the smooth execution of subsequent painting processes. At the same time, the conveying system itself must deliver high efficiency and stable, long-term, fault-free continuous operation.

The self-propelled hoist conveyor used in E-coating lines has undergone more than a decade of development and is now widely applied in industries such as automotive manufacturing, home appliances, agricultural machinery, and light industry. Especially for small-batch automotive body coating

production, it has become the preferred conveying solution for E coating equipment. The self-propelled hoist conveying system mainly consists of self-driven trolley units, hangers, aluminum alloy rails, switches, steel structures, protective mesh, sliding power supply systems, guiding devices, conductive copper busbars, current collectors, and a control system. The driving power of each hoist trolley is provided by a traveling motor and a lifting motor installed on the aluminum alloy rail. The self-propelled hoist system is controlled by a PLC. After a workpiece is hung at the loading station, each trolley automatically completes a series of E-coating operations according to a preset program, including lowering the workpiece into the tank, stopping at the designated position for a specified process time, controlled oscillation during immersion, lifting the workpiece, and moving forward to the next station.

Advantages of the Self-Propelled Hoist Conveyor for E Coating Lines

1. Flexible production

Enables independent operation of each workpiece and supports mixed production of large and small parts, easily adapting to different vehicle models or workpiece sizes. This significantly improves production line utilization. For example, frame assemblies and small chassis components can undergo E-coating simultaneously on the same E coating line.

2. Vertical immersion process

Workpieces enter and exit the treatment tanks vertically via hangers, reducing tank volume and floor space requirements while lowering equipment investment and operating costs. Vertical immersion also improves coating thickness uniformity, reduces air bubble retention, and enhances overall coating quality.

3. Precise control

Traveling and lifting speeds can be accurately adjusted to meet process requirements such as slow immersion and fast transfer, preventing collisions or floating of workpieces. Some systems also support soft-start energizing,

effectively avoiding step marks on the electrophoretic paint film.

4. Fault isolation capability

If one hoist trolley fails, it can be removed from the line by other trolleys for maintenance without interrupting the normal transportation of other workpieces, minimizing the impact of faults on production.

5. High space utilization

Flexible rail layouts allow direction changes through curved tracks, occupying relatively little space. This makes the system particularly suitable for plants with limited workshop space.

6. Wide adaptability

With a load capacity range from 0.2 t to 15 t, the system meets the conveying requirements of workpieces with different weights and is suitable for automotive, construction machinery, home appliance, and other industries.

7. Easy maintenance

Key components such as chain hoists and rails are easy to replace and maintain. The relatively simple system structure allows for efficient troubleshooting and rapid repair.

By integrating flexibility, precision, and reliability, the self–propelled hoist conveyor E coating line is an ideal solution for electrophoretic coating production, particularly well suited for small– and medium–batch, multi–variety manufacturing models. With advanced E coating equipment solutions from ShengTai Painting Equipment, manufacturers can achieve higher coating quality, improved efficiency, and sustainable production performance.

Please provide detailed information so that we can provide you with a more accurate solution:

What are the Maxminum and Minimum dimensions of your workpieces (L × W × H)?

What is the maximum weight of each workpiece? If available, please also provide product photos.

How many workpieces do you plan to coat per day (based on 8 or 16 working

hours) or per month?
Which heating source do you prefer, such as electric power, diesel, fuel oil, or natural gas?
What are the dimensions of your workshop (L × W × H)? If possible, could you share a layout or drawing of the facility?
Prior to coating, do you require spray pre–treatment to prepare and clean the product surface?
What voltage and frequency standards are used in your country?
Please also share your WhatsApp or another instant messaging contact so we can communicate more efficiently.

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