esyair

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1 INTRODUCTION

ESYAIR is an automated hanging part transport and storage system adapted to the needs of a **Smart Factory**. It provides real-time information on the status of the system and its involvement to the different departments of the company and users of the system, making decision-making more efficient.

ESYAIR has been developed to integrate into data exploitation systems, facilitating maintenance and use tasks.

ESYAIR allows interoperability between the different agents of the value chain. Production and consumption areas are perfectly integrated with automatic storage.

As a solution for the future, energy efficiency and eco-design were important factors in the development of the system, having a low consumption and recyclable components.

Thanks to the high automation of the system, the risks of damage to parts are reduced, avoiding unnecessary handling of them as much as possible.

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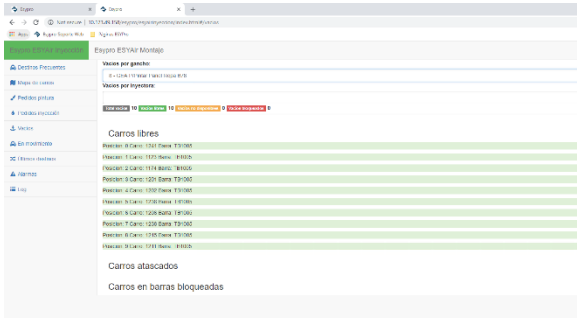
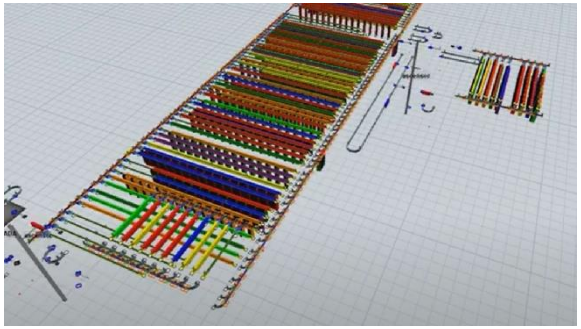
2 PHILOSOPHY





The ESYAIR philosophy is based on some paradigms of Industry 4.0.

CYBERPHYSICAL SYSTEM. Our ESYAIR integrates the latest technologies in the connected industry, allowing many possibilities for your plant to be a Smart Factory. Remote system monitoring and configuration are just the beginning of a long list of contributions that this solution can offer.

VERTICAL AND HORIZONTAL INTEGRATION. ESYAIR offers the possibility of a fully communicated and automated system between the different agents of the value chain. From operators to production planners, to customers and suppliers in the same chain, they can have real-time information on their products.

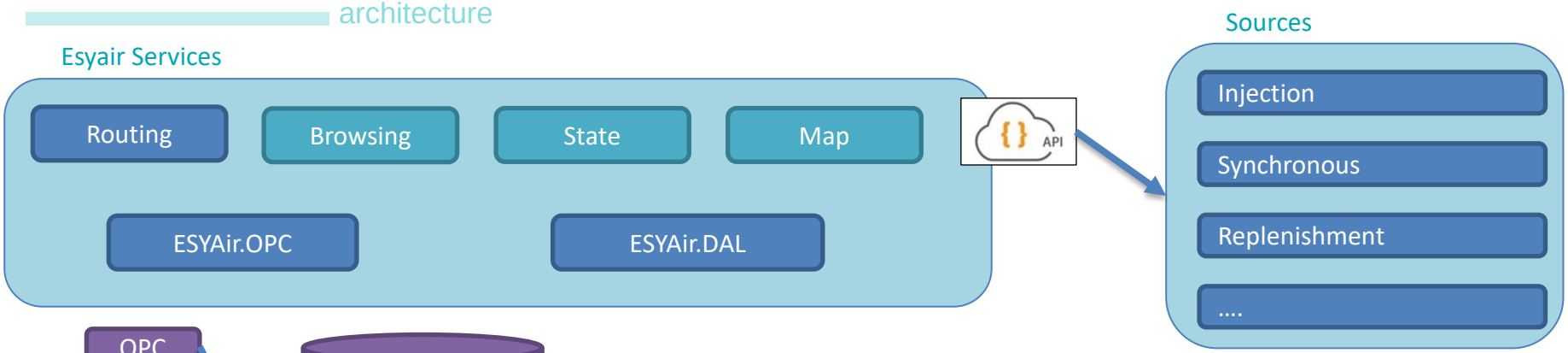
SIMULATION. Starting in the design phase of our system, we work with simulations that make it possible to predict the flow that the installation will allow correctly.

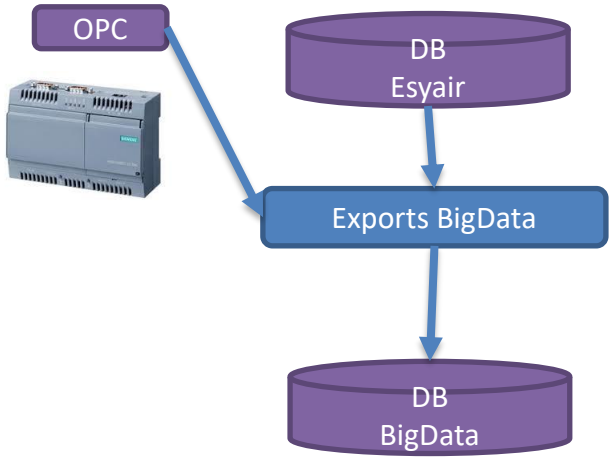
3 PRODUCT OVERVIEW

- Allows both storage and transport in a one system.
- Real-time information.
- Decentralized and remote control, even from mobile devices.
- Possibility of linking customer-supplier processes reducing logistics times and avoiding unnecessary manipulations. Ideal for JIT / JIS applications.
- Allows the control and management of the load units. Ideal solution for multi-reference management.
- Low power consumption.
- Scrap reduction.
- Cyber-physical system, integrates the latest technologies of the connected industry.

4.1. PRODUCT CLASSIFICATION

architecture





esyair service : Windows service system that covers all the core functions of **esyair** and makes it an autonomous machine

Sources: Windows ad hoc services to integrate service requests

OPC: we use an OPC server for centralized communication with the PLCs

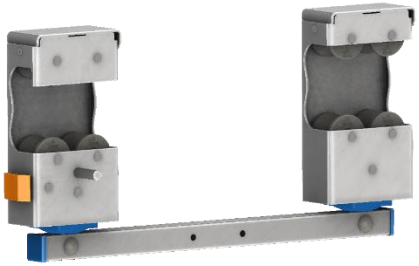
Esyair DB : current production data

BigData BD: database with extended and historical information for exploitation systems

Exploitation systems: windows applications for visualization and control, web configuration and visualization, data export through WS

4.2. PRODUCT CLASSIFICATION

functional elements



TROLLEY

- Load unit
- Available in different sizes and circuit directions.
- Available in single-rolling or multi-rolling configurations.

DRAGGING DEVICE

- Dragging of load units in accumulation bars for ESYAIR's storage areas.

4.2. PRODUCT CLASSIFICATION

functional elements

POWER TRAIN

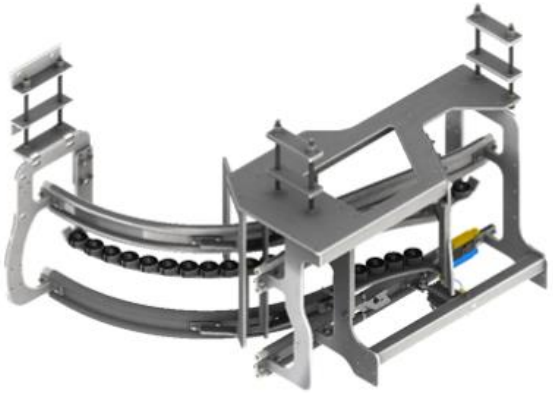
- It consists of the rope, power track rolling elements and trailing springs that push the load units for transport
- The trailing springs are in charge of dragging the load units through the power & free transport section of the ESYAIR.

DRIVE MODULE

- Motion transmission to the powertrain in the power & free zones.

4.2. PRODUCT CLASSIFICATION

functional elements



TRACK SYSTEM

- Circuit split.
- Trolleys transport to accumulation bars.
- Convergent and divergent option, as well as different curvatures

STOPPING STATION

- Different configurations available allowing the dosage pass of one or several load units.

4.2. PRODUCT CLASSIFICATION

functional elements

ELEVATORS

- Vertical transport system of the load units based in multilevel elevators.
- With fall arrest systems.

TRANSPORT CART

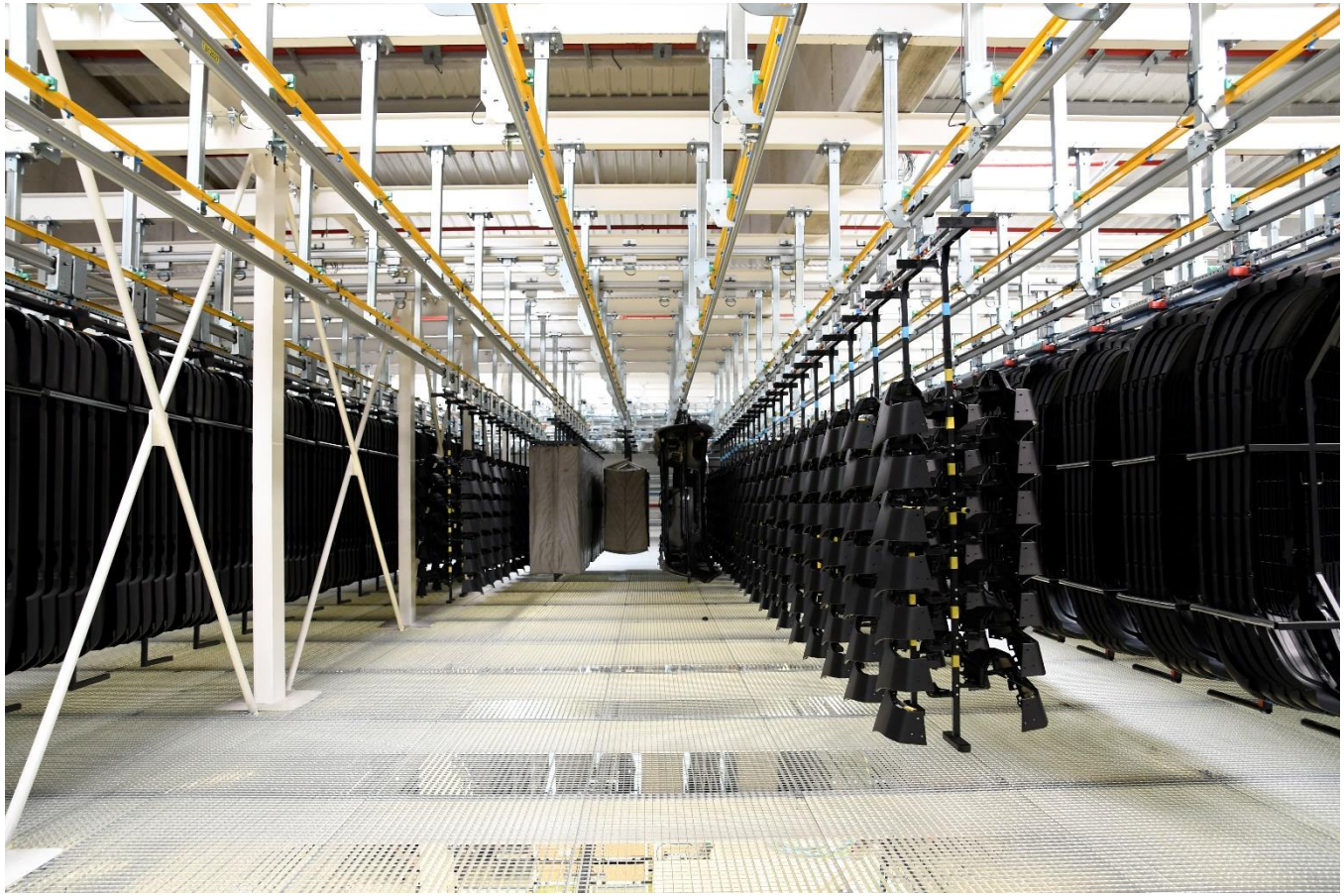
- Allows the transport of rosarios between the shopstock, the workstation, the production line and even shipment by lorry.
- Ideal for medium distances.
- Possibility of linking between them for logistic train make up.

5 TECHNICAL SPECIFICATIONS

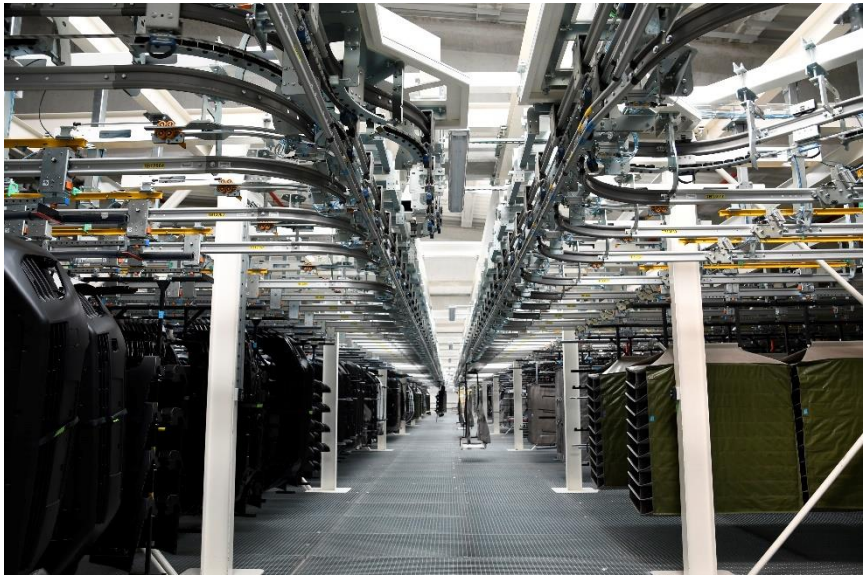
Transport speed	14 m/min (MIN: 8m/min; MAX: 18M/min)
Maximum trolley load (including load unit and part)	40 Kg (20Kg for single-wheel trolleys)
Trolley pitch	300 - 750mm
Single-wheel trolleys pitch	165 - 300mm
Horizontal curvature angle	0-180º
Horizontal bend radius	500 mm
Maximum transport sections	(unlimited by installing various drive modules and transfers)
Minimum distance between accumulation bars	720mm
Standard length accumulation bars	20 m
Performance accumulation bars	gravity with occasional pneumatic assistance
Maximum load accumulation bar	150Kg/m

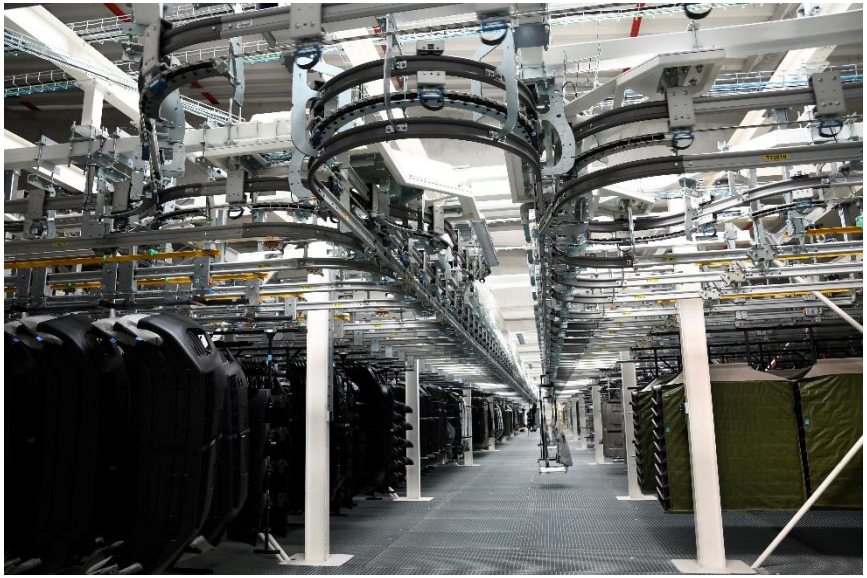
6 APPLICATION GALLERY

ESYAIR Shopstock



6 APPLICATION GALLERY





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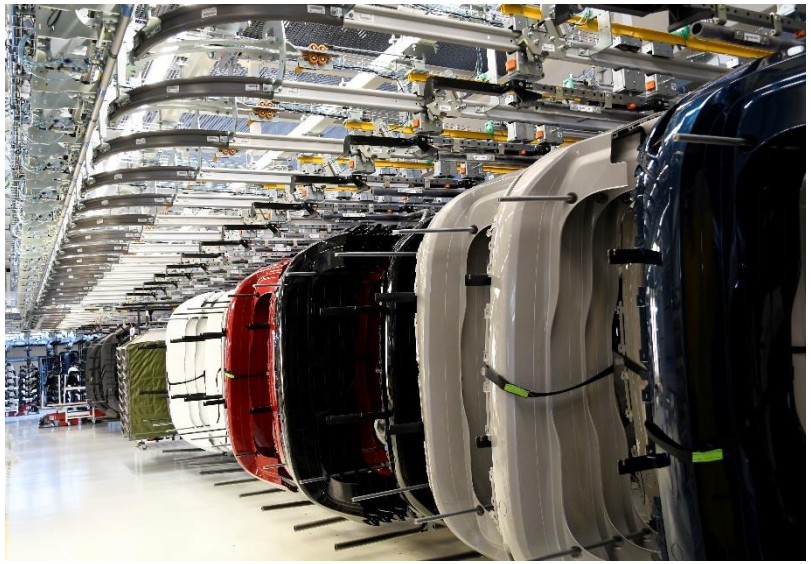
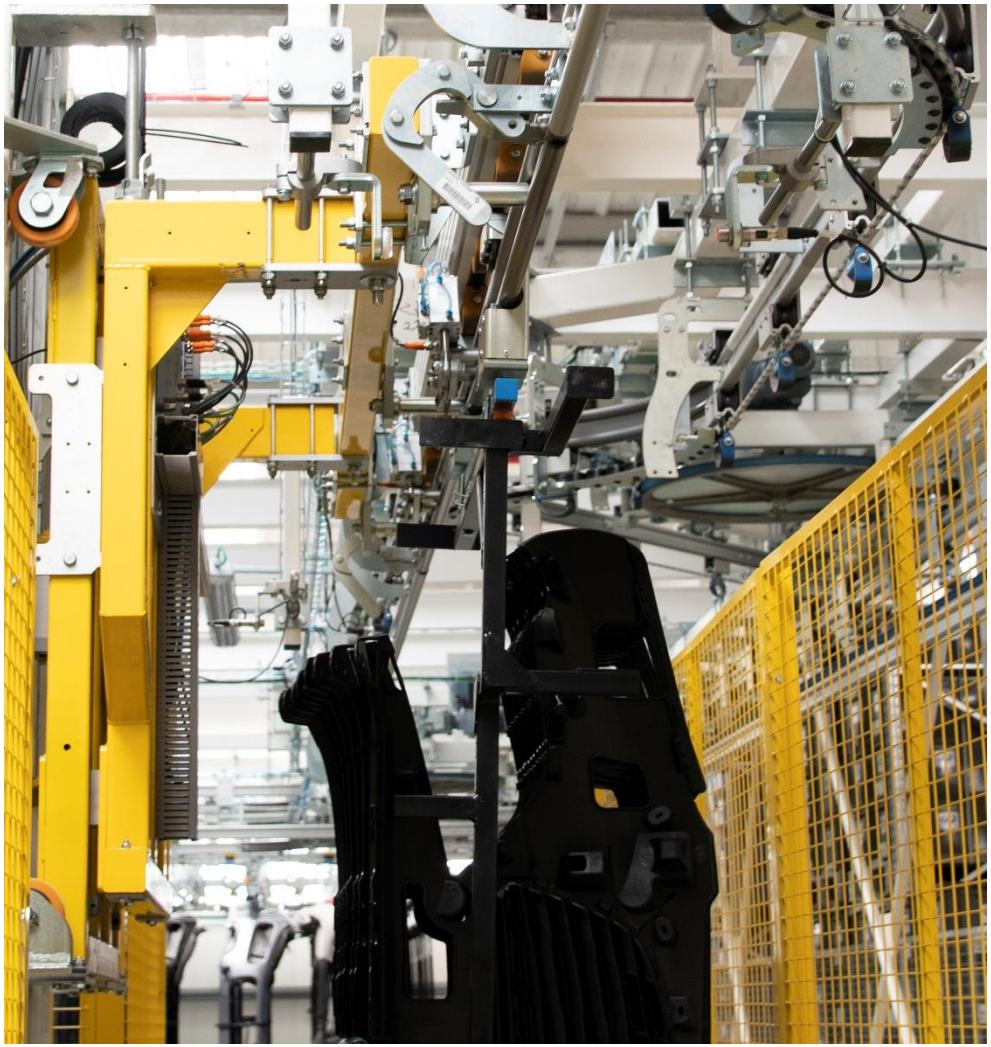


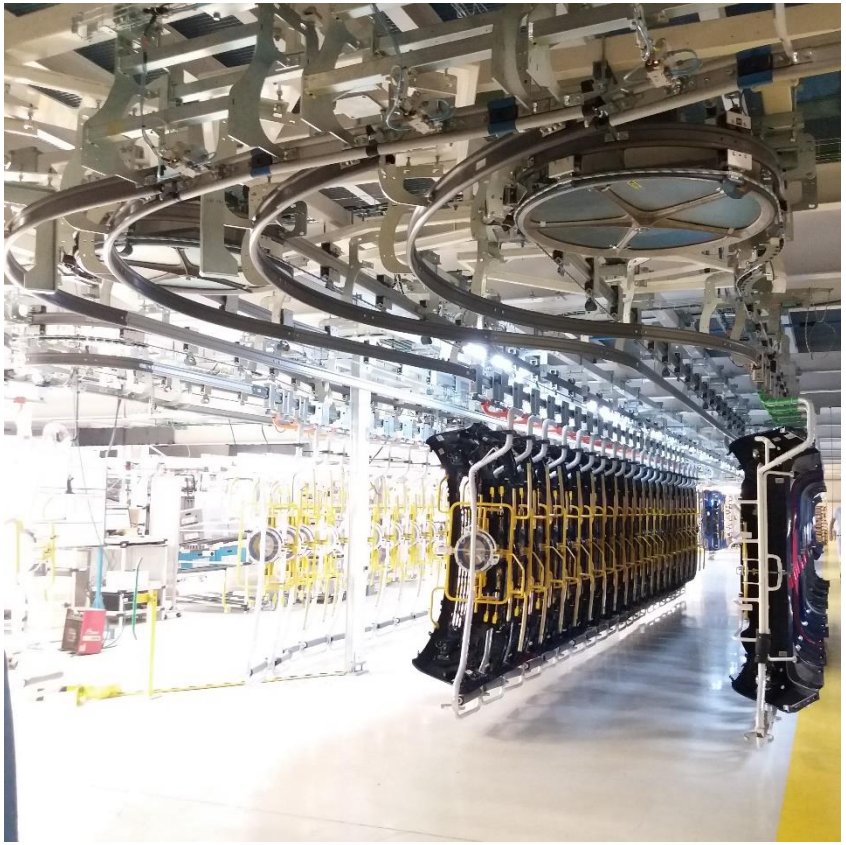
6 APPLICATION GALLERY

Level change with elevator



6 APPLICATION GALLERY

Sequencing and truck entry



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