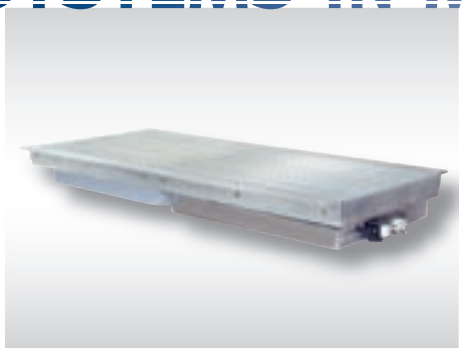
VAHLE 19 12
ELECTRIFICATION SYSTEMS

CPS®

Contactless Power System

SYSTEMS IN MOTION



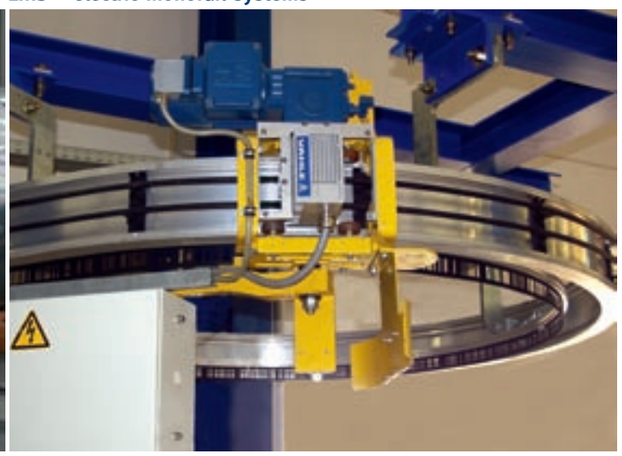
Contactless power systems for your applications

AGV – automated guided vehicles

Skillet conveyors

Transfer cars

EMS – electric monorail systems



Sorting technology

Clean-room technology

CONTENTS

VAHLE CPS® – Systems in motion

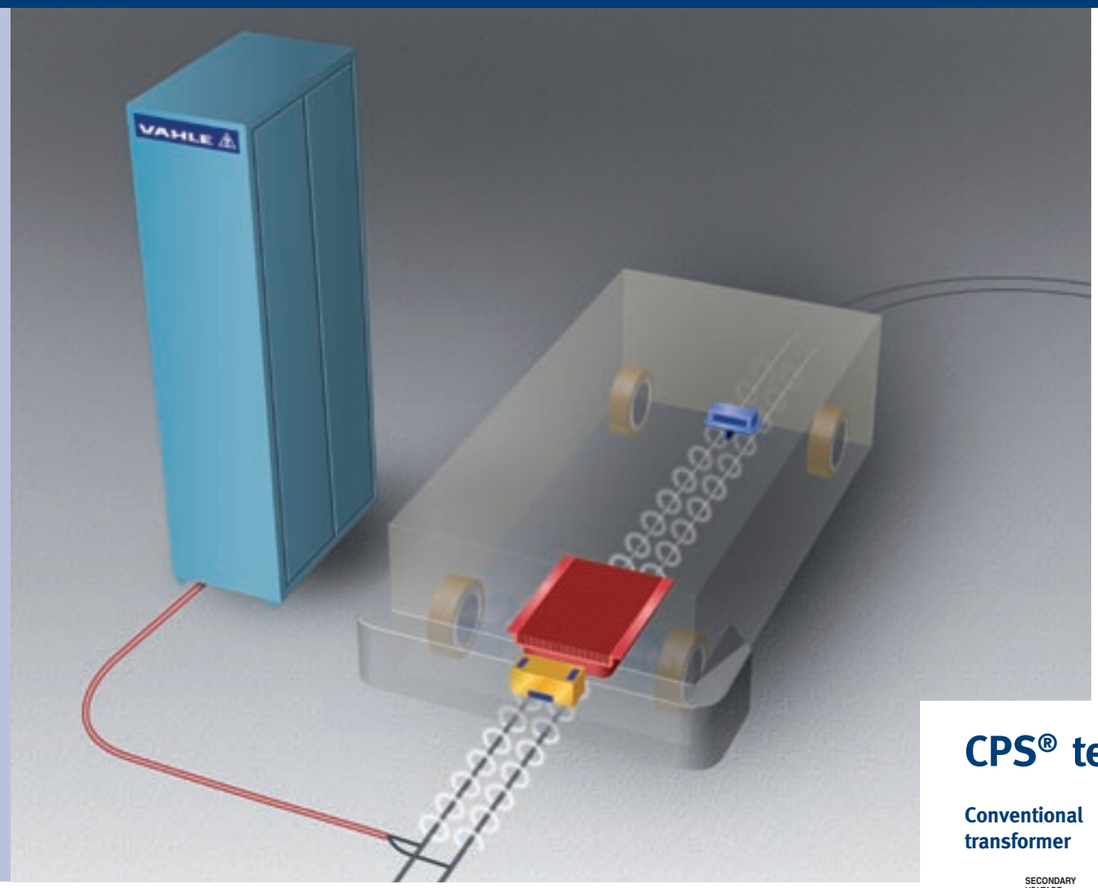
The abbreviation **"CPS®"** stands for "Contactless Power System." This system supplies power to mobile electrical consumers without any contact. The power is inductively conducted from a stationary (primary) conductor to a mobile consumer. A unique feature of CPS® is that data can also be transmitted via this primary conductor.

VAHLE CPS® has been continuously developed since 1997 and is now used in more than 450 operational plants in a wide range of industries. This includes VAHLE's vast know-how in finding problem-oriented solutions together with the customer.

Benefit from

– A large variety of possibilities
– Our technical know-how
– Our unique technology

OPERATING PRINCIPLE



Innovative development

During the development of the CPS® technology, a strong focus was put on important criteria such as efficiently covering a wide range of performance, multiple areas of application, but also the greatest possible level of environmental compatibility. A particularly high degree of efficiency as well as extremely good electromagnetic compatibility (EMC/EMF) result, for example, from exceptionally low track current of only 70 A (with special applications even only 35 A!).

In addition to pure power supply, additional system features such as inductive data transfer and inductive track guidance were integrated into the CPS® in order to meet diverse material handling requirements.

General
CPS® operating principle

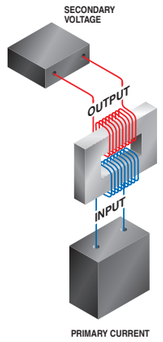
Transformer principle

VAHLE-CPS® technology provides electrical energy without any mechanical contact. It works on the induction principle similar to a transformer's primary/secondary transfer. In a transformer, the primary and secondary windings are on a common, closed ferromagnetic core. CPS® technology, on the other hand, "stretches" the primary winding to a long loop and places the secondary winding onto an open ferromagnetic core. This allows relative motion of the two windings. The transmission behavior is optimized by using a high transmission frequency of 20 kHz.

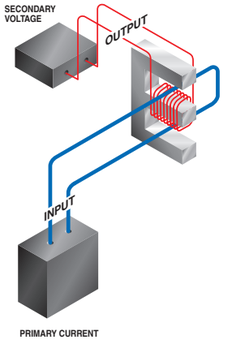
- **Absolutely maintenance-free**
- **Highest availability**
- **Wide power range**
- **Best EMC/EMF behavior**
- **High degree of efficiency**
- **Integrated data transfer**
- **Integrated track guidance**

CPS® technology

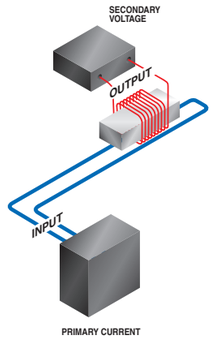
Conventional transformer



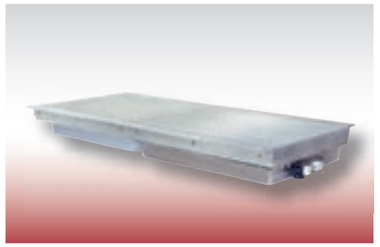
E-shaped pick-up



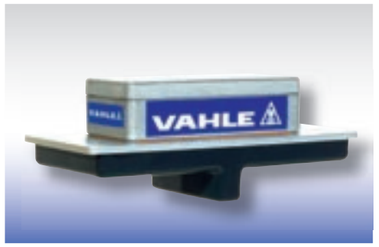
Flat pick-up



Power supply



Data transfer



Track guidance

High frequency

The CPS® primary inverter converts the customer's existing three phase alternating current into single phase alternating current with a frequency of 20 kHz. The primary cable is charged with constant current by means of an interface circuit. The voltage induced in the pick-up coil is rectified and adapted to the consumer requirements.

AGV – AUTOMATED GUIDED VEHICLES

Flat pick-up systems for automated guided vehicles

The pick-up unit ensures the inductive acceptance of the energy provided by the primary conductor. There are different types of pick-ups available, depending on the area of application.

Advantages for automated guided vehicles

- Barrier-free track path
- Complex track layouts possible
- System can easily be expanded
- Battery or UltraCap charging during travel
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer and track guidance via primary cable

AGV

In the past, mainly batteries or underground conductor lines were used to supply automated guided vehicles (AGV) with power. Today, more and more contactless, inductive power supply units are being deployed. In connection with a track guidance which is also inductive, the user can benefit from a completely smooth floor surface. This increases plant availability substantially as the system is nearly insensitive to dirt, oil or other types of contaminants. Thanks to the vast variety of available pick-up units, an inductive supply to automated guided vehicles of virtually any size category is possible.

Flat pick-up PS 08

Capacity ..... 350 W/500 W with heat sink
(nom./peak) 170 W without heat sink
Output voltage ..... 24 VDC
Dimensions (LxWxH)..... 310 x 210 x 98
Protection class IP54
Weight ..... 7.3 kg

Flat pick-up PS 18

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH)..... 765 x 360 x 80
Protection class IP54
Weight ..... 26.3 kg

Flat pick-up PS 19

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH)..... 895 x 360 x 80
Protection class IP54
Weight ..... 31.5 kg

Flat pick-up PS 18 compact

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH)..... 395 x 360 x 185
Protection class IP54
Weight ..... 27.3 kg

Flat pick-up PS 19 compact

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH)..... 455 x 360 x 185
Protection class IP54
Weight ..... 32.5 kg

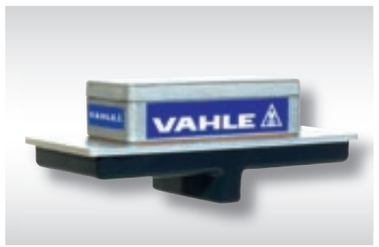
Flat pick-up PU 18/PU 18 compact

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Dimensions (LxWxH)
PU 18 ..... 620 x 360 x 80
PU 18 compact ... 370 x 360 x 185
Protection class IP54
Weight ..... 22 kg

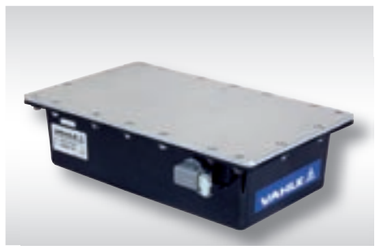
Flat pick-up PU 19/PU 19 compact

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
Dimensions (LxWxH)
PU 19 ..... 705 x 360 x 80
PU 19 compact ... 455 x 360 x 185
Protection class IP54
Weight ..... 24 kg

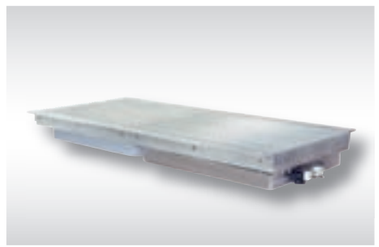
Data transfer



- Date transfer via primary conductor (see page 25)



- Pick-up system with integrated power electronics
- Optionally with 24-27 VDC output for battery charging
- Parallel connection of several pick-up systems possible



- Pick-up system with integrated power electronics
- Additional 24 VDC output as auxiliary voltage
- Parallel connection of several pick-up systems possible

- Pick-up system with integrated power electronics
- Additional 24 VDC output as auxiliary voltage
- Parallel connection of several pick-up systems possible

- Pick-up only in connection with a separate voltage regulation (see page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

Track guidance

- Inductive track guidance via primary conductor (see page 26)

Flat pick-up systems for skillet conveyors

The pick-up unit ensures the inductive acceptance of the energy provided by the primary cable. There are different types of pick-ups available, depending on the area of application.

U-shaped pick-up systems for skillet conveyors

The coil encompasses the primary cable in the U-shaped design. Owing to the particularly efficient electromagnetic coupling, high performance is provided even with small pick-up construction sizes.

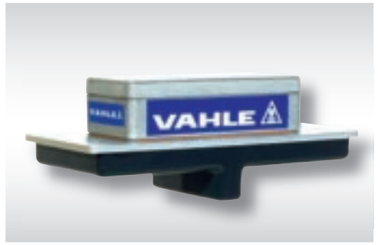
Advantages for skillet conveyors

- No wear and tear on mechanical components
- Trouble-free and safe “threading” on transfer stations
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer via primary cable

SKILLET CONVEYOR

Conventional power supplies (conductor lines) underneath skillet platforms require high maintenance because they are sensitive to contaminations. Whereas no maintenance is required when using CPS® technology. In addition, due to the contactless transfer, mechanical damage of power supply components is generally ruled out even in critical track sections such as at lifting stations and transfer stations.

Data transfer



- Date transfer via primary cable (see page 25)

Flat pick-up PS 18

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 765 x 360 x 80
Protection class IP54
Weight ..... 26.3 kg

Flat pick-up PS 19

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
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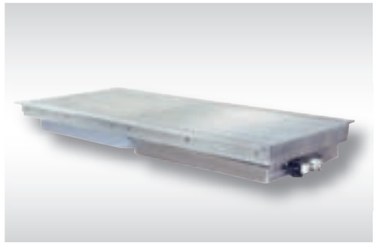
Dimensions (LxWxH) ..... 895 x 360 x 80
Protection class IP54
Weight ..... 31.5 kg



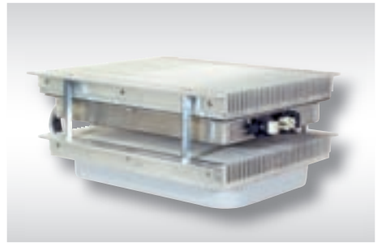
- Pick-up system with integrated power electronics
- Additional 24 VDC output as auxiliary voltage
- Parallel connection of several pick-up systems possible

Flat pick-up PS 18 compact

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 395 x 360 x 185
Protection class IP54
Weight ..... 27.3 kg

Flat pick-up PS 19 compact

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 455 x 360 x 185
Protection class IP54
Weight ..... 32.5 kg



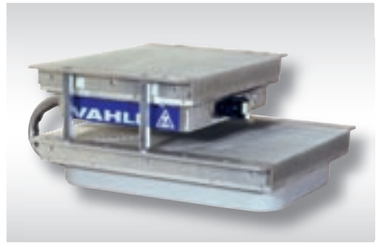
- Pick-up system with integrated power electronics
- Additional 24 VDC output as auxiliary voltage
- Parallel connection of several pick-up systems possible

Flat pick-up PU 18/PU 18 compact

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Dimensions (LxWxH)
PU 18 ..... 620 x 360 x 80
PU 18 compact ... 370 x 360 x 185
Protection class IP54
Weight ..... 22 kg

Flat pick-up PU 19/PU 19 compact

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
Dimensions (LxWxH)
PU 19 ..... 705 x 360 x 80
PU 19 compact ... 455 x 360 x 185
Protection class IP54
Weight ..... 24 kg



- Pick-up only in connection with a separate voltage regulation (see page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

U-shaped pick-up PP 25/F

Capacity (nom./peak) ... 470 W/1200 W
Output voltage ..... 400 VDC ... 690 VDC
Dimensions (LxWxH) ..... 108 x 110 x 210
Protection class IP54
Weight ..... 5 kg

- Pick-up system with passive power electronics
- Parallel connection of several pick-up systems possible

Flat pick-up systems for transfer cars

The pick-up unit ensures the inductive acceptance of the energy provided by the primary cable. There are different types of pick-ups available, depending on the area of application.

Flat pick-up PS 08

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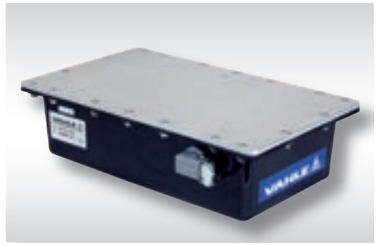
Output voltage ..... 24 VDC
Dimensions (LxWxH) ... 310 x 210 x 98
Protection class IP54
Weight ..... 7.3 kg



- Pick-up system with integrated power electronics
- Optionally with 24-27 VDC output for battery charging
- Parallel connection of several pick-up systems possible

Flat pick-up PS 18

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(nom./peak) 2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 765 x 360 x 80
Protection class IP54
Weight ..... 26.3 kg

Flat pick-up PS 19

Capacity ..... 2 kW at 60% ED
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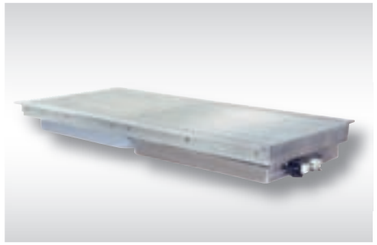
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 895 x 360 x 80
Protection class IP54
Weight ..... 31.5 kg



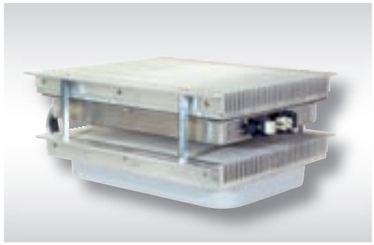
- Pick-up system with integrated power electronics
- Additional 24 VDC output as auxiliary voltage
- Parallel connection of several pick-up systems possible

Flat pick-up PS 18 compact

Capacity ..... 1.3 kW at 60% ED
(nom./peak) 2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 395 x 360 x 185
Protection class IP54
Weight ..... 27.3 kg

Flat pick-up PS 19 compact

Capacity ..... 2 kW at 60% ED
(nom./peak) 3 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 455 x 360 x 185
Protection class IP54
Weight ..... 32.5 kg



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Flat pick-up PU 18/PU 18 compact

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Dimensions (LxWxH)
PU 18 ..... 620 x 360 x 80
PU 18 compact ... 370 x 360 x 185
Protection class IP54
Weight ..... 22 kg

Flat pick-up PU 19/PU 19 compact

Capacity ..... 2 kW at 60% ED
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Dimensions (LxWxH)
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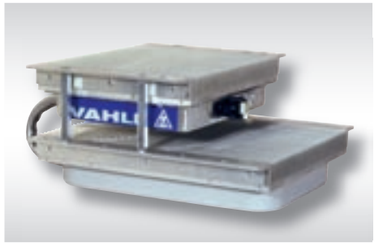
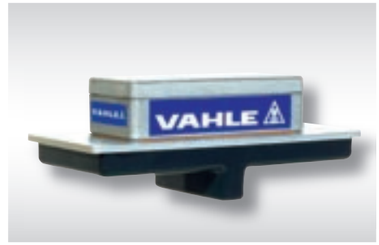
Weight ..... 24 kg



- Pick-up only in connection with a separate voltage regulation (see page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

Data transfer



- Date transfer via primary conductor (see page 25)

VAHLE

TRANSFER CAR

In the heavy industry (e.g. steel plants or aluminum plants), general warehouse technology or even in the clean-room technology, rail-mounted transfer cars are frequently used for transporting material between the different working stations or storage facilities. If the CPS® technology is used for supplying power, the track is completely free of disturbing installations (conductor lines, cable reel or similar) and is traversable without obstruction for possible cross traffic.

Advantages for transfer cars

- Barrier-free track path
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer via primary cable

EMS – ELECTRIC MONORAIL SYSTEM

U-shaped pick-up systems for electric monorail systems

VAHLE's twin conductor system specifically developed for this application has proven its suitability for its excellent EMF and EMC behavior. The coils in U-shaped design "encompass" the primary cable.

Advantages for electric monorail systems

- "C1" conformity
- Usable for complex track layouts
- No contamination of conveyed material due to carbon abrasion
- Easy installation due to special fixture technology
- No restriction to travel speed
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer via primary cable

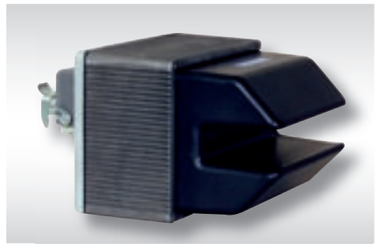
EMS

In the automotive industry, but also in other industries, an electric monorail system (EMS) is used as rail-bound conveying means with numerous individually driven vehicles (carriers). At the same time, the runway is used as support profile and carries the CPS® components necessary for the power supply and control supply to save space. Branches are created using track switches. Lifters are used for transporting the payload onto other manufacturing levels or for coupling different production steps.

Using CPS® technology increases plant availability substantially because—thanks to contactless power supply—no abrasive wear occurs and therefore makes the system maintenance-free.

U-shaped pick-up PU 14

Capacity (nom./peak) ... 900 W/1800 W
Output voltage ..... 250 VAC
Dimensions (LxWxH) ..... 155 x 139 x 152
Protection class IP54
Weight ..... 3.72 kg



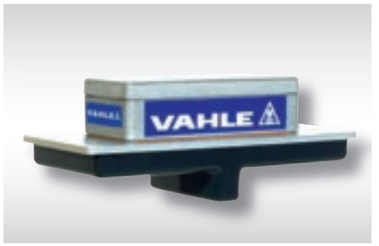
- Pick-up only in connection with a separate voltage regulation (see page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

U-shaped pick-up PP 25/H

Capacity (nom./peak) ... 470 W/1200 W
Output voltage ..... 400 VDC ... 690 VDC
Dimensions (LxWxH) ..... 108 x 110 x 210
Protection class IP54
Weight ..... 5 kg

- Pick-up system with passive power electronics
- Parallel connection of several pick-up systems possible

Data transfer



- Date transfer via primary cable (see page 25)

SORTING TECHNOLOGY

U-shaped pick-up systems for sorting technology

Power supply components must meet high demands with respect to exceedingly narrow space conditions as well as very high travel speeds usually occurring in the sorting technology. There is a range of U-shaped pick-ups which can be installed in a compact manner in order to fulfill these requirements.

Advantages for sorting technology

- No restriction to travel speed
- No noise is generated
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer via primary cable

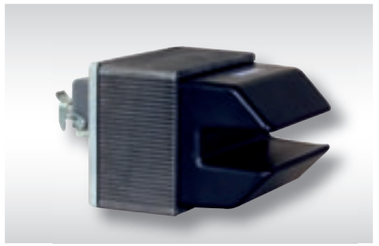
U-shaped pick-up PU 11

Capacity (nom./peak) ... 300 W/900 W
Output voltage ..... U_0 = 110..125 VAC, 20kHz
U_N=75...105 VAC, 20kHz
Dimensions (LxWxH) 150 x 73 x 95.5
Protection class IP54
Weight ..... 1.26 kg

- Pick-up only in connection with a separate voltage regulation (see page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

U-shaped pick-up PU 14

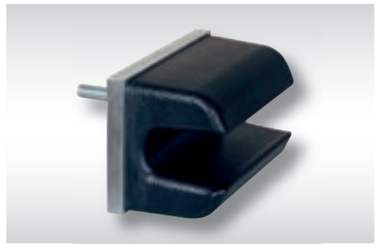
Capacity (nom./peak) ... 900 W/1800 W
Output voltage ..... 250 VAC, 20 kHz
Dimensions (LxWxH)..... 155 x 139 x 152
Protection class IP54
Weight ..... 3.72 kg



- Pick-up only in connection with a separate voltage regulation (see page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

U-shaped pick-up PK 31

Capacity (nom./peak).... 300 W/900 W
Dimensions (LxWxH)..... 114 x 75 x 65
Protection class IP65
Weight ..... 1.2 kg



- Pick-up for very confined installation spaces
- Necessary separate rectifier unit is available (optional)

For transporting and sorting luggage items, packages and other general cargo, so-called distribution centers use large sorting equipment which presorts the arriving cargo and prepares it for further transport to different target destinations. Using CPS® technology increases plant availability substantially because—thanks to contactless power supply—no abrasive wear occurs and therefore makes the system maintenance-free.

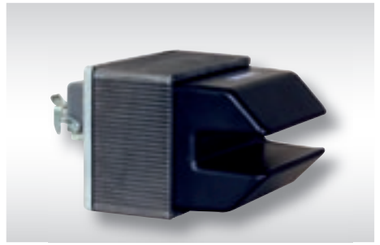
CLEAN-ROOM TECHNOLOGY

U-shaped pick-up systems for clean-room technology

Due to the very high electrical drive capacity often used in clean-room technology, the use of U-shaped or E-shaped pick-ups is a suitable option. These designs in particular have an extremely good coupling quality to the track conductor's magnetic field and therefore enable optimum power transfer.

U-shaped pick-up PU 14

Capacity (nom./peak) ... 900 W/1800 W
Output voltage ..... 250 VAC, 20 kHz
Dimensions (LxWxH)..... 155 x 139 x 152
Protection class IP54
Weight ..... 3.72 kg



- Pick-up only in connection with a separate voltage regulation (page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

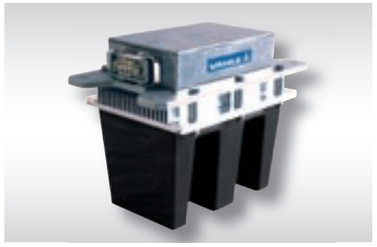
U-shaped pick-up PP 25/H

Capacity (nom./peak) ... 470 W/1200 W
Output voltage ..... 400 VDC ... 690 VDC
Dimensions (LxWxH)..... 108 x 110 x 210
Protection class IP54
Weight ..... 5 kg

- Pick-up system with passive power electronics
- Parallel connection of several pick-up systems possible

E-shaped pick-up PU 22

Capacity (nom./peak) ... 10 kW/22 kW
Output voltage ..... 225 VAC, 20 kHz
Dimensions (LxWxH)..... 250 x 420 x 322
Protection class IP54
Weight ..... 29 kg



- Pick-up only in connection with a separate voltage regulation (page 26)
- Parallel connection of several pick-up systems to one voltage regulation possible

VAHLE

Advantages for clean-room technology

- No contamination of the environment caused by carbon abrasion
- Clean-room class 1 in accordance with US Fed. Std. 209
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer via primary cable

CLEAN-ROOM TECHNOLOGY

Special operating conditions such as high travel speeds, extremely difficult environmental influences but also high demands on clean production environment (clean room) require a special form of power supply. Due to the contactless transmission, the CPS® technology is the optimum solution to meet exactly these requirements. Meanwhile, this technology is very frequently used for stacker cranes or OHT conveyors in the clean-room technology, for example.

Flat pick-up and U-shaped pick-up for elevators

Depending on required capacity and existing installation space at the elevator cab, both flat pick-ups and U-shaped pick-ups are suitable for this application.

VAHLE

Advantages for elevators

- Unlimited travel speed
- Unlimited elevation heights
- Ideal for inclined elevators
- Absolutely maintenance-free
- Highest availability
- Insensitive to dirt
- Trouble-free functionality even in damp conditions
- Data transfer via primary cable

ELEVATOR SYSTEMS

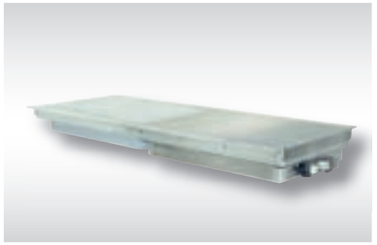
As an alternative to the traveling cable, the CPS® technology perfectly meets the requirements in case power needs to be supplied to an elevator cab maintenance-free and fail-safe, regardless of the ambient conditions. Whether it is for the standard elevator or the inclinator: This alternative offers elevator systems completely new opportunities without any restrictions to speed or elevation heights.

Flat pick-up PS 18

Capacity (nom./peak) ..... 1.3 kW at 60% ED
2 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 765 x 360 x 80
Protection class IP54
Weight ..... 26.3 kg

Flat pick-up PS 19

Capacity (nom./peak) ..... 2 kW at 60% ED
3 kW max. 3 min.
Output voltage ..... 560 VDC
Dimensions (LxWxH) ..... 895 x 360 x 80
Protection class IP54
Weight ..... 31.5 kg



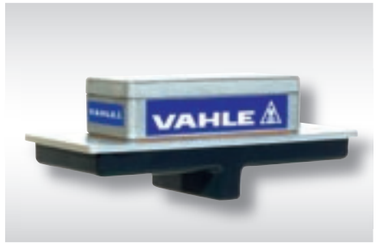
- Pick-up system with integrated power electronics
- Additional 24 VDC output as auxiliary voltage
- Parallel connection of several pick-up systems possible

U-shaped pick-up PP 25/H

Capacity (nom./peak) ... 470 W/1200 W
Output voltage ..... 400 VDC ... 690 VDC
Dimensions (LxWxH) ..... 108 x 110 x 210
Protection class IP54
Weight ..... 5 kg

- Pick-up system with passive power electronics
- Parallel connection of several pick-up systems possible

Data transfer



- Date transfer via primary cable (see page 25)

VAHLE

PRIMARY
INVERTER UNIT

Primary inverter switch cabinet

As the centerpiece of the contactless power supply, the primary inverter delivers the required electrical power for all mobile consumers located on the conveying track. Standard three-phase alternating current of 400 V/50 Hz is initially converted to single-phase alternating current of 20 kHz and then fed to the conveying track at a constant current of 70 A. A suitable diagnostics interface is available for displaying or monitoring the actual operating condition.

Mounting plate 11 kW

Capacity (nom./peak).... 8.8 kW/11 kW
Supply voltage..... 3 x 400 VAC
Protection class IP00
Temperature range ..... 0 – 30 °C
Dimensions (WxH) ..... 700 x 1900

Mounting plate 45 kW

Capacity (nom./peak).... 36 kW/45 kW
Supply voltage..... 3 x 400 VAC
Protection class IP00
Temperature range ..... 0 – 30 °C
Dimensions (WxH) ..... 700 x 1900

- All 20 kHz CPS® components are pre-mounted and completely wired
- Installation in a present power switch cabinet
- Supply with 400 V, three-phase alternating current
- Electricity of 20 kHz on side of output for supplying the conveying track

The primary inverter units shown here are generally suitable for all areas of application mentioned in this catalog. From a technical and economical aspect, an optimum adaptation to the respective conditions of the conveying track is ensured due to the available, wide-ranging performance grading scale. Whether you need a complete cabinet, mounting plate or compact device—our experienced project team will always be glad to help you select the best suitable components.

Complete cabinet 11 kW

Capacity (nom./peak).... 8.8 kW/11 kW
Supply voltage..... 3 x 400 VAC
Protection class IP54
Temperature range ..... 0 – 30 °C
Dimensions (HxWxD) .... 2000 x 1200 x 500
+ 200 mm socket

Complete cabinet 45 kW

Capacity (nom./peak).... 36 kW/45 kW
Supply voltage..... 3 x 400 VAC
Protection class IP54
Temperature range ..... 0 – 30 °C
Dimensions (HxWxD) .... 2000 x 1200 x 500
+ 200 mm socket

- Operational cabinet unit
- Technical design depending on conveyor system
- Design according to customer specifications
- Several cabinets can be interconnected for large systems with a high power requirement

Compact cabinet 4 kW

Capacity (nom./peak).... 3.2 kW/4 kW
Supply voltage..... 3 x 400 VAC
Protection class IP54
Temperature range ..... 0 – 30 °C
Dimensions (HxWxD) .... 630 x 800 x 300

- Operational for the connection to the primary conductor
- Very compact construction
- Highly suitable for small stand-alone systems
- Integration into larger systems possible

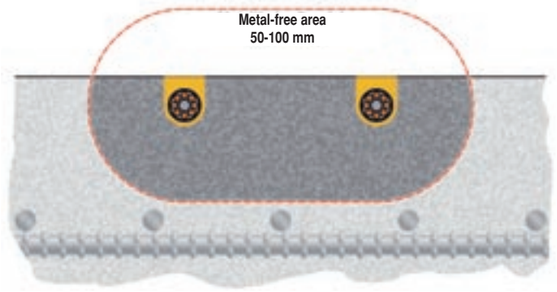
Wayside equipment

A loop (primary cable) must be installed along the track to supply the mobile consumers with the power created in the primary inverter unit. Depending on the type of conveying system, the primary cable can be laid underground, i.e. into the floor, or above ground, such as on the runway beam. Compensation boxes must be installed along the track for long distances in order to compensate for the unwanted track inductivity caused by the line.

Track compensation KB 10

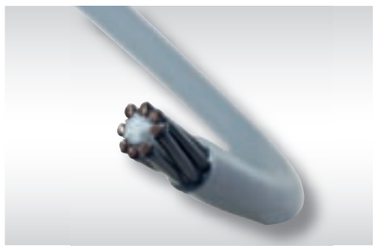
Dimensions (HxWxD) .... 194 x 154 x 100
Protection class IP65
Weight..... 1.5 kg

- Compact design
- Positioning near track possible
- A box positioned every 33 to 44 m



Primary cable 8x4

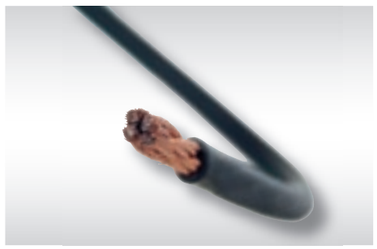
Area of application ..... Floor skid conveyor
Diameter ..... 15.7 mm
Weight..... 0.49 kg/m



- For standard applications
- Single insulated copper conductors
- Easy installation by means of standard cable tools

Primary cable HF 25

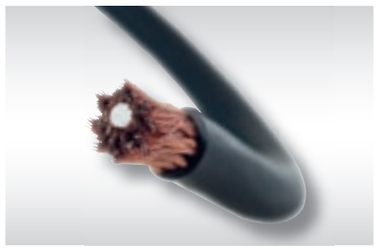
Area of application ..... EMS
Diameter ..... 11 mm
Weight..... 0.28 kg/m



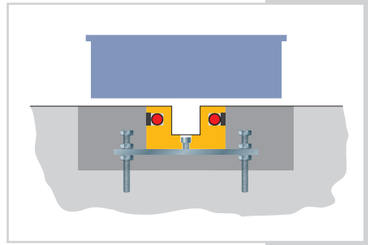
- For EMS and sorting technology applications
- Special conductor made of single insulated copper braid
- Small outside diameter

Primary cable HF 50

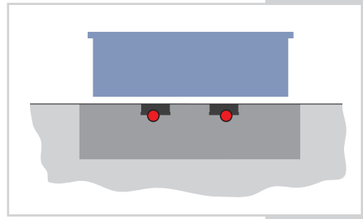
Area of application ..... Floor skid conveyor/crane plants
Diameter ..... 16.5 mm
Weight..... 0.56 kg/m



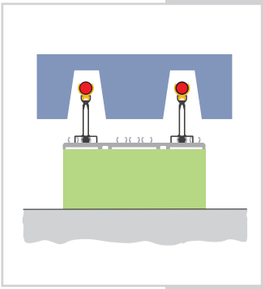
- For very long track sections
- Special conductor made of single insulated copper braid
- Very low power loss due to large conductor cross section



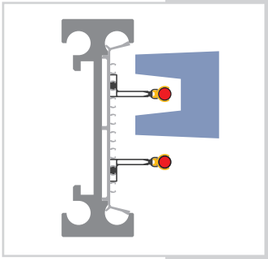
Sample for cable arrangement: Cable laid with guide profile



Sample for cable arrangement: Cable laid directly into the floor



Sample for cable arrangement: Cable on supports

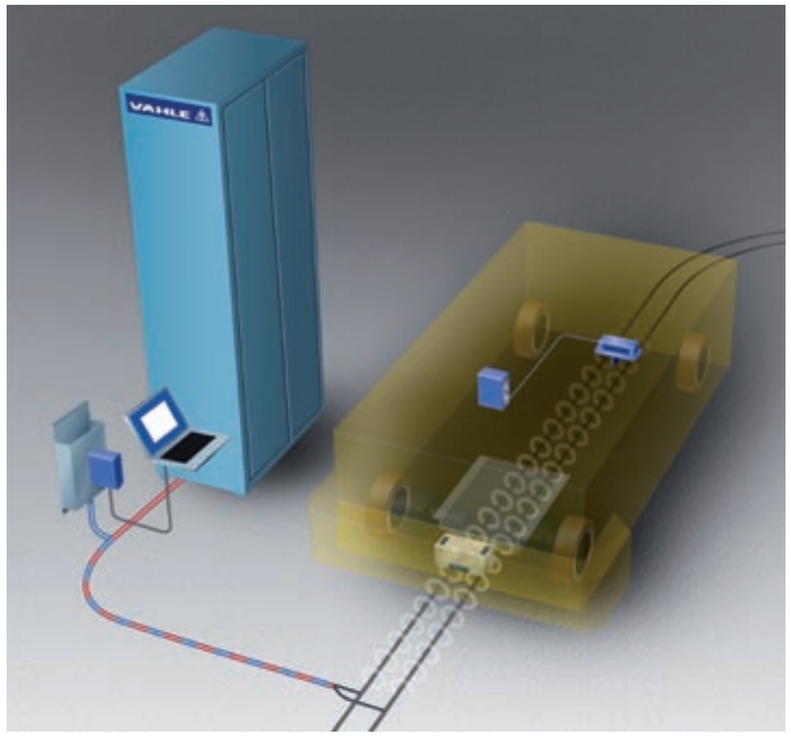


Sample for cable arrangement: Cable in an EMS profile

VAHLE
DATA TRANSFER

Data transfer

In many cases, it is necessary—besides supplying power to the drive motors—to transmit corresponding control signals from a central PLC control system to the conveyor system's mobile consumer. Because a free radio transmission is quickly limited due to the susceptibility to interference, the usage of the power supplied to the present primary conductor offers an alternative to ensure an interference immune data transfer. This concept of the integrated data transfer "VAHLE Powercom® CPS®" is designed for a safe transmission of control data with a data rate of 187.5 kBit/s based on a standard RS485 interface as featured by the Profibus DP, for example.



Data transfer benefits with VAHLE Powercom® CPS®

- No additional components are necessary along the track by simultaneously using the primary cable for transmitting the data signal
- Data rate up to 187.5 kBit/s
- Absolute interference immune transmission due to the high frequency distance to the currently common radio transmission systems
- Subsequent changes to the number of vehicles or to the mechanical environment can be easily made without carrying out a complex HF field analysis
- Fully transparent transmission of the data signal without modifying the programming software

Transceiver TU 01

Area of application ..... Floor skid conveyor/EMS
Supply voltage..... 24 VDC
Transmission rate ..... 19.2 kBit/s...187.5 kBit/s
Dimensions (LxWxH)..... 40 x 111 x 74
Protection class IP40
Weight ..... 500 g

- Connection to the antenna or charging coupler
- RS485 interface e.g. for Profibus DP

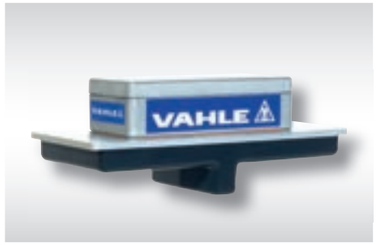
Charging coupler CC

Area of application ..... Floor skid conveyor/EMS
Supply voltage..... 24 VDC
Dimensions (LxWxH)..... 162 x 380 x 145
Protection class IP10
Weight ..... 4 kg

- Stationary arrangement at the beginning of the track
- Modulates the data stream of the stationary transceivers to a carrier frequency and transmits it to the primary cable

ANT F/ANT E antenna

Area of application ..... vehicle side
ANT F..... in combination with F-shaped pick-up
ANT E..... in combination with U-shaped pick-up
Dimensions (LxWxH)
ANT F..... 100 x 238 x 85
ANT F..... 100 x 150 x 85
Weight
ANT F..... 1.3 kg
ANT E..... 1.0 kg
Protection class IP65



- Arrangement on the vehicle
- Receives the carrier frequency from the primary cable and forwards this frequency to the transceiver on the vehicle side for demodulation

RF-termination box AB

Area of application ..... Floor skid conveyor/EMS
Supply voltage ..... 24 VDC
Dimensions (LxWxH)..... 600 x 760 x 210
Protection class IP54
Weight ..... 32 kg

- RF-termination of the data transmission path
- Undesirable RF- reflections are filtered out

Voltage regulation

A wide range of voltage regulation units for providing supply voltages on the vehicle side of the conveyor system deviating from the 560 VDC supply commonly available can be supplied. These voltage regulation units are connected downstream from the pick-up units and provide application-specific custom voltages, such as for charging batteries or UltraCaps.

CPS® track guidance sensor SS-01 / 02

Area of application ..... Floor skid conveyor
Output signal..... 4-20 mA, 0-20 mA,
0-10 V, 0-5 V, Profibus
Dimensions (LxWxH)..... 160 x 80 x 60
Protection class IP65
Weight ..... 0.35 kg

- Inductive track guidance via primary conductor
- Also suitable for switches and transfers

Voltage regulation RE 7.1

Area of application ..... Floor skid conveyor/EMS
Capacity ..... depends on the
(nom./peak) pick-up connected,
max. 3 kW
Output voltage..... 288...680 VDC
Auxiliary voltage 24VDC
Dimensions (LxWxH) ..... 240 x 200 x 160
Protection class IP54
Weight ..... 5.8 kg

- For PU18/19 and PU14 series pick-ups
- Connection for a pick-up

Voltage regulation RE 7.4

Area of application ..... Floor skid conveyor/EMS
Capacity ..... depends on the
(nom./peak) pick-up connected,
1.3 kW – 3 kW at
60% ED max. 2 kW – 9 kW
Output voltage..... Battery charging/UltraCap
24 VDC, 48 VDC
Standard: 288...680 VDC
Auxiliary voltage 24 VDC
Dimensions (LxWxH) ..... 320 x 320 x 203
Protection class IP54
Weight ..... 16 kg

- For PU18/19 and PU14 series pick-ups
- Connection of up to four PU14s or one PU 18/19
- Also for direct charging of batteries or UltraCaps

Voltage regulation RE 22

Area of application ..... Crane plants
Capacity ..... for 1 pc PU 22
(nom./peak) 12.5 kW/20 kW –
for 2 pieces PU 22
25 kW/40 kW
Output voltage ..... 288...680 VDC
Auxiliary voltage 24 VDC
Dimensions (LxWxH) ..... 660 x 328 x 290
Protection class IP20
Weight ..... 25.65 kg

- For PU22 series pick-ups
- Connection for upto two pick-ups

We can develop custom solutions for your company

The successful range of VAHLE systems is rounded off by a comprehensive range of services tailored to meet our customer's requirements, including

- System design
- Project management
- Commissioning
- Engineering
- Installation supervising
- After-sales service
- Product training courses
- Plant care packages

We will be glad to apply our expertise to developing just the right solutions for your company. Give us a call and arrange an appointment to learn more about VAHLE systems and services to meet your requirements.

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