Connectors for rail vehicles
Series B
Connectors for rail vehicles, Series B

The connectors, series B, have been designed especially for the demanding railcar environment. They are superbly suited for power and control circuits on road and rail vehicles alike.

The power connectors can be used in applications up to 600 V DC and 400 V AC respectively. By adding control contacts, protection circuits may be realised such as the interlocking circuit shown in the diagram below.

**Features**

- Rugged design
- Universally useable connectors for power and control circuits
- Easy replacement of components
- Easy assembly resulting in short assembly times
- Mechanically locking connector

**Standards**

- **IEC 61984**: Connectors - Safety requirements and tests
- **DIN 40050-9**: Road vehicles; degrees of protection (IP-code); protection against foreign objects, water and contact; electrical equipment
- **IEC 60664-1**: Insulation coordination for equipment within low-voltage systems

**Application** Interlocking circuit to protect personnel from contact with dangerous voltages

**Intended use:**

The main contactor will apply voltage to the power circuit only when all covers are closed and all plugs have been inserted into their respective operating or dummy receptacles. At dis-engagement of a connector the control contacts (Pos. 1 and 4) interrupt the control circuit before the power contacts disconnect. Thus the main contactor interrupts power before the power contacts actually break their circuit.

**Components comprising the safety loop:**

- 2 plugs B ST with insert and 2 additional control contacts (e.g. pin insert B E-3P+PE+2 /M)
- 2 receptacles B Dx with contact bridge on cover, equipped with additional loop and control contacts (e.g. socket insert B E-3S+PE+2 /M)
- 2 dummy receptacles B BD with contact insert B E-2P /P with both control contacts (Pos. 2) bridged

**Stock items**

Presented in this catalogue are only stock items that can be supplied in short delivery time.

**Special variant**

If you need a special variant feel free to contact us. Maybe the type of connector you are looking for is among our many special designs. If not, we can also supply customized designs. In this case, however, minimum order quantities apply.
### Specifications

#### Series B, number of contacts max. |

<table>
<thead>
<tr>
<th>2+PE</th>
<th>2+PE + 3 pole</th>
<th>2+PE + 2 pole</th>
<th>2+PE + 2 + 2 pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>B E-2P+PE /M</td>
<td>B E-2P+PE+3 /M</td>
<td>B E-2P+PE+2 /M</td>
<td>B E-2S+PE+2+2 /M</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

#### Contact arrangement

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Contact identification marked on insert:
- Socket insert: Rear view
- Pin insert: Front view

#### Main contacts

- **Max. rated current of individual contact**
- **Rated voltage (IEC 60038)**
- **at PD3 (IEC 60512)**
- **Contact type**
- **Terminals**

<table>
<thead>
<tr>
<th></th>
<th>2 x 400 A</th>
<th>2 x 400 A</th>
<th>2 x 200 A</th>
<th>2 x 200 A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500 V</td>
<td>500 V</td>
<td>400 / 230 V</td>
<td>400 / 230 V</td>
</tr>
<tr>
<td></td>
<td>Screws M12x25</td>
<td>Screws M12x25</td>
<td>Screws M10x25</td>
<td>Screws M10x25</td>
</tr>
</tbody>
</table>

#### PE contact*

- **Contact type**
- **Terminal**

<table>
<thead>
<tr>
<th>V</th>
<th>Screw M10x25</th>
<th>Screw M10x25</th>
<th>Screw M10x25</th>
<th>Screw M10x25</th>
</tr>
</thead>
</table>

#### Control contacts

- **Max. rated current of individual contact**
- **Rated voltage (IEC 60038)**
- **at PD3 (IEC 60512)**
- **Contact type**
- **Crimp type**

<table>
<thead>
<tr>
<th></th>
<th>3 x 16 A</th>
<th>2 x 35 A</th>
<th>2 x 35 A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60 / 25 V</td>
<td>400 / 230 V</td>
<td>60 / 25 V</td>
</tr>
<tr>
<td></td>
<td>Screws M6x10</td>
<td>Screws M5x10</td>
<td>Screws M5x10</td>
</tr>
</tbody>
</table>

#### Loop contacts

- **Max. rated current of individual contact**
- **Rated voltage (IEC 60038)**
- **at PD3 (IEC 60512)**
- **Contact type**
- **Terminals**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>2 x 16 A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>60 / 25 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Screws M5x10</td>
</tr>
</tbody>
</table>

#### Contact resistance (IEC 60512-2)

- **< 10 mΩ**

#### Insulation resistance (IEC 60512-2)

- **> 100 MΩ**

#### Operating temperature **

- **-40° C ... +85° C**

#### Degree of protection when mated or locked (EN 60529)

- **IP54**

#### Test standard (EN 60068-1)

- **-25/70/21**

#### Mechanical endurance (mating cycles) (IEC 60512-5, test 9a)

- **1,000**

#### Materials

- **Housing**
- **Inserts,**
- **Seals**
- **Contacts**
- **Finish**

### Notes

* PE = protective earthing contact
** Operating temperatures exceeding 25° C account for lower current ratings!
### Specifications

<table>
<thead>
<tr>
<th>Series B, number of contacts max.</th>
<th>3+PE + 2 pole</th>
<th>3+PE + 4 pole</th>
<th>4+PE</th>
<th>4 + 29 pole</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inserts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pin insert</td>
<td>B E-3P+PE+2 /M</td>
<td>---</td>
<td></td>
<td>B E-4P+29 /ML</td>
</tr>
<tr>
<td>Socket insert</td>
<td>---</td>
<td>B E-3S+PE+2 /M</td>
<td></td>
<td>B E-4S+29 /ML</td>
</tr>
<tr>
<td>Dummy insert</td>
<td>---</td>
<td>B E-2P /P</td>
<td></td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>B E-4P+PE /M</td>
<td>B E-4S+PE /M</td>
<td></td>
<td>---</td>
</tr>
</tbody>
</table>

### Contact arrangement

<table>
<thead>
<tr>
<th>Contact identification marked on insert:</th>
<th>3</th>
<th>2</th>
<th>6</th>
<th>1</th>
<th>2</th>
<th>1</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socket insert: Rear view</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pin insert: Front view</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Main contacts

- **Max. rated current of individual contact**
- **Rated voltage (IEC 60038)**
- **at PD3 (IEC 60512)**
- **Contact type**
- **Terminals**
- **Screws**

<table>
<thead>
<tr>
<th></th>
<th>3 x 200 A</th>
<th>3 x 200 A</th>
<th>4 x 100 A</th>
<th>4 x 100 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. rated current</td>
<td>400 / 230 V</td>
<td>400 / 230 V</td>
<td>400 / 230 V</td>
<td>60 / 25 V</td>
</tr>
<tr>
<td>Contact type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminals</td>
<td>Screws M10x25</td>
<td>Screws M10x25</td>
<td>Screws M8x20</td>
<td>Screws M8x20</td>
</tr>
</tbody>
</table>

### PE contact*

- **Contact type**
- **Terminal**
- **Screws**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. rated current</td>
<td>2 x 35 A</td>
<td>29 x 20 A</td>
</tr>
<tr>
<td>Contact type</td>
<td>C</td>
<td>H</td>
</tr>
<tr>
<td>Terminals</td>
<td>Screws M5x10</td>
<td>Solder, 4 mm² max.</td>
</tr>
</tbody>
</table>

### Control contacts

- **Max. rated current of individual contact**
- **Rated voltage (IEC 60038)**
- **at PD3 (IEC 60512)**
- **Contact type**
- **Terminals**
- **Crimp type**

<table>
<thead>
<tr>
<th></th>
<th>2 x 35 A</th>
<th>2 x 35 A</th>
<th>---</th>
<th>29 x 20 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. rated current</td>
<td>400 / 230 V</td>
<td>60 / 25 V</td>
<td>---</td>
<td>60 / 25 V</td>
</tr>
<tr>
<td>Contact type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminals</td>
<td>Screws M5x10</td>
<td>Screws M5x10</td>
<td>---</td>
<td>Screws M5x10</td>
</tr>
<tr>
<td>Crimp type</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

### Loop contacts

- **Max. rated current of individual contact**
- **Rated voltage (IEC 60038)**
- **at PD3 (IEC 60512)**
- **Contact type**
- **Terminals**
- **Crimp type**

<table>
<thead>
<tr>
<th></th>
<th>---</th>
<th>2 x 16 A</th>
<th>---</th>
<th>---</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. rated current</td>
<td>---</td>
<td>60 / 25 V</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Contact type</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Terminals</td>
<td>---</td>
<td>Screws M5x10</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Crimp type</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

### Contact resistance (IEC 60512-2)

<table>
<thead>
<tr>
<th></th>
<th>&lt; 10 mΩ</th>
<th>&lt; 10 mΩ</th>
<th>&lt; 10 mΩ</th>
<th>&lt; 10 mΩ</th>
</tr>
</thead>
</table>

### Insulation resistance (IEC 60512-2)

<table>
<thead>
<tr>
<th></th>
<th>&gt; 100 MΩ</th>
<th>&gt; 100 MΩ</th>
<th>&gt; 100 MΩ</th>
<th>&gt; 100 MΩ</th>
</tr>
</thead>
</table>

### Operating temperature **

<table>
<thead>
<tr>
<th></th>
<th>-40° C...+85° C</th>
<th>-40° C...+85° C</th>
<th>-40° C...+85° C</th>
<th>-40° C...+85° C</th>
</tr>
</thead>
</table>

### Degree of protection when mated or locked (EN 60529)

<table>
<thead>
<tr>
<th></th>
<th>IP54</th>
<th>IP54</th>
<th>IP54</th>
<th>IP54</th>
</tr>
</thead>
</table>

### Test standard (EN 60686-1)

<table>
<thead>
<tr>
<th></th>
<th>-25/70/21</th>
<th>-25/70/21</th>
<th>-25/70/21</th>
<th>-25/70/21</th>
</tr>
</thead>
</table>

### Mechanical endurance (mating cycles) (IEC 60512-5, test 9a)

<table>
<thead>
<tr>
<th></th>
<th>1,000</th>
<th>1,000</th>
<th>1,000</th>
<th>1,000</th>
</tr>
</thead>
</table>

### Materials

- **Housing**
- **Inserts, Seals**
- **Contacts Finish**

<table>
<thead>
<tr>
<th></th>
<th>Die-cast aluminium / painted RAL 7031</th>
<th>Thermoplastic / Thermostet</th>
<th>Perbunan, Neoprene</th>
<th>Copper, crimpable</th>
<th>Ag</th>
</tr>
</thead>
</table>

---

**PE** = protective earthing contact

**Operating temperatures exceeding 25° C account for lower current ratings!**
## Specifications

### Series B, number of contacts max.

<table>
<thead>
<tr>
<th>Inserts</th>
<th>28 pole + PE</th>
<th>29 pole</th>
<th>59 pole + PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin insert</td>
<td>B E-28P+PE /M</td>
<td>B E-29P /M</td>
<td>B E-59P+PE /Cxx</td>
</tr>
<tr>
<td>Socket insert</td>
<td>B E-28S+PE /M</td>
<td>B E-29S /M</td>
<td>B E-59S+PE /Cxx</td>
</tr>
<tr>
<td>Dummy insert</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

### Contact arrangement

- **Contact identification marked on insert:**
  - Socket insert: Rear view
  - Pin insert: Front view

- **Main contacts**
  - Max. rated current of individual contact
  - Rated voltage (IEC 60038) at PD3 (IEC 60512)
  - Contact type
  - Terminals

- **PE contact**
  - Contact type
  - Terminal

- **Control contacts**
  - Max. rated current of individual contact
  - Rated voltage (IEC 60038) at PD3 (IEC 60512)
  - Contact type
  - Terminals
  - Crimp type

- **Loop contacts**
  - Max. rated current of individual contact
  - Rated voltage (IEC 60038) at PD3 (IEC 60512)
  - Contact type
  - Terminals

- **Contact resistance (IEC 60512-2)**
- **Insulation resistance (IEC 60512-2)**
- **Operating temperature**
  - Operating temperatures exceeding 25°C account for lower current ratings!

- **Degree of protection when mated or locked (EN 60529)**
- **Test standard (EN 60068-1)**
  - Test conditions: (tmin[°C]/tmax[°C]/ttesting time[days])
- **Mechanical endurance (mating cycles)**
  - (IEC 60512-5, test 9a)

### Materials

- **Housing**
- **Inserts,**
- **Seals**
- **Contacts**
- **Finish**

---

* PE = protective earthing contact

** Operating temperatures exceeding 25°C account for lower current ratings!
### B series Plug Overview

<table>
<thead>
<tr>
<th>Housing part 2</th>
<th>Housing part 1</th>
<th>Contact</th>
<th>Insert</th>
</tr>
</thead>
<tbody>
<tr>
<td>B VS Pg42/25-29</td>
<td>B ST Pg42</td>
<td>B E-2P+PE /M</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>Ferrule</td>
<td>Plug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(page 9)</td>
<td></td>
<td>B E-2P+PE /3 /M</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>B VS Pg42/30-35</td>
<td>B ST Pg48</td>
<td>B E-2P+PE /2 /M</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>Ferrule</td>
<td>Plug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(page 9)</td>
<td></td>
<td>B E-3P+PE /2 /M</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>B VS M48/25-30</td>
<td>B ST M48</td>
<td>B E-4P+PE /M</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>Ferrule</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(page 9)</td>
<td></td>
<td>B E-4P+29 /ML</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>B VS Pg48/26-41</td>
<td>B ST Pg48</td>
<td>B E-28P+PE /M</td>
<td>Pin inserts including crimp contacts (page 12)</td>
</tr>
<tr>
<td>Ferrule</td>
<td>Plug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(page 9)</td>
<td></td>
<td>B E-5P+PE /1,5</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>B VS Pg48/42-48</td>
<td></td>
<td>B E-5P+PE /2,5</td>
<td>Pin insert (page 12)</td>
</tr>
<tr>
<td>Ferrule</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(page 9)</td>
<td></td>
<td>B E-5P+PE</td>
<td>Pin insert without crimp contacts (page 12)</td>
</tr>
<tr>
<td>Insert</td>
<td>Contact</td>
<td>Housing part 1</td>
<td>Housing part 2</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>B E-25+PE+3 /M</td>
<td>Socket insert (page 12)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-25+PE+2+2 /M</td>
<td>Dummy insert (page 12)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-35+PE+2 /M</td>
<td>Socket insert</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-28+PE+4 /M</td>
<td>Socket insert (page 12)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-45+PE+4 /M</td>
<td>Socket insert (page 12)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-28+PE+2 /M</td>
<td>Socket insert</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-59S+PE+2</td>
<td>Socket inserts including crimp contacts (page 12)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B E-59S+PE+2</td>
<td>Socket inserts without crimp contacts (page 12)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
<tr>
<td>B HC-1.50-Ag or B HC-2.50-Ni</td>
<td>Socket contact, crimp (page 13)</td>
<td>[Insert Image]</td>
<td>[Insert Image]</td>
</tr>
</tbody>
</table>
**B ST Pg42** Plug for ferrule with Pg42 thread

Housing Part 1

Note: Matching ferrule, available for different cable sizes - diameters 25 - 29 and 30 - 35 resp., to be ordered separately:
- B VS Pg42/25-29
- B VS Pg42/30-35

**B ST M48** Plug for ferrule with M48 thread

Housing Part 1

Note: Matching ferrule to be ordered separately:
- B VS M48/25-30

**B ST Pg48** Plug for ferrule with Pg48 thread

Housing Part 1

Note: Matching ferrule, available for different cable sizes - diameters 36 - 41 and 42 - 48 resp., to be ordered separately:
- B VS Pg48/36-41
- B VS Pg48/42-48
**B VS Pg42/25-29, B VS Pg42/30-35 Ferrule**

<table>
<thead>
<tr>
<th>Ordering code</th>
<th>Fig.</th>
<th>Thread size</th>
<th>Cable diameter [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>B VS Pg42/25-29</td>
<td>A</td>
<td>Pg42</td>
<td>25 ... 29</td>
</tr>
<tr>
<td>B VS Pg42/30-35</td>
<td>B</td>
<td>Pg42</td>
<td>30 ... 35</td>
</tr>
</tbody>
</table>

*Note:* Ferrule and cable clamp intended for use with plug B ST Pg42

**B VS M48/25-30 Ferrule**

<table>
<thead>
<tr>
<th>Ordering code</th>
<th>Thread size</th>
<th>Cable diameter [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>B VS M48/25-30</td>
<td>M48</td>
<td>30 ... 35</td>
</tr>
</tbody>
</table>

*Note:* Ferrule intended for use with plug B ST M48

**B VS Pg48/36-41, B VS Pg48/42-48 Ferrule**

<table>
<thead>
<tr>
<th>Ordering code</th>
<th>Fig.</th>
<th>Thread size</th>
<th>Cable diameter [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>B VS Pg48/36-41</td>
<td>A</td>
<td>Pg48</td>
<td>36 ... 41</td>
</tr>
<tr>
<td>B VS Pg48/42-48</td>
<td>B</td>
<td>Pg48</td>
<td>42 ... 48</td>
</tr>
</tbody>
</table>

*Note:* Ferrule and cable clamp or part of clamp intended for use with plug B ST Pg48
**B DL Pg29** Receptacle with 90° cable entry for ferrule with Pg29 thread, locked

**B DL** Receptacle long

**B DK R** Receptacle short with contact bridge on cover

Note: Gasket supplied with the product

Note: Gasket and Pg29 threaded bushing supplied with the product

Reduced scale diagrams / dimensions in mm
**B DK Receptacle short**

Housing part 1

Note: Gasket supplied with the product

**B BD Dummy receptacle**

Housing part 1

Note: Gasket supplied with the product

**B VD Pg48 Cover with Pg48 thread**

Housing part 2

Note: Screws and washers supplied with the product

Reduced scale diagrams / dimensions in mm
### Pin and socket inserts

**Series B**

**Inserts**
- **Pin insert**
- **Socket insert**
- **Dummy insert**

**Contact arrangement**
- **Contact identification marked on insert:**
  - **Socket insert:** Rear view
  - **Pin insert:** Front view

<table>
<thead>
<tr>
<th><strong>Number of contacts max.</strong></th>
<th>2 + PE</th>
<th>2 + PE + 3 pole</th>
<th>2 + PE + 2 pole</th>
<th>2 + PE + 2 + 2 pole</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inserts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pin insert</td>
<td>B E-2P+PE /M</td>
<td>B E-2P+PE+3 /M</td>
<td>B E-2P+PE+2 /M</td>
<td>B E-2P+PE+2+2 /M</td>
</tr>
<tr>
<td>Socket insert</td>
<td>B E-2P+PE+2 /M</td>
<td>B E-2S+PE+3 /M</td>
<td>B E-2S+PE+2 /M</td>
<td>B E-2S+PE+2+2 /M</td>
</tr>
<tr>
<td>Dummy insert</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Contact arrangement**
- **Contact identification marked on insert:**
  - **Socket insert:** Rear view
  - **Pin insert:** Front view

**Main contacts**
- **Contact type**
  - **Terminals**
    - **Screws M12x25**
    - **Screws M10x25**

**PE contact**
- **Contact type**
  - **Terminals**
    - **Screws M12x25**
    - **Screws M10x25**

**Control contacts**
- **Contact type**
  - **Terminals**
    - **Screws M5x10**

**Crimp type**
- **Screws M5x10**

**Number of contacts max.**
- **3 + PE + 2 pole**
- **3 + PE + 4 pole**
- **4 pole + PE**
- **4 + 29 -pole**

**Inserts**
- **Pin insert**
- **Socket insert**
- **Dummy insert**

**Contact arrangement**
- **Contact identification marked on insert:**
  - **Socket insert:** Rear view
  - **Pin insert:** Front view

**Main contacts**
- **Contact type**
  - **Terminals**
    - **Screws M10x25**

**PE contact**
- **Contact type**
  - **Terminals**
    - **Screws M10x25**

**Control contacts**
- **Contact type**
  - **Terminals**
    - **Screws M5x10**

**Number of contacts max.**
- **28 pole + PE**
- **29 pole + PE**
- **59 pole + PE**

**Inserts**
- **Pin insert**
- **Socket insert**
- **Dummy insert**

**Contact arrangement**
- **Contact identification marked on insert:**
  - **Socket insert:** Rear view
  - **Pin insert:** Front view

**Main contacts**
- **Contact type**
  - **Terminals**

**PE contact**
- **Contact type**
  - **Terminals**

**Control contacts**
- **Contact type**
  - **Terminals**

---

*PE = protective earthing contact

**Note:** Accessories such as screws, lugs and crimp contacts are supplied with the product.

**Reduced scale diagrams / dimensions in mm**
Contacts Crimp (pin/socket)

Contacts SHC-x, BHC-x Crimp contacts (pin/socket):

<table>
<thead>
<tr>
<th>Pin contact</th>
<th>Ordering code</th>
<th>L1</th>
<th>Identification</th>
<th>Wire gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHC-1.50-Ag</td>
<td>43.6</td>
<td></td>
<td>2 grooves</td>
<td>Ø1.6</td>
</tr>
<tr>
<td>SHC-2.50-Ni</td>
<td>43.6</td>
<td></td>
<td>3 grooves</td>
<td>Ø2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Socket contact</th>
<th>Ordering code</th>
<th>L2</th>
<th>Identification</th>
<th>Wire gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHC-1.50-Ag</td>
<td>42.4</td>
<td></td>
<td>2 grooves</td>
<td>Ø1.6</td>
</tr>
<tr>
<td>BHC-2.50-Ni</td>
<td>42.4</td>
<td></td>
<td>3 grooves</td>
<td>Ø2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Termination</th>
<th>Wire gauge*</th>
<th>Rated current</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 mm²</td>
<td>16 A</td>
<td></td>
</tr>
<tr>
<td>2.5 mm²</td>
<td>27.5 A</td>
<td></td>
</tr>
</tbody>
</table>

**AWZ-x** Extraction tool

**CWZ-600** Crimp tool

**AWZ-C/H:** Extraction tool for contacts Type C and Type H

**CWZ-600:** Crimp tool for wire gauges* ranging from 0.14 mm² to 6 mm²

Reduced scale diagrams / dimensions in mm

Assembly  Receptacle B DL R with insert B E-3S+PE+2 /M

Socket insert   Front view

Mounting
4x M5 screw
Socket insert in housing

Loop contact
Contact travel approx. 3 mm

Socket insert   Rear view

Connecting lead
H07-K4 4 mm²
pre-assembled

Lug
10 mm² for connecting protective earth conductor to housing

Lug
4 mm²
Terminal M5
Terminal type: solder/crimp

Receptacle (Sectional view)

Lug 70 mm²
4 lugs 70 mm² for terminal M10 loosely enclosed.
Terminal type: solder.
Note: Slide shrink fitting tubings over all lugs!

Flat rubber gasket

Socket insert
B E-3S+PE+2 /M

Insulator on cover

Contact bridge

Loop contact
Contact travel approx. 3 mm

Auxiliary contact
Terminal M5

Main contact
Terminal M10

PE conductor @
connected to housing
Hex screw M6 x 8

Receptacle with contact bridge on cover B DL R

Mounting template  Series B

Mounting template for all receptacles:

- B DL Pg29  Receptacle for Pg29 threaded ferrule, locked
- B DL  Receptacle long
- B DL R  Receptacle short with contact bridge in cover
- B DK  Receptacle short
- B BD  Dummy receptacle

Reduced scale diagrams / dimensions in mm
**Pre-assembled cables** Signle and double ended connector cables

**Do you prefer a pre-assembled connector?**
Do not hesitate to contact us. We supply on request receptacles and plugs assembled complete with cables or wires to suit the customer’s specific requirements. Schaltbau offers a host of cable lengths and wire gauges to suit your application and guarantees a constant high quality of the assembled connectors.

**Double ended connector cable**

![Double ended connector cable diagram](image)

**Single ended connector cable**

![Single ended connector cable diagram](image)

**Quality assurance:**
- DIN EN ISO 9001:2000
- EN ISO 14001:1996

**Minimum order quantity:**
- The minimum quantity for which Schaltbau can accept an order is 50.
- For orders below that quantity we can name a certified manufacturer or authorized sales partner in your neighbourhood.
Electrical Components and Systems for Railway Engineering and Industrial Applications

Connectors
- Connectors manufactured to industry standards
- Connectors to suit the special requirements of communications engineering (MIL connectors)
- Charging connectors for battery-powered machines and systems
- Connectors for railway engineering, including UIC connectors
- Special connectors to suit customer requirements

Snap-action switches
- Snap-action switches with positive opening operation
- Snap-action switches with self-cleaning contacts
- Enabling switches
- Special switches to suit customer requirements

Contactors
- Single and multi-pole DC contactors
- High-voltage AC/DC contactors
- Contactors for battery powered vehicles and power supplies
- Contactors for railway applications
- Terminal bolts and fuse holders
- DC emergency stop switches
- Special contactors to suit customer requirements

Electrics for rolling stock
- Equipment for driver’s cab
- Equipment for passenger use
- High-voltage switchgear
- High-voltage heaters
- High-voltage roof equipment
- Equipment for electric brakes
- Design and engineering of train electrics to customer requirements

Schaltbau GmbH
Klausenburger Strasse 6
81677 Munich
Germany

Phone +49 89 9 30 05-0
Fax +49 89 9 30 05-350
e-Mail contact@schaltbau.de
Internet www.schaltbau.com