20kV - STRAIGHT COAXIAL CONNECTOR SERIES

FEATURES
- Rated Voltage 20kVDC
- Recessed contacts
- Coaxial design
- Bayonet Coupling
- Intermateable with industry standard 20kV coaxial connectors
- Completed cable assemblies available
- RoHS compliant

APPLICATIONS
- Instrument High Voltage Connections
- High voltage power supplies / amplifiers
- Medical electronics
- Nuclear instrumentation
- Test and measurement equipment
- High voltage laboratory wiring
- General high voltage testing

20kV reverse polarity coaxial high voltage connectors designed to minimize the risk of electrical shock to personnel through the use of recessed contacts. Both the cable connectors and the bulkhead receptacles have recessed contacts and will stand off the rated voltage in unmated condition.

The front mount receptacles are hermetically sealed.

The straight crimp cable plug HC52P and the rear mount crimp receptacles HC52RB are compatible with RG 213 or RG 214 coaxial cable. The straight cable plug HC52P-HTV30S is compatible with our 30kV rated HTV-30S-22-2 coaxial cable.

A suitable crimping tool is available on request.

The connectors are RoHS compliant.

The connectors should never be mated or unmated when energized.

Please see the HC51 series for 10kVDC models.

HC52 series connectors are not intermateable with SHV or HC51 series connectors.

SPECIFICATIONS
- Operating voltage: max. 20kVDC [at sea level]
- Test voltage: 30kVDC
- Impedance: non constant
- Insulation resistance: 1000GΩ
- Center contact resistance: ≤ 3mΩ
- Outer contact resistance: ≤ 2mΩ
- Operating temperature: -55 to +85°C
- Leak rate < 1x10⁻⁸ mbar*l/s @ 1bar differential pressure (applies to front mount bulkhead receptacles only)

Ratings listed above apply to clean mated connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure, etc.) the connector should be derated. The fitness for use must be proved by extended operational tests.
## HC52 Series

### MODEL OVERVIEW - PLUGS

<table>
<thead>
<tr>
<th>Part Number Description</th>
<th>Termination Contact</th>
<th>Contact Pin Material/Plating</th>
<th>Insulator Material</th>
<th>Body Material/Plating</th>
<th>Gasket Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC52P-213 /-214 Straight Crimp Cable Plug</td>
<td>Crimp</td>
<td>Beryllium Copper/Au over Ni over Cu</td>
<td>High Density PE</td>
<td>Brass/Ni over Cu</td>
<td>Silicone</td>
<td>51.2g</td>
</tr>
<tr>
<td>HC52P-HTV30S Straight Crimp Cable Plug</td>
<td>Crimp</td>
<td>Beryllium Copper/Au over Ni over Cu</td>
<td>High Density PE</td>
<td>Brass/Ni over Cu</td>
<td>Silicone</td>
<td>51.2g</td>
</tr>
</tbody>
</table>

### MODEL OVERVIEW - RECEPTACLES

<table>
<thead>
<tr>
<th>Part Number Description</th>
<th>Termination Center Contact</th>
<th>Contact Pin Material/Plating</th>
<th>Insulator Material</th>
<th>Body Material/Plating</th>
<th>Gasket Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC52RB-213 Rear Mount Bulkhead Crimp Receptacle</td>
<td>Crimp</td>
<td>Brass/Au over Ni over Cu</td>
<td>High Density PE</td>
<td>Brass/Sn-Zn-Cu Alloy over Cu</td>
<td>Silicone</td>
<td></td>
</tr>
<tr>
<td>HC52RB-A Front Mount Bulkhead Receptacle (long insulator)</td>
<td>Solder</td>
<td>Brass/Au over Ni over Cu</td>
<td>High Density PE</td>
<td>Brass/Sn-Zn-Cu Alloy over Cu</td>
<td>Silicone</td>
<td>58g</td>
</tr>
<tr>
<td>HC52RB-B Front Mount Bulkhead Receptacle (short insul.)</td>
<td>Solder</td>
<td>Brass/Au over Ni over Cu</td>
<td>High Density PE</td>
<td>Brass/Ni over Cu</td>
<td>Silicone</td>
<td>61g</td>
</tr>
</tbody>
</table>
**DIMENSIONS**

**HC52P-213 /-214**

**HC52P-HTV30S**

**HC52RB-213**

**HC52RB-A**

**HC52RB-B**

- All dimensions are in mm (inch); drawings not to scale.
- All values and dimensions without given tolerances are nominal.
**ORDERING INFORMATION**

- 20kV Straight Crimp Cable Plug (female) for RG 213: **HC52P-213**
- 20kV Straight Crimp Cable Plug (female) for RG 214: **HC52P-214**
- 20kV Straight Crimp Cable Plug (female) for HTV-30S-22-2: **HC52P-HTV30S**
- 20kV Rear Mount Bulkhead Crimp Receptacle (male) for RG 213: **HC52RB-213**
- 20kV Front Mount Bulkhead Receptacle (male, long insulator): **HC52RB-A**
- 20kV Front Mount Bulkhead Receptacle (male, short insulator): **HC52RB-B**

**CRIMP TOOLS**

- Ergonomic blank crimp tool frame: **HC-CR-2**
- Crimp Insert Hex 5.5mm, **5.9mm**, Square 0.98mm, 1.6mm, 2.4mm: **HC-CR-DIE-B**
- Crimp Insert Hex 2.55mm, 3.3mm, **10.7mm**, Square 1.6mm, 2.4mm: **HC-CR-DIE-C**

Bespoke ready-to-use high voltage cable assemblies based on different high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

Examples:
- Cable: HTV-30S-22-2; Length: 2m; **HC52P-HTV30S** plug assembled on both ends
  - HCA-020-H52C-002-H52C-T
- Cable: RG 213; Length: 10m; **HC52P-213** plug assembled on one end, **HC52RB-213** receptacle on the other end
  - HCA-020-H52A-010-H52R-X
  - HCA-020-H52C-002-H52C-T

**Disclaimer**

The information given in this data sheet is technical data, not assured product characteristics. It has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. The user has to ensure by adequate tests that the product is suitable for his application regarding safety and technical aspects.

**hivolt.de GmbH & Co. KG does not assume any liability arising out of the application or use of any product described.**

**Safety Advice**

Design, installation and inspection of machinery and devices carrying high voltage require accordingly trained and qualified personnel. Appropriate safety rules and directives must be complied with. Improper handling of high voltage can mean severe injuries or death and may cause serious collateral damage!
CABLE ASSEMBLY INSTRUCTIONS HC52P-213 AND HC52P-214

Step 1: strip as shown.
Make sure not to scratch the isolation!

Step 2: slide ferrule “E” over cable.

Step 3: put gasket “D” and pin “C” on center conductor and solder in “Y”.
Gasket must be under compression after soldering is completed.

Step 4: loosen braiding and slide connector “A” in place.

Step 5: slide ferrule “E” towards the connector “A” and crimp.
Use 10.7mm/0.421” hex crimp die insert HC-CR-DIE-C.

Step 6: Install interface gasket B over contact pin.

All dimensions are in mm [inch]; drawings not to scale.
### CABLE ASSEMBLY INSTRUCTIONS HC52P-HTV30S

<table>
<thead>
<tr>
<th></th>
<th>BODY</th>
<th>CONTACT PIN</th>
<th>FERRULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Step 1: strip as shown. Make sure not to scratch the isolation!

#### Step 2: slide ferrule “C” over cable.

#### Step 3: put pin “B” on center conductor and solder in “Y”.

#### Step 4: loosen braiding and slide connector “A” in place.

#### Step 5: slide ferrule “C” towards the connector “A” and crimp. Use 5.9mm/0.232inch hex crimp die insert HC-CR-DIE-B.

All dimensions are in mm [inch]; drawings not to scale.
### CABLE ASSEMBLY INSTRUCTIONS HC52RB-213

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Diagram of components" /></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Step 1:** strip as shown.  
Make sure not to scratch the isolation!

**Step 2:** slide ferrule “D” over cable.

**Step 3:** put and gasket “C” and pin “B” on center conductor and solder in “Y”.  
Gasket must be under compression after soldering is completed.

**Step 4:** loosen braiding and slide connector “A” in place.

**Step 5:** slide ferrule “D” towards the connector “A” and crimp.  
Use 10.7mm/0.421” hex crimp die insert **HC-CR-DIE-C**.

All dimensions are in mm [inch]; drawings not to scale.