



# PRODUCT PORTFOLIO



YOUR VISION – OUR SOLUTION



## WHO ARE WE

For more than 100 years, a pioneering spirit and a tradition of innovation, as well as an excellently trained staff, have defined and shaped the activities of the VAHLE Group. Paul Vale, the inventor of the Copperhead Conductive Rail, founded the company in 1912.

The VAHLE Group is an international family business specializing in intelligent power and data transmission systems for mobile industrial applications; its main offices are located in the German city of Kamen, Westphalia. There are VAHLE market organizations in most countries and regions of the world.

VAHLE strives to combine the core social values of a fourth-generation family company with the creativity of a leading international high-tech business and a vision for the future. VAHLE develops, designs and manufactures innovative products and systems for a wide variety of applications.

VAHLE worldwide – Made in Germany



## WHERE ARE WE

Since 1912 the VAHLE Group as specialist for intelligent and solution oriented energy and data transmission systems for mobile industrial applications, is at home in many, and often diverse industries.

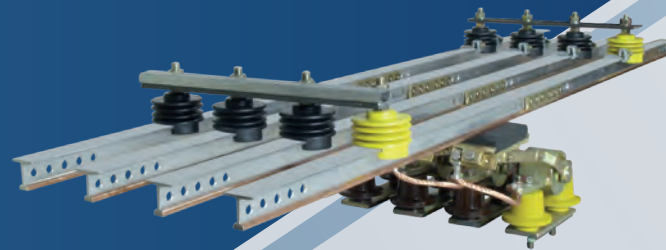
- **Crane technology**
- **Intralogistics**
- **Automotive**
- **Port technology**
- **People Mover**
- **Amusement Rides**



## OPEN CONDUCTOR RAILS

Nominal load (DC 100%): **100A ... 3000A (up to 6000V)**  
 Number of poles: **any**  
 Ambient temperature: **-40 ... +200°C (~-40 ... +400°F)**  
 Installation: **Indoor, Outdoor, Extreme Environment**  
 Traveling speed: **up to 250 m/min (820 ft/min)**  
 Material: solid copper | copper / steel | copper / aluminum | aluminum / stainless steel  
 Applications: heavy-duty cranes, metallurgical cranes, process cranes, rail transport, ferris wheels

## COPPERHEAD CONDUCTOR RAILS



## INSULATED CONDUCTOR SYSTEMS FABA100, U10

Nominal load (DC 100%): **100A**  
 Number of poles: **any**  
 Ambient temperature: **-30 ... +85°C (-22 ... +185°F)**  
 Installation: **Indoor**  
 Travelling speed: **up to 400m/min (~750 ft/min)**  
 Plastic housing, copper or stainless steel conductors  
**Applications:** Electric Monorail Systems EMS, Electric Pallet Systems, Skillet Lines, Shuttles, AS/RS, Sorters, Studio Technology, Amusement Rides

U10



## INSULATED CONDUCTOR SYSTEMS U15, U20, U25, U30, U35

Nominal load (DC 100%): **10A to 1250A**  
 Number of poles: **any**  
 Ambient temperature: **-30 ... +130°C (-22 ... +266°F)**  
 Installation: **Indoor, Outdoor**  
 Travelling speed: **up to 600m/min (~2000 ft/min)**  
 Plastic housing. Conductors: copper | aluminum / stainless steel | stainless steel

U15, U25, U35



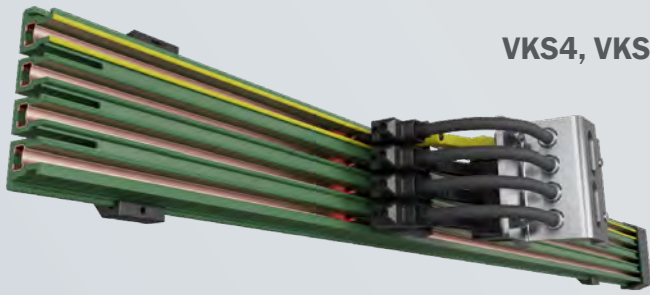
### Applications:

- Overhead Cranes
- Gantry Cranes
- STS Cranes
- RTG Cranes
- AS/RS
- Facade Access
- Amusement Rides
- Monorail Transport
- Cable Liners
- Lifts/Elevators
- Conveyor Systems
- Electric Pallet Systems
- Skillet Lines
- Studio Technology

U20, U30



Nominal load (DC 100%): **210A to 530A**  
 Ambient temperature: **-30 ... +85°C (-22 ... +185°F)**  
 Installation: **Indoor, Outdoor, Harsh Environment**  
 Travelling speed: **up to 720m/min (~2360 ft/min)**  
 Plastic housing, solid copper conductor for heavy-duty systems.  
**Applications:** Cranes, Sorters, Amusement rides

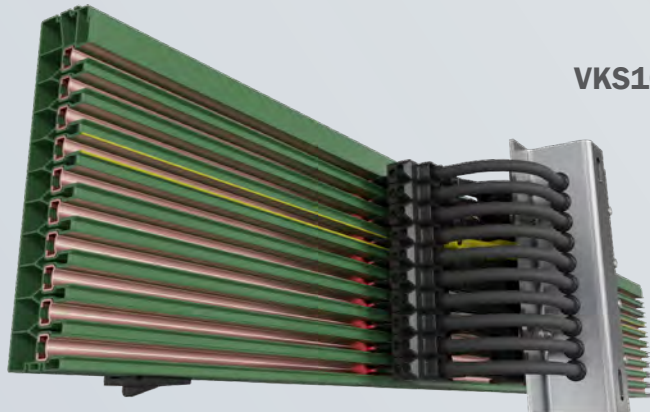


VKS4, VKS6

## COMPACT CONDUCTOR SYSTEM VKS

Nominal load (DC 100%): **63 to 140A**  
 Number of poles: **3 to 6**  
 Ambient temperature: **-30 ... +55°C (-22 ... +131°F)**  
 Installation: **Indoor, Covered Outdoor**  
 Travelling speed: **up to 450m/min (~1500 ft/min)**  
 Plastic housing, copper conductors

**Applications:** Automated Storage and Retrieval Systems AS/RS, Skillet Lines, Shuttles, Parking Garages, Transborders

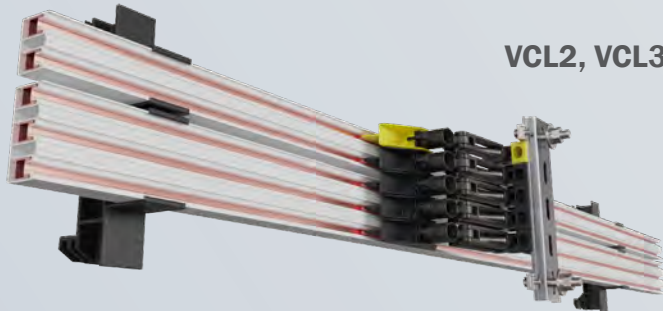


VKS10

## COMPACT CONDUCTOR SYSTEM VKS10

Nominal load (DC 100%): **63 to 140 (280)A**  
 Number of poles: **4 to 10**  
 Ambient temperature: **-30 ... +55°C (-22 ... +131°F)**  
 Installation: **Indoor**  
 Travelling speed: **up to 450m/min (~1500 ft/min)**  
 Plastic housing, copper conductors

**Applications:** Automated Storage and Retrieval Systems AS/RS



VCL2, VCL3

## COMPACT CONDUCTOR SYSTEM VAHLE COMPACT LINE - VCL

Nominal load (DC 100%): **40A, 100A**  
 Number of poles: **2 to 6**  
 Ambient temperature: **-30 ... +55°C (-22 ... +131°F)**  
 Travelling speed: **up to 300m/min (~985 ft/min)**  
 Installation: **Indoor**  
 Plastic housing, copper conductors

**Applications:** Shuttles, AS/RS, DC tools

Most compact conductor systems and isolated conductor systems may be used with **VMT support profile** to increase the support distance up to 3.5m (11' 5.8")

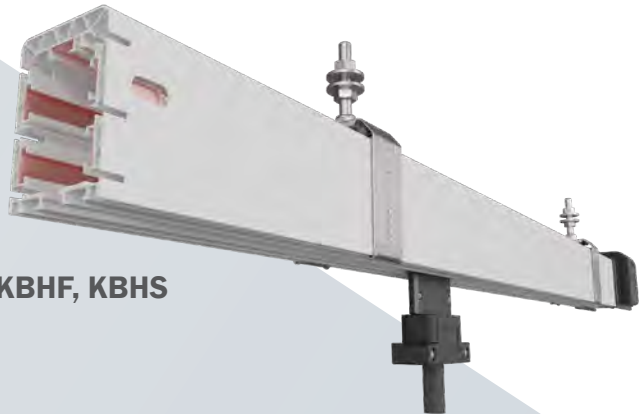
### VMT SUPPORT PROFILE





## ENCLOSED CONDUCTOR SYSTEM KBH

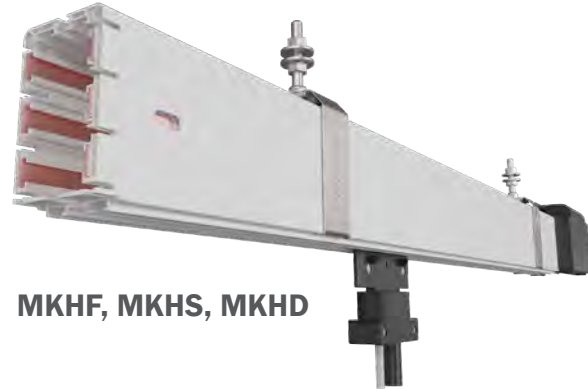
Nominal load (DC 100%): **63A ... 200A**  
 Number of poles: **4 or 5**  
 Ambient temperature: **-30 ... +60°C (-22 ... +140°F)**  
 Plastic housing, copper conductors



**KBHF, KBHS**

## ENCLOSED CONDUCTOR SYSTEM MKH

Nominal load (DC 100%): **63A ... 200A**  
 Number of poles: **6 to 10**  
 Ambient temperature: **-30 ... +60°C (-22 ... +140°F)**  
 Plastic housing, copper conductors



**MKHF, MKHS, MKHD**

## ENCLOSED CONDUCTOR SYSTEM KSL

Nominal load (DC 80%): **40A ... 200A (up to 2000V)**  
 Number of poles: **4 to 11**  
 Ambient temperature: **-30 ... +60°C (-22 ... +140°F)**  
 Plastic housing, copper conductors



**KSL, KBSL**

## ENCLOSED CONDUCTOR SYSTEM LSV

Nominal load (DC 80%): **60A ... 300A**  
 Number of poles: **4 to 11**  
 Ambient temperature: **-40 ... +120°C (-40 ... +248°F)**  
 Aluminum housing, copper conductors



**LSV, LSVG**

### APPLICATIONS:

- overhead cranes
- gantry cranes
- crane trolleys
- electric hoists
- transfer cars
- moving tools
- bucket conveyor systems
- hangar doors
- stadium roofs
- studio technologies

### ENCLOSED CONDUCTOR SYSTEMS:

**IP23 / IP24** with sealing strips  
 Installation: **Indoor, Outdoor, Harsh Environment**  
 Travelling speed: **up to 250m/min (820 ft/min)**  
 Additional options: curves, loops, turntables, switches, heating, embedded positioning system  
 APOS Magnetic





## CHARGING TRAMS ON STOPS:

- EMBEDDED CONDUCTOR RAIL
- RIGID CATENARY

VAHLE IS A PIONEER IN THE FIELD OF CHARGING CONTACTS FOR A WIDE RANGE OF POWER REQUIREMENTS AND OFFERS THE WORLD'S LARGEST STANDARD PORTFOLIO.



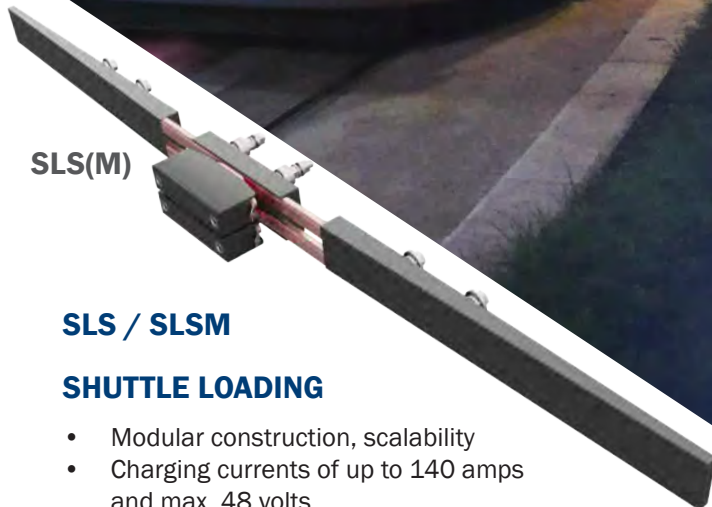
## BLS / BLK

- Charging current from 10A to 600A
- Broad standard portfolio and customized solutions
- 1-pole, 2-pole, and multipole versions
- Different sizes, colors, and designs
- Robust and reliable
- Pilot contacts, light indication, branding
- Indoors and Outdoors -35...+55 °C (-31...+131 °F)



BLS  
BLK

## SLS(M)



## SLS / SLSM

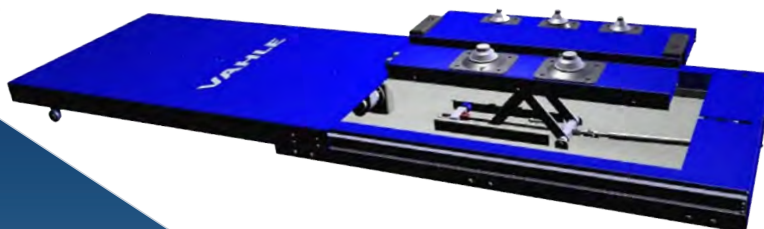
### SHUTTLE LOADING

- Modular construction, scalability
- Charging currents of up to 140 amps and max. 48 volts
- Maximum efficiency due to short charging cycles and high ramp-up speeds
- Simple installation (plug and play)
- Concealed implementation in drive profiles due to ultra-compact dimensions
- Low maintenance due to long service life of the carbon brushes

## APPLICATIONS:

- Automated Guided Vehicles - AGV
- Autonomous Mobile Robots - AMR
- Automated forklifts
- Commercial Transport
- Public Transport
- Transfer cars
- Shuttles

## CUSTOM CHARGING SYSTEMS FOR DIFFERENT TRANSPORT





## FESTOON SYSTEMS FOR I-BEAMS

The large festoon systems can be supplied **pre-assembled** to reduce on-site installation work to a minimum.

The use of high-quality materials ensures high resistance – even to environmental influences such as salty or humid air. At the same time, this reduces the amount of maintenance required, which noticeably increases system availability.

### FOR INP AND IPE BEAMS

#### TROLLEY TYPES: W45 - W145

**50kg - 500kg** per trolley  
(110lbs - 1100lbs)

**120 - 240 m/min**  
(~390 - 790 ft/min)

Ambient temperature:

**-30 ... +100°C**  
(-40 ... +212°F)

### APPLICATIONS:

- **STS Cranes**
- **RMG Cranes**
- **Gantry Cranes**
- **Overhead Cranes**
- **Material Handling Applications**



### CABLES

Selection of the best suited cable either for cable carrier systems or cable reels is extremely important for reliable functioning of the entire installation. We offer for every application best suitable



## FESTOON SYSTEMS FOR C-TRACK

Wide range of solutions including acid-resistant cable carriers and tracks made of galvanized steel, plastic or stainless steel.

### Track types: S1, S2, S3, K1 (C-shaped), V3 (square)

**5kg - 55kg** per trolley  
(11lbs - 121lbs)

**50 - 120 m/min**  
(~164 - 394 ft/min)

Ambient temperature:

**-30 ... +100°C** (-40 ... +212°F)





## SPRING OPERATED CABLE REELS

Mobile and movable equipment depend on a flexible power supply. Many applications also require the transmission of data signals, Ethernet or the supply of compressed air, hydraulic fluids and gases. To prevent the cables and hoses from being damaged and endangering operation, they must be automatically wound and unwound.

VAHLE also offers the right solution for this and has a wide range of spring operated cable reels in its portfolio. They are mechanically driven by steel spiral leaf springs, which makes the systems particularly durable.

They also have an impressive range of applications. In addition to cranes of all kinds, they also include booms of construction and emergency vehicles, stage equipment, as well as intralogistics and the environmental industry. Thanks to their comprehensive corrosion protection, they withstand even aggressive operating conditions.

- **STS Cranes**
- **RMG Cranes**
- **Gantry Cranes**
- **Overhead Cranes**
- **Transborderers**
- **Material Handling Applications**

## MOTOR DRIVEN CABLE REELS

Heavy loads can cause strain, especially over extended travel distances as the weight accumulates. To cope with this, some cable reels are equipped with a motor drive. This supports the winding and unwinding and prevents unwanted rolling movements by means of a braking device.

VAHLE offers motor powered cable reels of all sizes for the power supply of crane systems in ports, steel mills and companies in the environmental industry as well as for mobile vehicles and loading machines.

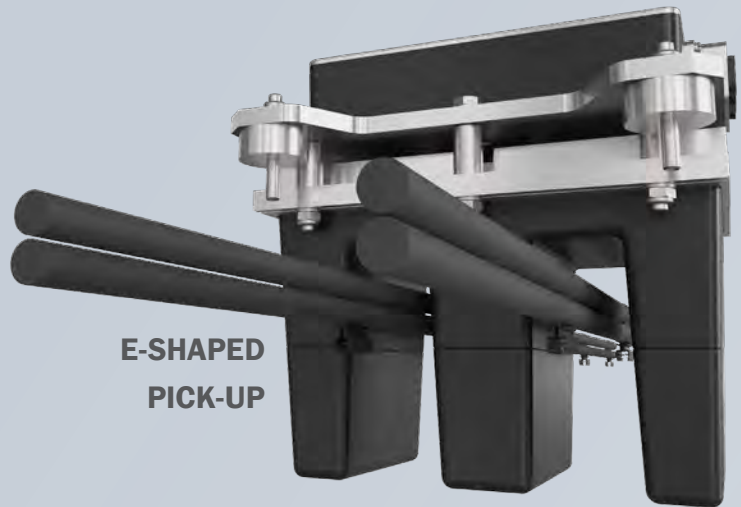
The systems have various drive components. Their conductor ring ensures reliable transmission of power, control, data and video signals. Even the integration of fiber optic cables is possible.

In addition to cables, the corrosion-protected reel bodies can also accommodate rotary unions for hoses for the transmission of gaseous and liquid substances. Depending on the application, the winding and unwinding is cylindrical or spiral.



## CPS 20kHz

- Low maintenance and wear-free system
- High power of up to 40kW per regulator
- Individual control cabinets and system layouts
- Parallel connection of pickup and controller electronics
- Scalable up to 90 kilowatts feed-in power per line
- Protection functions against short circuit, overtemperature or undervoltage
- Indoor and Outdoor. 0...+30 °C (+32...+86 °F)

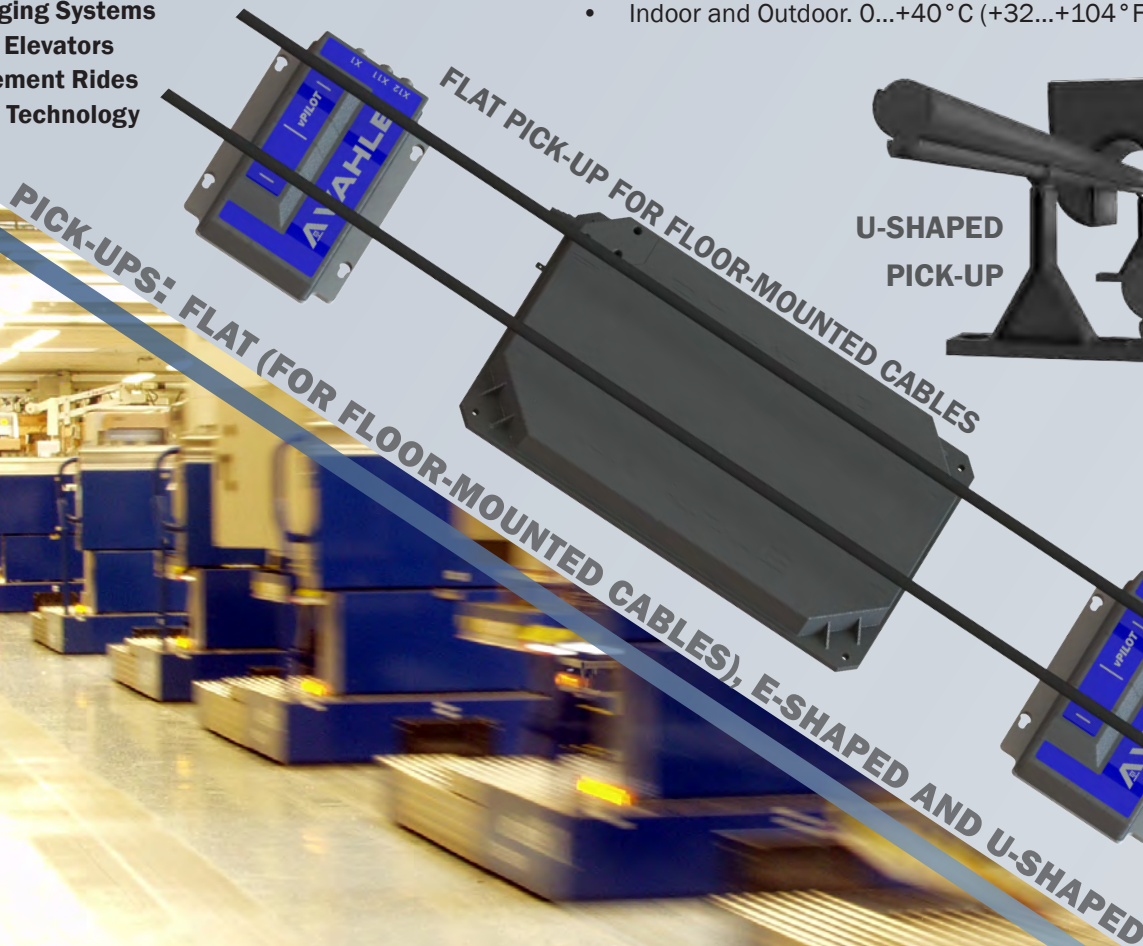
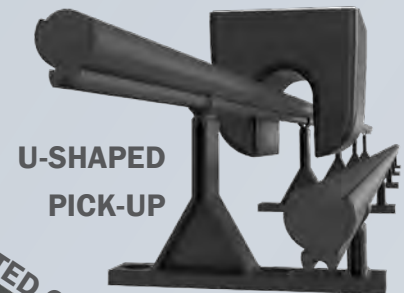


## APPLICATIONS:

- **Automated Guided Vehicles - AGV**
- **Autonomous Mobile Robots - AMR**
- **Automated Storage and Retrieval Systems - AS/RS**
- **Electric Monorails Systems – EMS**
- **Electric Pallet Systems**
- **Skillet Lines**
- **Sorting Systems**
- **Packaging Systems**
- **Lifts / Elevators**
- **Amusement Rides**
- **Studio Technology**

## CPS 140kHz

- Low-maintenance and wear-free system
- High power density with compact design
- Low metal-free space
- Parallel connection of pickup and controller electronics
- Scalable up to 30 kilowatts per line
- Protection functions against short circuit, overtemperature or undervoltage
- Indoor and Outdoor. 0...+40 °C (+32...+104 °F)



## APOS MAGNETIC FOR ENCLOSED CONDUCTORS

Protocols: **RS485, SSI**  
 Max system length: **262 m (~860 ft)**  
 Max speed: **180 m/min (590 ft/min)**  
 Ambient temperature: **-20 ... +65°C (-4 ... +149°F)**, Indoor  
 Magnetic code tape, Non-contact system, Absolute Positioning  
 Compatible with **KBH** and **MKH** enclosed conductor systems

Applications:

- **Automated Cranes**
- **Bucket Conveyor Systems**

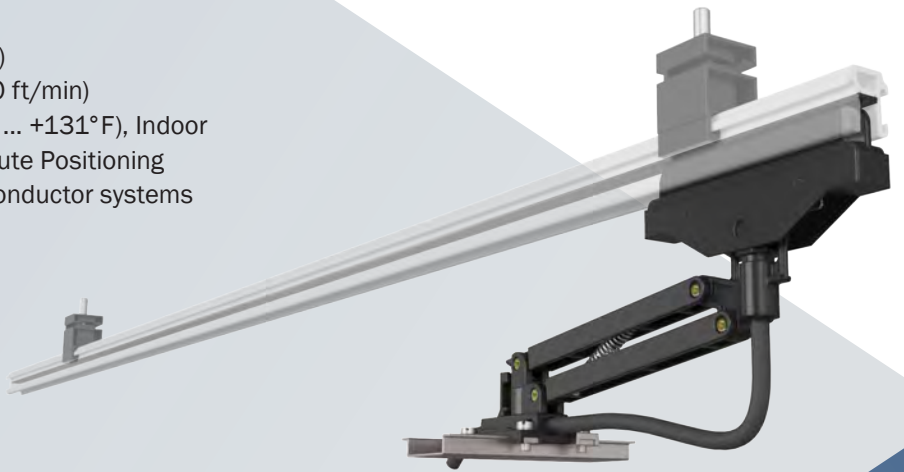


## APOS MAGNETIC FOR UNIPOLE CONDUCTORS

Protocols: **SSI**  
 Max system length: **524 m (~1720 ft)**  
 Max speed: **180 m/min (590 ft/min)**  
 Ambient temperature: **0 ... +55°C (+32 ... +131°F)**, Indoor  
 Magnetic code tape, Sliding system, Absolute Positioning  
 High compatibility with **unipole isolated** conductor systems

Applications:

- **Automated Cranes**
- **Amusement Rides**
- **Electric Monorail Systems (EMS)**
- **Electric Pallet Systems**
- **Skillet Lines**
- **Studio Technology**

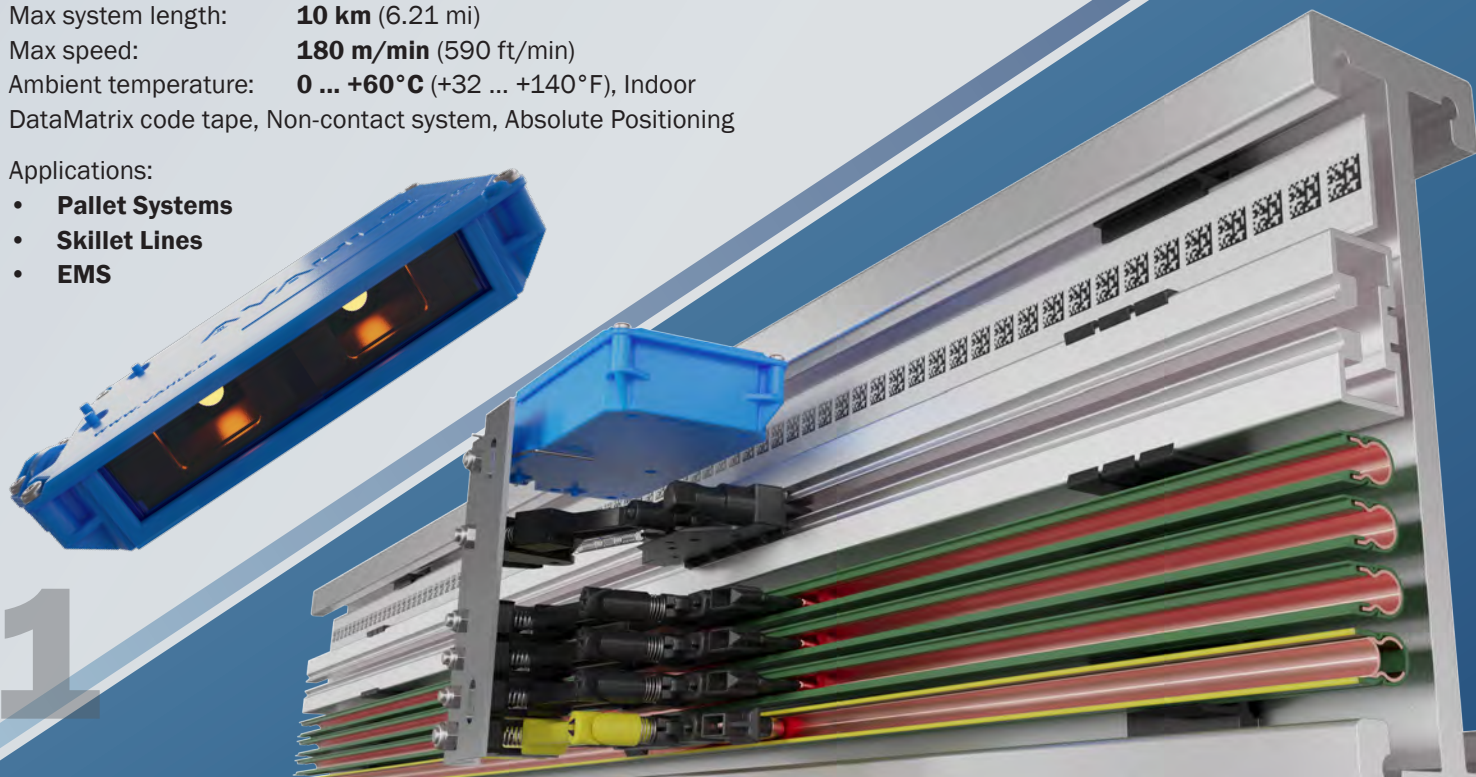


## VAHLE APOS OPTIC

Protocols: **RS485, SSI, PROFINET / PROFIsafe**  
 Max system length: **10 km (6.21 mi)**  
 Max speed: **180 m/min (590 ft/min)**  
 Ambient temperature: **0 ... +60°C (+32 ... +140°F)**, Indoor  
 DataMatrix code tape, Non-contact system, Absolute Positioning

Applications:

- **Pallet Systems**
- **Skillet Lines**
- **EMS**



**SLOTTED MICROWAVE GUIDE MINI (SMGM)**

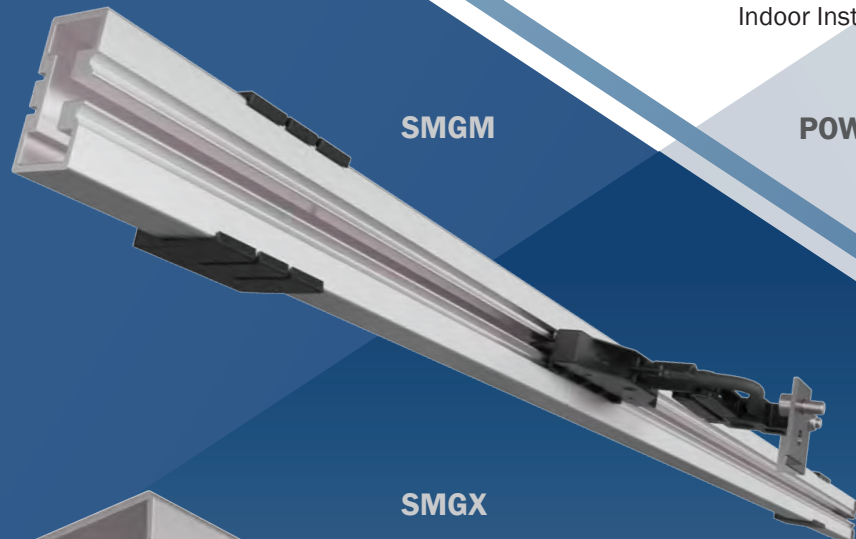
Protocols: **PROFINET, PROFIsafe \***  
 Transmission speed: **100 MBit/s**  
 Segment length: **80 m (~262 ft)**  
 Max speed: **180 m/min (590 ft/min)**  
 Ambient temperature: **0 ... +50°C (+32 ... +122°F)**  
 Indoor Installations

**SLOTTED MICROWAVE GUIDE XTREME (SMGX)**

Protocols: **PROFINET, PROFIsafe \***  
 Transmission speed: **100 MBit/s**  
 Max. system length: **500 m (~1640 ft)**  
 Max speed: **300 m/min (~984 ft/min)**  
 Ambient temperature:  
 Electronics: **0 ... +50°C (+32 ... +122°F)**  
 Mechanics: **-20 ... +70°C (-4 ... +158°F)**  
 Indoor and Outdoor Installations

**POWERCOM 485**

Protocols: **PROFIBUS \***  
 Transmission speed: **9.6 / 19.2 kBit/s**  
 Max. system length: **5000 m (~3.11 mi)**  
 Ambient temperature: **-20 ... +50°C (-4 ... +122°F)**  
 Indoor Installations



**APPLICATIONS:**

- Automated Cranes
- Amusement Rides
- Skillet Lines
- Lifts/Elevators
- EMS

\* Other protocols on request

## CONTROL SYSTEM VCS1

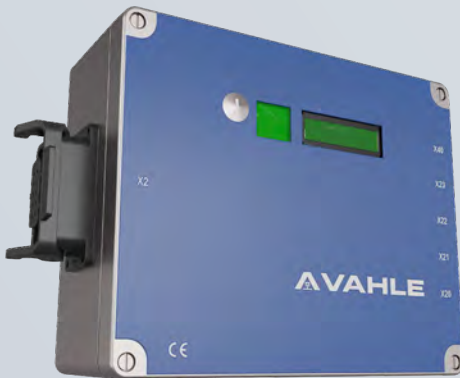
In order for the conveyor systems to perform their tasks with positional accuracy, a reliable drive control system is required. With the VCS1, VAHLE has developed a modular solution that can use various types of communication for signal transmission between the control unit and mobile applications. These include the half-wave or rail bus via conductor system as well as the in-house SMGM in the shielded slotted microwave guide.

The VCS1 offers a wide range of power levels up to 1.5 kilowatts. Thanks to a large number of different interfaces, the system can be flexibly adapted to almost any application. In addition, the drive controller offers numerous functions for positioning, distance control and communication.

Protocols:  
Transmission speed:  
Max. plant length:  
Frequency converter:  
Ambient temperature:  
Indoor Installations

**PROFINET, EtherNet/IP, TCP/UDP**  
up to **48 MBit/s**  
**unlimited** (segment lengths vary)  
**0,75/1,10/1,5 kW\***  
**0 ... +40°C** (+32 ... +104°F)

Combined with the modules for energy supply (vPOWER), positioning (vPOS) and data transmission (vCOM), the VCS1 control system is also available as a system solution.



### APPLICATIONS:

- Pallet Systems
- Skillet Lines
- EMS





## APPLICATIONS:

- ASSEMBLY LINES
- CONVEYORS
- EMS

## vPOWER - U-SHAPED CONDUCTORS

vPOS - APOS OPTIC

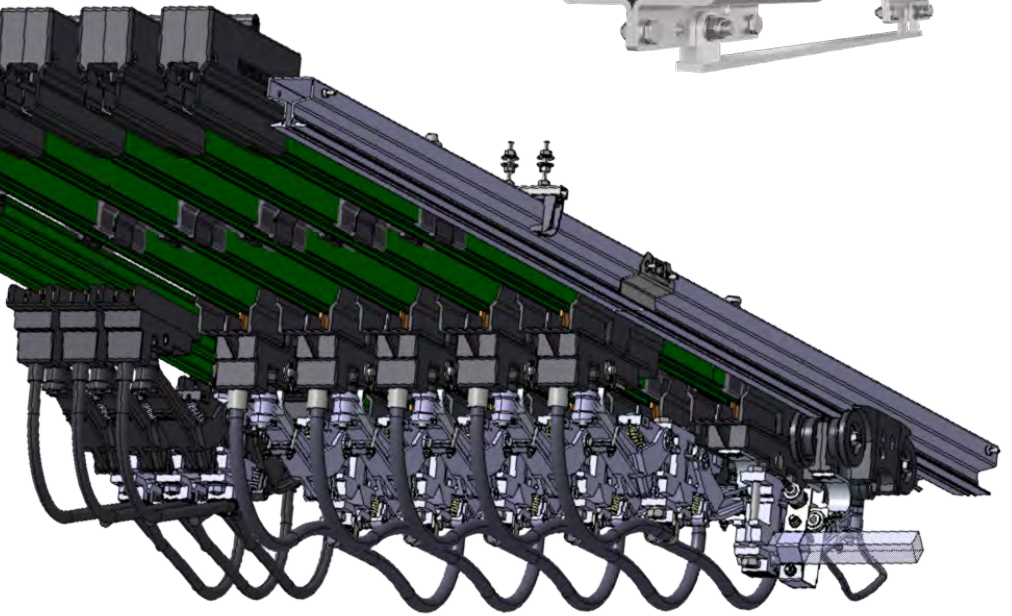
vCOM - SMGM



## FESTOONLESS SOLUTION (vPOWER + vCOM SMGX)

### APPLICATIONS:

- STS CRANES
- PROCESS CRANES



## E-RTG SOLUTION POWER RAILS AND AUTOMATIC ARM FOR RUBBER TYRED GANTRY CRANES



## SERVICE & SUPPORT

### CUSTOMIZED SOLUTIONS FOR YOUR REQUIREMENTS

VAHLE's extensive product portfolio is enhanced by a comprehensive array of services tailored to meet specific demands:

- Project management
- Commissioning
- Engineering and Customizing
- Installation and installation monitoring
- After Sales Service
- Product trainings
- Maintenance packages

We would be pleased to use our know-how to develop specific solutions for your Company. Please call to arrange for a meeting to explore VAHLE's products and services.





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