HC52 Series

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20kV - STRAIGHT COAXIAL CONNECTOR SERIES

FEATURES

- Rated Voltage 20kV$_{DC}$
- 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

DESCRIPTION

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 cable plug **HC52P-58** is compatible with our 20kV rated **HRG58-20-2** and our 40kV rated **HRG303-40-B-2** coaxial cable.

The straight cable plug **HC52P-HTV30S** is compatible with our 30kV rated **HTV-30S-22-2** coaxial cable.

The straight cable plugs **HC52P-213** and **HC52P-214** are compatible with our 20kV rated **HRG213-20-B-2**, **HRG213-20-C-2** or standard RG 213 / RG 214 coaxial cable.

A suitable crimping tool is available on request.
The connectors are RoHS compliant.

The connectors must never be mated or unmated when energized.

Please see the HC51 series for 10kV$_{DC}$ models.
HC52 series connectors are not intermateable with SHV or HC51 series connectors.

SPECIFICATIONS

Operating voltage:	max. 20kV$_{DC}$ (at sea level)
Test voltage:	30kV$_{DC}$
Impedance:	non constant
Insulation resistance:	1000GΩ
Center contact resistance:	≤ 3mΩ
Outer contact resistance:	≤ 2mΩ
Operating temperature:	-55 to +85°C
Leak rate	< $1x10^{-6}$ mbar*l/s @ 1bar differential pressure (applies to front mount bulkhead receptacles **HC52RB-A /-B** 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.

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▪ MODEL OVERVIEW - PLUGS

Part Number Description	Termination Center Contact	Contact Pin Material/ Plating	Insulator Material	Body Material/ Plating	Gasket Material	Weight
HC52P-58 **HC52P-1672669** **HC52P-HTV30S** **Straight Crimp Cable Plug** 	Solder	Beryllium Copper/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	51.2g
HC52P-213 **HC52P-214** **Straight Crimp Cable Plug** 	Solder	Beryllium Copper/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	51.2g

▪ MODEL OVERVIEW - RECEPTACLES

Part Number Description	Termination Center Contact	Contact Pin Material/ Plating	Insulator Material	Body Material/ Plating	Gasket Material	Weight
HC52RB-A **Front Mount Bulkhead Receptacle (long insulator)** 	Solder	Brass/ Au over Ni over Cu	High Density PE	Brass/ Sn-Zn-Cu Alloy over Cu	Silicone	58g
HC52RB-B **Front Mount Bulkhead Receptacle (short insul.)** 	Solder	Brass/ Au over Ni over Cu	High Density PE	Brass/ Ni over Cu	Silicone	61g

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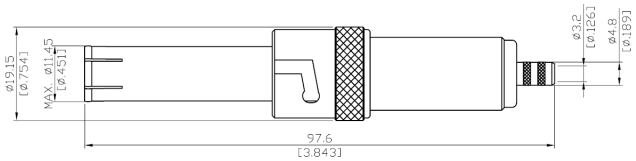
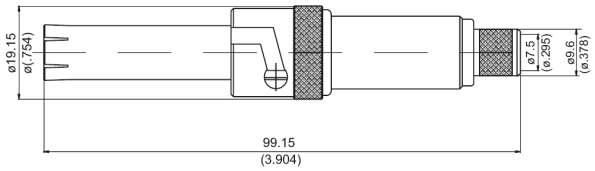
▪ DIMENSIONS

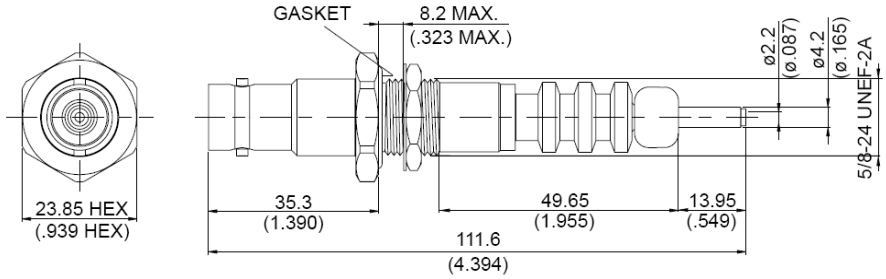
HC52P-58 /-1672669 /-HTV30S



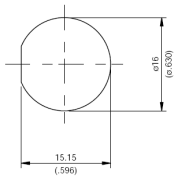
HC52P-213 /-214



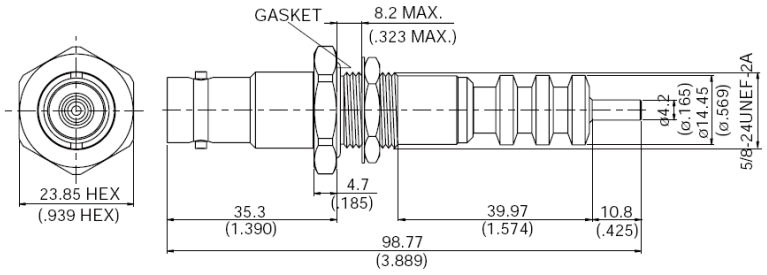
HC52RB-A



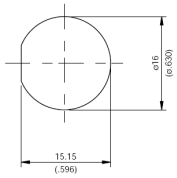
PANEL CUT-OUT



HC52RB-B



PANEL CUT-OUT



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

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ORDERING INFORMATION

20kV Straight Crimp Cable Plug (female) for RG 58	**HC52P-58**
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 167-2669	**HC52P-1672669**
20kV Straight Crimp Cable Plug (female) for HTV-30S-22-2	**HC52P-HTV30S**
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 suitable for crimp inserts **HC-CR-DIE-A, HC-CR-DIE-B, HC-CR-DIE-C**	**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**

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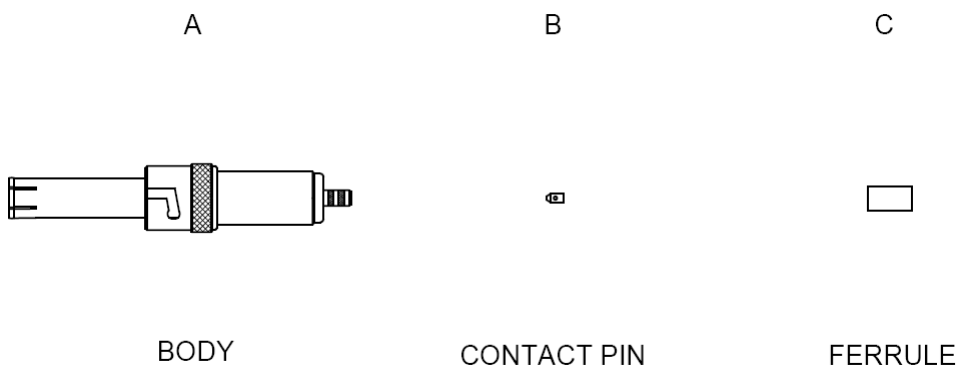
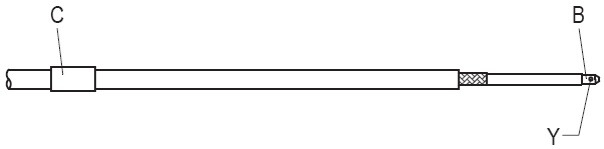
▪ CABLE ASSEMBLY INSTRUCTIONS HC52P-58, HC52P-1672669 AND HC52P-HTV30S

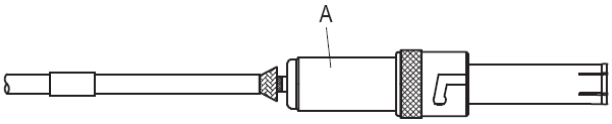


Step 1: strip as shown.
Make sure not to scratch the isolation!



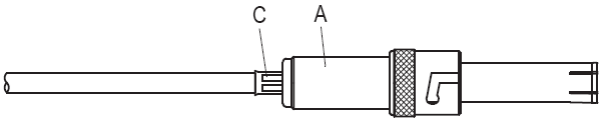
Step 2: slide ferrule "C" over cable.

Step 3: put pin "B" on center conductor and solder in "Y".



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

It is recommended to apply suitable high voltage silicon grease to the stripped part of the wire.



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

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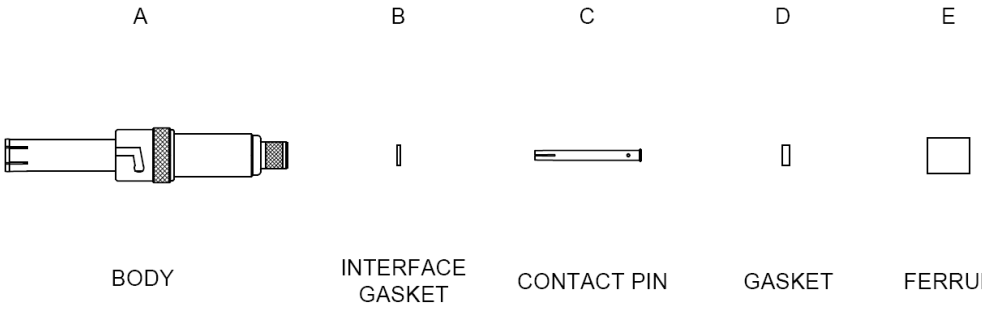
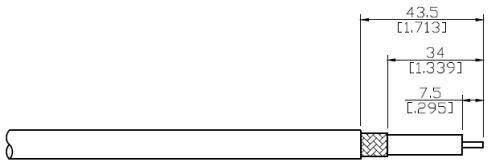
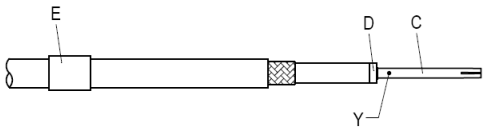
▪ CABLE ASSEMBLY INSTRUCTIONS HC52P-213 AND HC52P-214



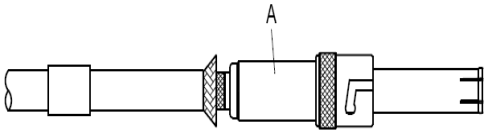


Step 1: strip as shown.
Make sure not to scratch the isolation!



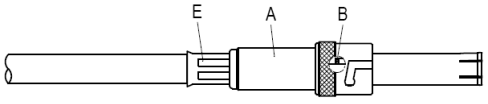
Step 2: slide ferrule “E” over cable.

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.

It is recommended to apply suitable high voltage silicon grease to the gasket and the stripped part of the wire.



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.

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