57 SHV Series

SHV - STRAIGHT CABLE PLUG & SEALED BULKHEAD RECEPTACLE
5kVDC / 3.5kVRMS

**FEATURES**

- Rated Voltage 5kVDC / 3.5kVRMS
- Rated Current 500mA
- Completed cable assemblies available
- RoHS compliant

**APPLICATIONS**

- Safe high voltage laboratory wiring
- High voltage power supplies / amplifiers
- Nuclear instrumentation
- Test and measurement equipment

SHV (Safe High Voltage – Nuclear Instrumentation Module Standard) reverse polarity, coaxial high voltage connectors.

The straight cable plug 57K101-106N3 is compatible with standard RG58-C/U or our 20kV rated LSZH HRG58-20-2 coaxial cable for crimp assembly. For high temperature applications it can also be assembled with silicone insulated coaxial cable HSL-85-0.75-B-2. A suitable crimping tool is available on request.

The outer ground connection is maintained during unintended mating/unmating. The center contacts are recessed to prevent shock hazard when the connectors are mated. For personal safety the connectors should not be mated or unmated when energized! The connectors are RoHS compliant.

Remark: SHV and BNC connectors are not intermateable.

**SPECIFICATIONS**

- Impedance: 50Ω
- Frequency: DC to 300MHz
- Insulation resistance: ≥ 1000GΩ
- Center contact resistance: ≤ 2mΩ
- Outer contact resistance: ≤ 1.5mΩ
- Operating voltage: max. 5000VDC / 3500V RMS
- Test voltage: min. 10000VDC / 5000VRMS (at sea level)
- Operating current: 500mA (average) / 10A (peak)
- Mating cycles: min. 500
- Coupling nut retention: ≥ 450N [jack]
- Center contact captivation: ≥ 18N [axial] / ≥ 3Ncm [radial]
- Operating temperature: -55 to +155°C
- Weight straight cable plug: 20.4g
  bulkhead receptacle: 11.0g

**Material and plating**

<table>
<thead>
<tr>
<th>Connector part</th>
<th>Straight Cable Plug 57K101-106N3</th>
<th>Bulkhead Receptacle 57S501-200N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Plating</td>
<td>Material</td>
</tr>
<tr>
<td>Center contact</td>
<td>Beryllium copper</td>
<td>Gold, min. 1.27 μm, over nickel</td>
</tr>
<tr>
<td>Outer contact</td>
<td>Beryllium copper</td>
<td>Flash white bronze over silver</td>
</tr>
<tr>
<td>Body</td>
<td>Brass</td>
<td>Flash white bronze over silver</td>
</tr>
<tr>
<td>Dielectric</td>
<td>PTFE</td>
<td>-</td>
</tr>
<tr>
<td>Gasket</td>
<td>Silicone</td>
<td>-</td>
</tr>
</tbody>
</table>

57 SHV 01/2018 Page 1 of 3
### DIMENSIONS

- **STRAIGHT CABLE PLUG 57K101-106N3**

![Dimensions diagram of STRAIGHT CABLE PLUG 57K101-106N3]

- **BULKHEAD RECEPTACLE 57S501-200N3**

![Dimensions diagram of BULKHEAD RECEPTACLE 57S501-200N3]

Dimensions are in mm. Drawings not to scale.

### ORDERING INFORMATION

**SHV Straight Cable Plug (female)**

- 57K101-106N3

**SHV Bulkhead Receptacle (male)**

- 57S501-200N3

The SHV plug can be assembled by the user (see next chapter for assembly instructions).

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

Examples:

- **Cable:** HRG58-20-2; **Length:** 2m; **SHV plug assembled on both sides**
  - HCA-005-S01-002-S01-A

- **Cable:** HSL-85-0.75-B-2; **Length:** 80m; **SHV plug assembled on one side**
  - HCA-005-S01-080-B

### ACCESSORIES

**Bend Relief for Cable Plug**

- 1Z526-006SW
ASSEMBLY INSTRUCTIONS – CABLE PLUG

1. Components of the connector:
   A: ferrule
   B: center pin
   C: connector body

2. □ If a bend relief should be used, slide it onto the cable (recommended).
   □ Slide ferrule A onto the cable.
   □ Remove cable jacket according to the diagram
   □ Do not damage the shield wires!
   □ Shorten the braid and remove the dielectric insulation according to the diagram (dimensions in mm).
   □ Do not damage the dielectric insulation!
   □ Carefully remove loose shield wires completely. Loose shield wires can cause electrical breakdown.

3. □ Push center pin B over the inner conductor of the cable up to the dielectric and crimp or solder.
   □ Splay out the braid.

4. □ Insert the prepared cable into the connector body C until the center pin engages perceptibly. Ensure that the braid covers the knurled connector end.
   □ Slide ferrule A over the braid up to the connector body and crimp as close to the connector body as possible.
   □ If present, slide the bend relief over the ferrule and push it firmly against the connector body.

⚠ Important notes:
   1. Carefully read assembly instructions before starting the assembly process.
   2. Cable assembly must only be done by trained and qualified personnel.
   3. Insulation and conduction properties of the completed cable assembly must be tested prior to operation.

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.
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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!