

VAHLE
3rd BALTIC
PORTS & SHIPPING 2019

Hosted By



System Solutions for Port Automation

VAHLE System & Project Business

Organised by



TRANSPORT EVENTS

VAHLE Group | Paul Vahle GmbH & Co. KG | VAHLE Automation GmbH





VAHLE Group Unternehmensdaten (*31.12.2018)

- ▲ > € 135 mil. in sales 
- ▲ > 780 employees worldwide 
- ▲ 12 VAHLE trading companies worldwide (VAHLE South East Asia founded in 2016) 
- ▲ Representations in 52 countries
- ▲ 100 % family owned since 1912
- ▲ Two main segments:
 - Electrification & Automation

▲ Company Headquarter Kamen

- Engineering
- Production
- Sales

Facts – Everything at a glance



- ▲ € 107 mil. Sales in 2018 
- ▲ Approx. 600 Employees 



▲ Technology Center Automation in Schwoich

VAHLE Automation GmbH, Austria

- Engineering
- Trend Scouting
- Sales
- Training

- ▲ € 12 mil. Sales in 2018 
- ▲ 40 Employees 



▲ Subsidiaries

▲ Representatives

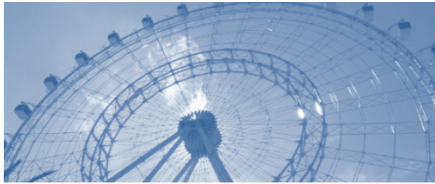


Overview of the key markets



AMUSEMENT RIDES

ROLLER-COASTER, ...



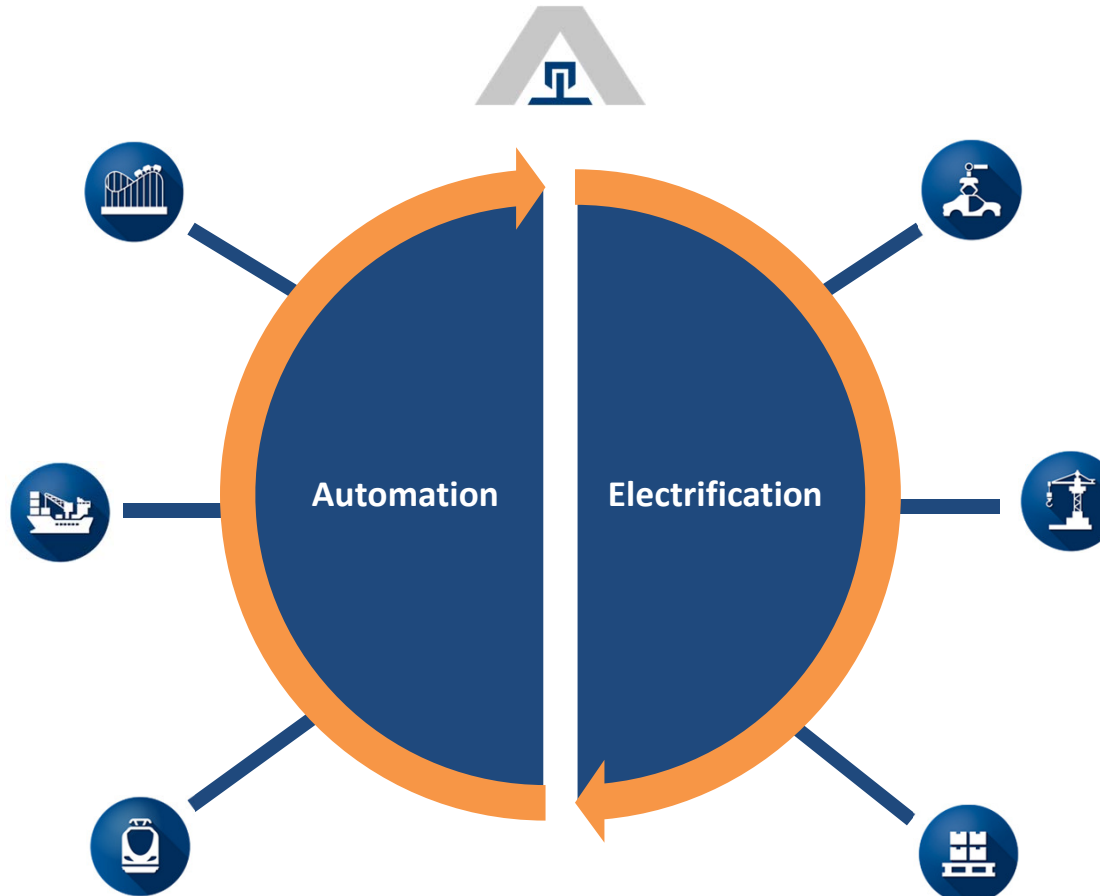
PORT TECHNOLOGY

CONTAINER HANDLING



PEOPLE MOVER

APM, CABLELINER, TRAMS, ...



AUTOMOTIVE

EMS, SKILLET, ...



CRANE TECHNOLOGY

STANDARD- AND PROCESS



INTRALOGISTICS

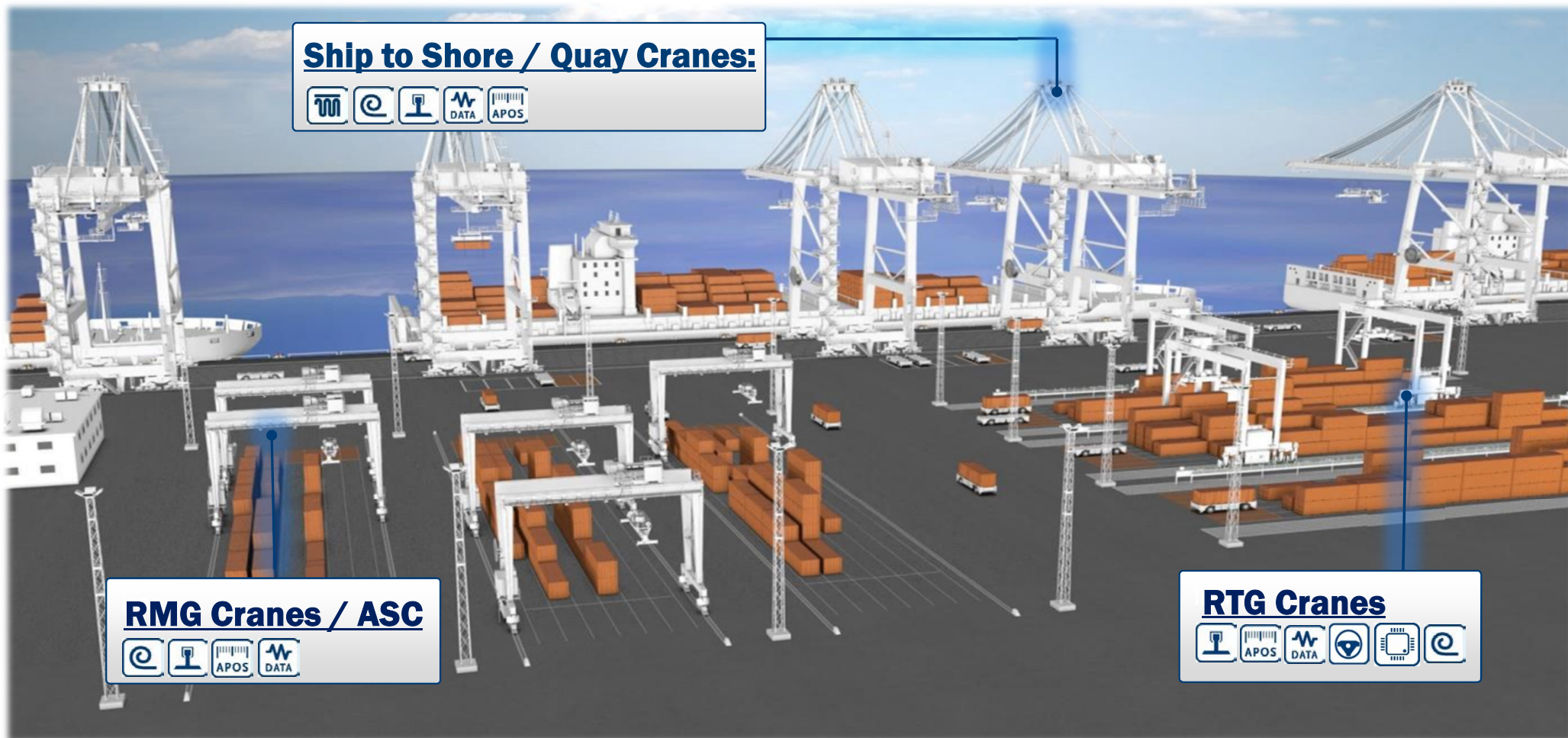
AS/RS, SORTER, AGVs





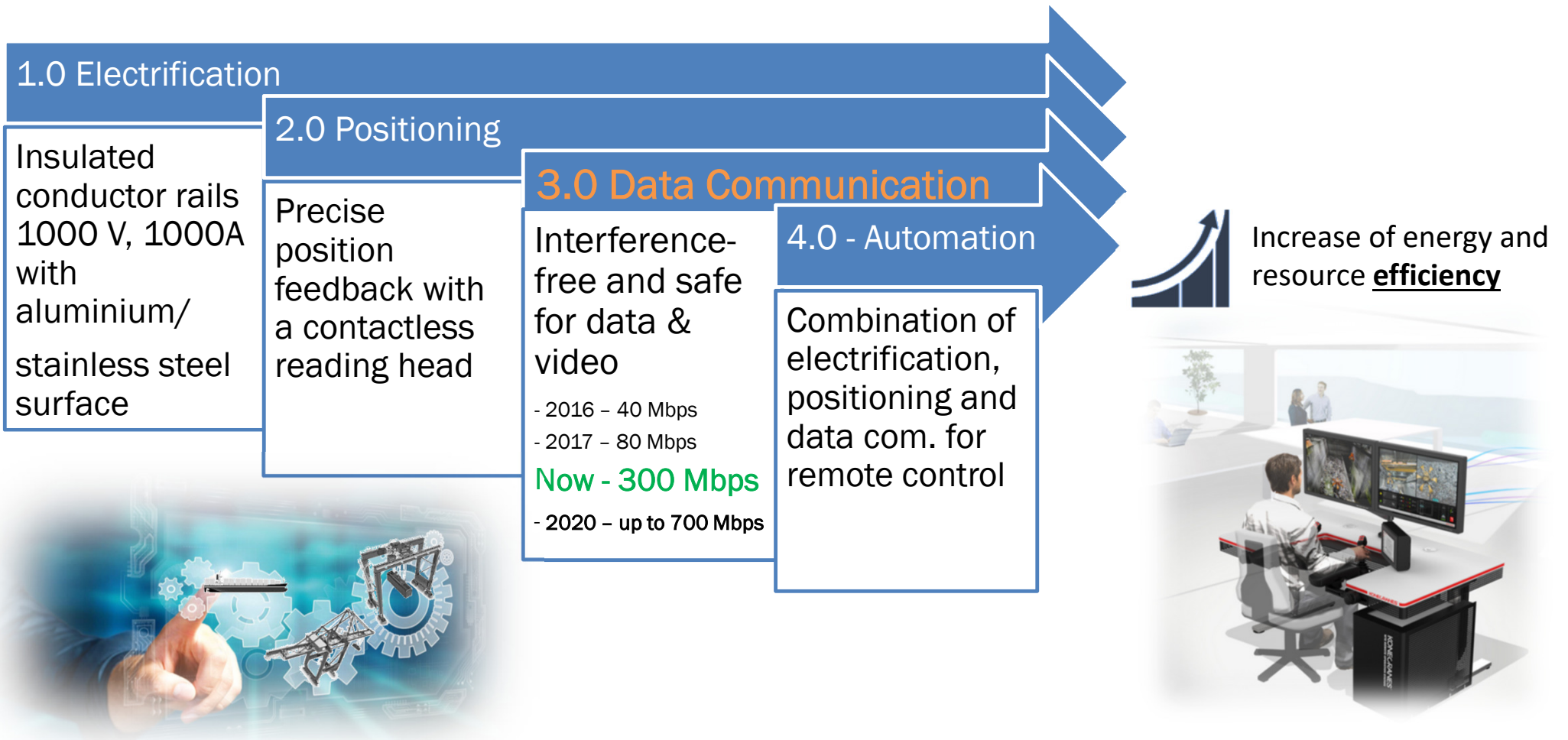
Simplified Container Terminal Overview

Portfolio of Equipment



Container Terminal Automation

The step by step approach



WHAT WE DO

Electrification & Automation for your Equipment



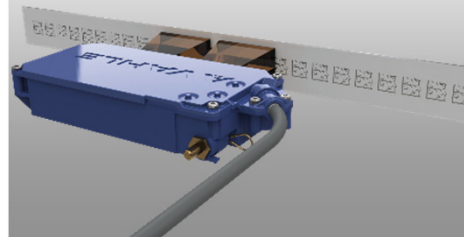
Electrification: flexible

- Electrification by **conductor rails**
- **Automated power connection** for block changes
- Automated **seamless switching**



Positioning: accurate

- **Absolute positioning system** independent from external influences
- Position **accuracy** up to ± 1 mm
- **PN / PB / Ethernet** interfaces for Plug & Play Integration



Data Communication: safe

- **Highly shielded data communication**
- Up to **300 Mbps gross rate**
- **Low latency times**
- Interfaces **ready for automation** - Ethernet, Profinet & Profinet Safe



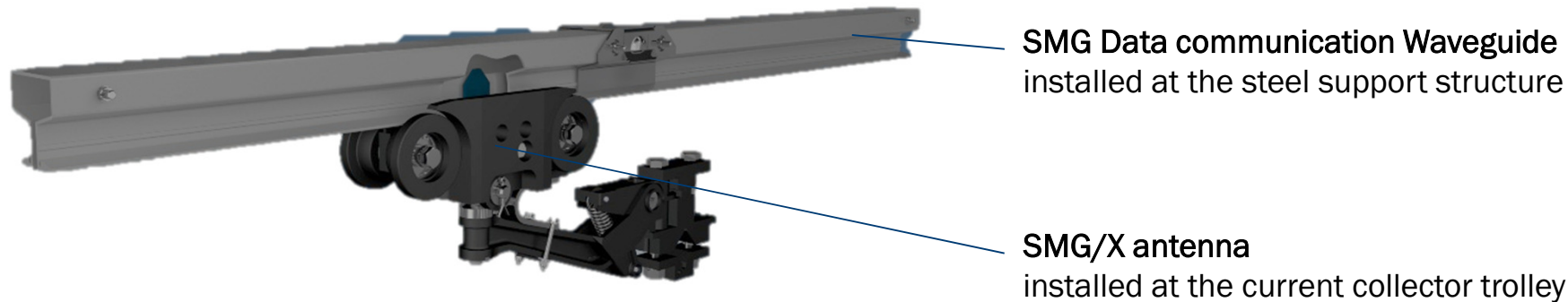
Control systems: smart

- **Autosteering**
- **Power measurement**
- **Remote maintenance**
- **Energy optimization**



SMG/X Data Communication

OVERVIEW – Facts & Figures



Characteristics

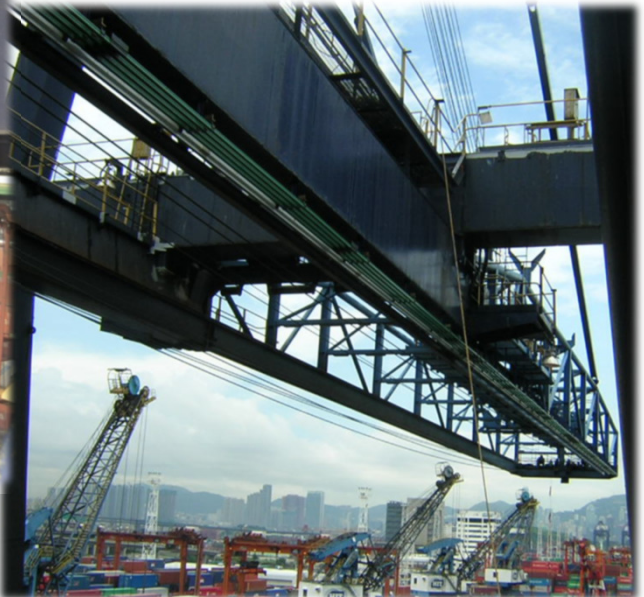
- ✓ EN55022 Class A certified: **no radio frequency device**
- ✓ Lowest emission for safe and reliable operation
- ✓ Bandwidth up to **300 Mbps**
 - ✓ Profinet
 - ✓ Ethernet (Video / TOS / Data)
 - ✓ **Profinet Safe**
 - **Emergency-OFF category 3**
- ✓ Scalable bandwidth by modular design
- ✓ Up to **400m**
- ✓ Simultaneously video and data transmission with one device
- ✓ Frequency band 2,4 or 5 to 5.8 Ghz
- ✓ **Low latency** for remote operations (automation)
 - SMG Latency for video data = **160ms**
 - Average Latency for video camera = **260ms** (e.g. brand Axis)
 - Average Latency for SMG + Camera = **420ms**
 - PLC data Latency = min.**16ms** (Cycle time SMG Transceiver)
 - Encoder signals < 3 μ s

Upgrade your Ship-to-Shore Crane

Retrofitting ready for remote control



Retrofitting from festoon or energy chain



... to USMG

Technical benefits...

- ✓ High trolley speed, up to 600 m/min
- ✓ No influences by wind / heavy rain / ice
- ✓ No cable loops and no storage area
- ✓ Extremely low maintenance

Operators benefits...

- ✓ Faster container handling
- ✓ Higher container stacking level
- ✓ High availability and absolute reliable
- ✓ Optimized Total Cost of Ownership

Upgrade your Rubber Tyred Gantry Crane

Retrofitting ready for remote control



Increase of flexibility

- ✓ M2M cross-linking
- ✓ Remote system monitoring
- ✓ Semi automation
- ✓ Automation

VAHLE SYSTEM & PROJECT BUSINESS

SUCCESS STORIES & FUTURE OUTLOOK



ASC - Automation

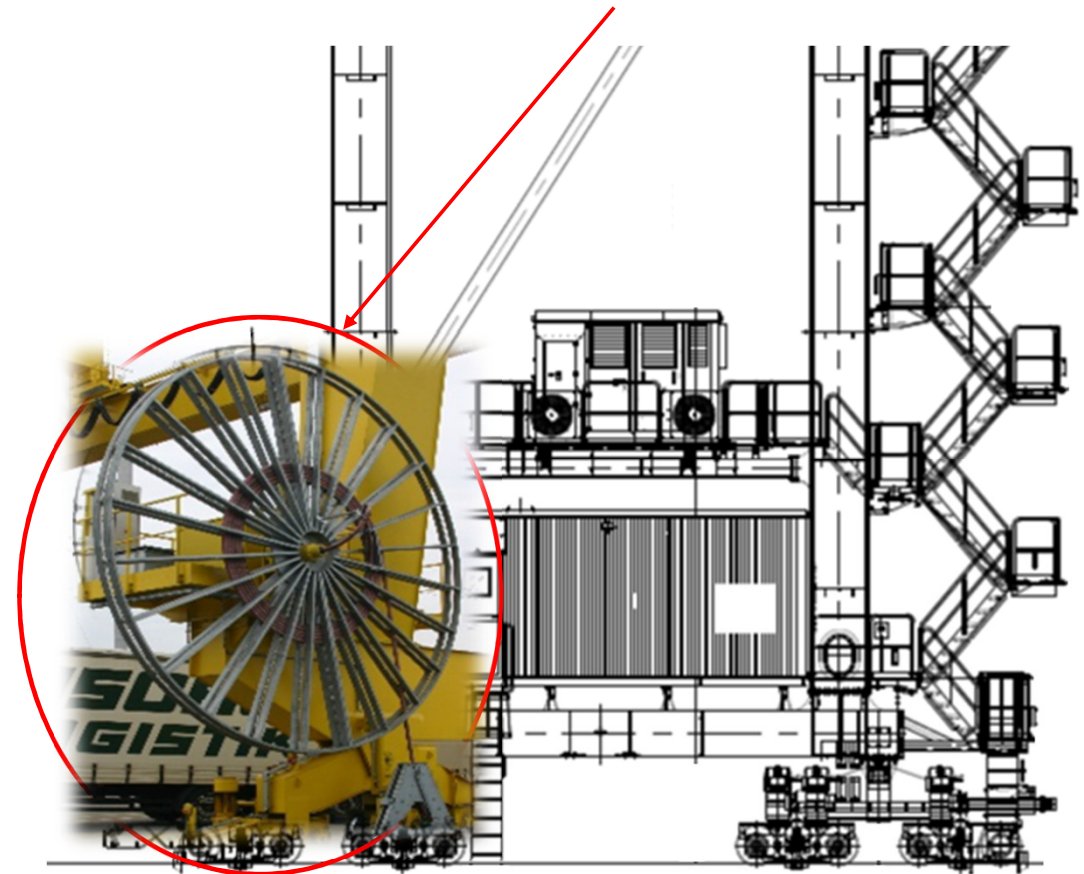
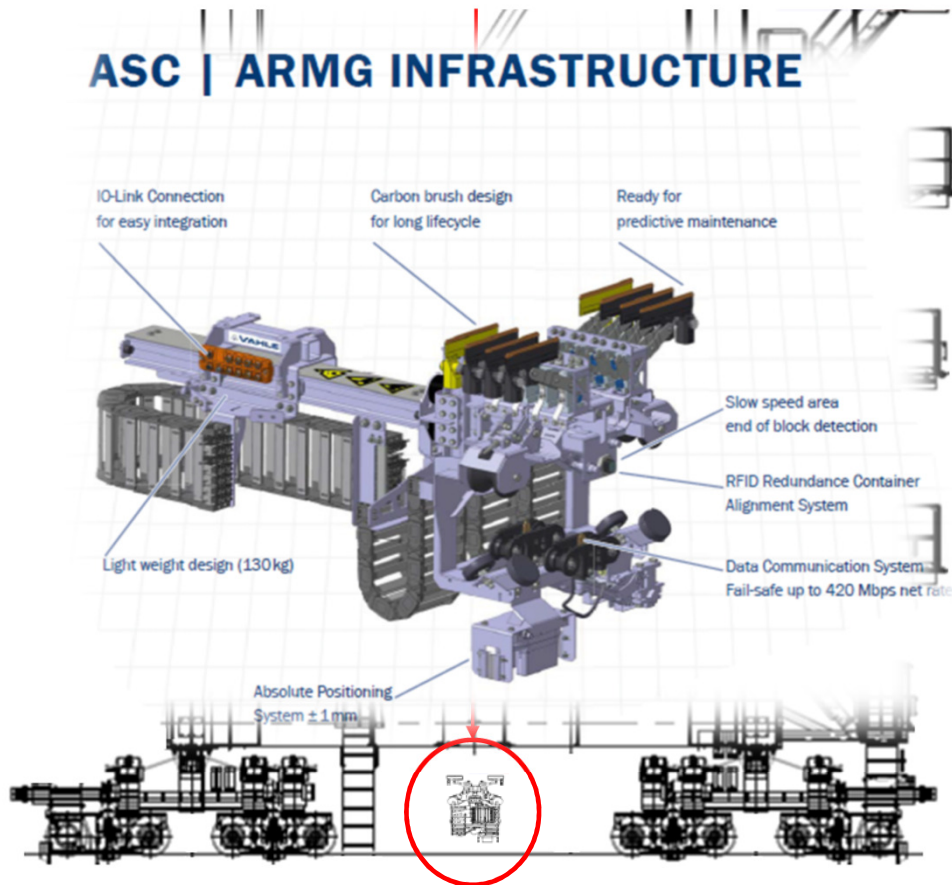
Conductor Bar + SMG Data Communication + WCS Positioning Solution



Approx. 500 kg

Approx. 6000kg

ASC | ARMG INFRASTRUCTURE



Disruptive Technology for Automatic Stacking Cranes

Conductor Bar + SMG Data Communication + WCS Positioning Solution



Why:

- ✓ Reduce weight on board of the ASC
- ✓ Reduce cost of the ASC
- ✓ Increase speed
- ✓ Increase performance
- ✓ Reduce stress on gantry gearboxes and motors
- ✓ Reduce of maintain costs

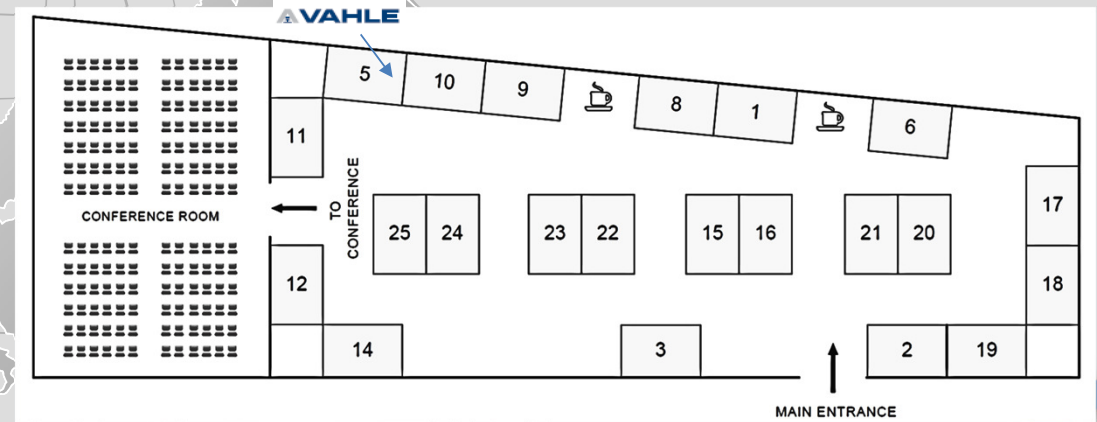
How:

- ✓ Replacing MV cable reel by conductor bar (power) collector, data communication system (SMG) and WCS positioning system
- ✓ Reduce feed power supply from MV to 500V - reducing size and weight of transformer and protections
- ✓ Reduce cost of control system (no cable reel drive, considerable smaller transformer and switch gear)
- ✓ Reduce steel structure on the crane – no cable reel support and platform
- ✓ Reduce weight on E-Room – smaller transformer and low voltage protection
- ✓ Reliable data communication system (300 Mbit/s)
- ✓ Reliable positioning system

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**THANK YOU FOR
YOUR ATTENTION**