BATTERY CHARGING SYSTEMS
for Automatic Guided Vehicles

VAHLE ELECTRIFICATION SYSTEMS
The operation of Automatic Guided Vehicles (AGVs) requires high utilization of these vehicles in order to achieve an optimum of profitability. Often, recharge of the batteries which are required for the drive of the AGVs, presents a problem.

The development of powerful batteries, which allow for quick recharge within seconds, enables the integration of charging contacts into the production cycle without removing the AGVs from the production process.

Battery charging stations may be installed anywhere within the system where the production process allows the AGV to stop (staging areas, turn arounds, loading stops etc.). Attention should be paid to attain best possible integration into a given layout.

VAHLE has developed special battery charging contacts which fully meet any requirement.

A battery charging contact consists of a base plate, which is installed on the floor or laterally at a bracket adjacent of the AGV runway, and a current collector which is installed on the vehicle.

A battery charger supplies current to the base plate. Once the AGV is in charging position and the collector has made contact with the base plate, the AGV computer turns on the current.

The base plate has chamfered entry/exit ramps to facilitate smooth drive-on/drive-off of the spring loaded collector. Bristle brushes installed on the collector remove debris from the base plate.

VAHLE battery operating charging contacts are designed for an voltage of 24 - 84 V. Nominal voltages > 25 V AC or 60 V DC require a protection against accidental touch.

AGVs serve as transportation vehicles and mobile assembly platforms. They connect assembly areas with assembly lines, service AS/AR installations etc.

The great variety of possible applications often requires custom designed AGVs with very specific demands for battery charging contacts.

A selection of our wide range of battery charging contacts is shown on the following pages.
AGV-Collector - 2-phase, 200 A
Insulated collector for vehicle installation, with two contact brushes and a bristle cleaning brush.

AGV-Base Plate
Insulated floor contact plate with two copper contact plates.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 200-2-01</td>
<td>2.600</td>
<td>590 000</td>
</tr>
<tr>
<td>BLK 200-2-01</td>
<td>2.200</td>
<td>590 001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Best.-Nr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 200-2 Q-01</td>
<td>3.500</td>
<td>590 013</td>
</tr>
</tbody>
</table>

* height at contact position

** Dimensions in parantheses apply to released contacts
MODELS

AGV-Collector - 2-phase, 200 A
Insulated collector for vehicle installation, with two contact brushes each for charging, two pilot contacts and a bristle cleaning brush

AGV-Base Plate
Insulated Floor contact plate with two copper contact plates for charging and two pilot copper contact plates.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 200-2/20-2-01</td>
<td>3.000</td>
<td>590 198</td>
</tr>
<tr>
<td>BLK 200-2/25-2-01</td>
<td>2.700</td>
<td>590 062</td>
</tr>
</tbody>
</table>

AGV-Collector - 2-phase, 20 A
Insulated collector for vehicle installation, with two contact brushes

AGV-Base Plate
Insulated Floor contact plate, with two copper contact plates.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 20-2-01</td>
<td>0.500</td>
<td>590 207</td>
</tr>
<tr>
<td>BLK 25-2-01</td>
<td>0.700</td>
<td>590 042</td>
</tr>
</tbody>
</table>

* height at contact position
** Dimensions in parantheses apply to released contacts
AGV-Collector - single phase, 200 A
Insulated collector for vehicle installation, with one contact brush and one bristle cleaning brush (to be used in pairs).

AGV-Base Plate
Insulated Floor contact plate, complete with single copper contact.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 200-1-01 W</td>
<td>1.300</td>
<td>590 035</td>
</tr>
<tr>
<td>BLK 200-1-01 W</td>
<td>1.000</td>
<td>590 036</td>
</tr>
</tbody>
</table>

AGV-Collector - single phase, 600 A
Insulated collector for vehicle installation, with three contact brushes and one bristle cleaning brush (to be used in pairs).

AGV-Base Plate
Insulated Floor contact plate, complete with single copper contact.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 600-1 A-01</td>
<td>4.100</td>
<td>590 043</td>
</tr>
<tr>
<td>BLK 600-1-01</td>
<td>3.000</td>
<td>590 044</td>
</tr>
</tbody>
</table>

* height at contact position
** Dimensions in parantheses apply to released contacts
MODELS

**AGV-Collector - 2-phase, 200 A**
Insulated collector for vehicle installation, with two contact brushes and cover pusher.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 200-2 E-01 M</td>
<td>2.400</td>
<td>590 065</td>
</tr>
</tbody>
</table>

**AGV-Base Plate**
Insulated Floor contact plate with two copper contacts, spring loaded cover and 2 x 2 m connecting cables.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLK 200-2 EA-02 M</td>
<td>3.900</td>
<td>590 064</td>
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</tbody>
</table>

**AGV-Collector - 2-phase, 200 A**
Insulated collector for vertical installation on the battery charger, with two contact brushes.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LST 200-2 E-01 J</td>
<td>36.000</td>
<td>590 060</td>
</tr>
</tbody>
</table>

**AGV-Base Plate**
Insulated contact plate for vertical installation on side of vehicle, with two copper contacts.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight/kg</th>
<th>Cat.-No.</th>
</tr>
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<tbody>
<tr>
<td>BLK 200-2-01 J</td>
<td>2.300</td>
<td>590 014</td>
</tr>
</tbody>
</table>

* height at contact position  
** Dimension in parantheses apply to released contacts  
*** Dimension incl. cover
Install AGV-collectors on vehicle with bristle cleaning brushes in direction of travel.

Install AGV-Base Plate on top of the floor

The *marked height 68 (65, 45) of AGV-Collectors type BLS is the dimension at contact position. Allowable tolerance: ± 2 mm.

In order to guarantee sufficient contact pressure the max. wear reduction of the contact brushes is limited to 5 mm whereby the unevenness of the floor must be considered.

Between base plate and cutout at concrete floor a dust- and waterproof sealing has to be installed.

Example of installation BLS 200-2-01 with BLK 200-2-01

* consider unevenness of Floor when setting clearance for contact brushes
--- install sealing at concrete cutout.

In accordance with our company’s policy of continued improvement, we reserve the right to amend specifications and details at any time.
Catalog No. 1b/E 2005

Catalog No.

Copperhead Conductor Systems 1a
Battery Charging Systems 1b
Insulated Conductor Systems U 10 2a
Insulated Conductor Systems U 20 – U 30 – U 40 2b
Insulated Conductor Systems U 15 – U 25 – U 35 2c
Aluminium Enclosed Conductor Systems LSV – LSVG 3a
Powerail Enclosed Conductor Systems KBSL – KSL – KSLT – KSG 4a
Powerail Enclosed Conductor Systems VKS – VKL 4b
Powerail Enclosed Conductor System MKLD – MKLF – MKLS 4c
Powerail Enclosed Conductor System KS–10 4d
Powerail Enclosed Conductor System KBH 4e
Heavy Enclosed Conductor Systems 5
Trolley Wire and Accessories 6
Cable Tenders 7
Cable Carriers for □-tracks 8a
Cable Carriers for Flat Cable on □-beams 8bF
Cable Carriers for Round Cable on □-beams 8bR
Cable Carriers for ◇-tracks 8c
Conductor Cables and Fittings 8L
Spring Operated Cable Reels 9a
VAHLE POWERCOM® – Data Transmission Systems 9c
CPS® – Contactless Power Supply 9d
SMG – Slotted Microwave Guide 9e
WCS – Position Encoding System 9f
Motor Powered Cable Reels 10