

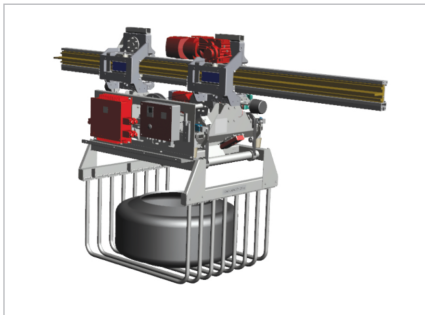
Drive technology TODAY

High-speed electrified monorail system for fast and careful tyre transport

Overview

► Fast acceleration, high travel and lift speeds, and stable communication are needed so that tyres can quickly reach the vulcanization process. In this case, we and our customer in the tyre industry have implemented

an appropriate solution with inductive charging technology and shielded WLAN communication via a slotted waveguide. ►



Customers

UP Universelle Fördertechnik GmbH

Location: Schopfheim and Dresden (Germany)
Shanghai and Jiashan, Zhejiang (China)

Industry: Automotive and logistics industry

Application: High-speed electrified monorail system with inductive current supply and shielded WLAN communication via a slotted waveguide.

UP Universelle Fördertechnik GmbH mainly operates in the fields of materials handling technology for the automotive and logistics industry, where extremely highly skilled employees with decades of experience play a crucial role. With carefully selected collaboration partners, UP ensures that the resulting projects are completed from a single source. In that regard, UP offers services such as planning, configuration, design and project management, among others. The aforementioned activities are consistently used when implementing proprietary machine and plant construction projects as well.

An international focus has always been a staple of the company's business activity since it was founded in 2005. Many projects have already been successfully completed particularly in Asia – specifically in the People's Republic of China – and UP has become a well-established player in Chinese machine and plant construction.

MESNAC Co., Ltd.

Location: Qingdao (China)

Industry: Rubber industry

Application: Mechanical and electrical installation of the EMS (electrified monorail system) and connection to the higher-level PLC.

MESNAC is a high-tech company that was created at the Qingdao University of Science and Technology in the year 2000. MESNAC focuses on research and development as well as on innovative IT equipment and software applications for the rubber industry. Its goal is to promote the development of industrial intelligence and to offer integrated IT software / equipment and management control solutions. In addition to rubber machinery, MESNAC also operates in other fields such as automation logistics.

Project description

A high-speed electrified monorail system with two trolleys was installed at the MESNAC Application Demonstration Center in Qingdao. It is designed to retrieve green tyres weighing a total of approx. 50 kg from an automated storage/retrieval system and simultaneously transport them to vulcanizing presses. Since the cycle time for vulcanization is very critical, high travel (4 m/s) and lift speeds (1 m/s) as well as fast acceleration (1.5 m/s²) are important.

For this application, a MAXOLUTION® system solution with MOVITRANS® for contactless power supply was chosen. The slotted waveguide that is integrated into the mounting rail enables shielded, high-bandwidth Wi-Fi communication. The drive package consists of the MOVIPRO® drive controller and mechatronic IE4 DRC.. electronic motors with an expanded control range for traveling and lifting. A segment controller coordinates the trolleys, and a WCS encoder handles the positioning. Last but not least, the MOVIVISION® parameterizable plant software is used for parameterization and diagnostics.

In this project, UP Universelle Fördertechnik GmbH carried out all of the mechanical design and engineering, while MESNAC Co., Ltd. was responsible for the mechanical and electrical installation as well as for the higher-level PLC controllers.

Customer requirements

Weight: A trolley transports a tyre weighing up to 50 kg.

Speed: The cycle time is very critical for vulcanization. Therefore, high travel (4 m/s) and lift speeds (1 m/s) as well as fast acceleration (1.5 m/s²) are important.



The project at a glance

- MOVITRANS® for contactless power supply
- EMS rail with integrated slotted waveguide
- Electronic motors DRC in IE4 for travel and hoisting
- Trolley coordination using the segment controller
- Parameterization and diagnostics with MOVIVISION®
- Drive controller MOVIPRO®
- Positioning via the WCS encoder



Customer value

- **Shielded, high-bandwidth Wi-Fi communication** thanks to the slotted waveguide that is integrated into the mounting rail
- **Maintenance-free current supply** thanks to the MOVITRANS® contactless energy transfer system
- **High accuracy, acceleration, speed and energy efficiency** thanks to the powerful, mechatronic IE4 DRC.. electronic motors
- **Early fault detection and fast configuration of control systems** via virtual startup using the simulation/ emulation function in the MOVIVISION® software
- **Fast and professional project implementation** thanks to our years of experience with electrified monorail systems and our global network of MAXOLUTION® engineers.

