

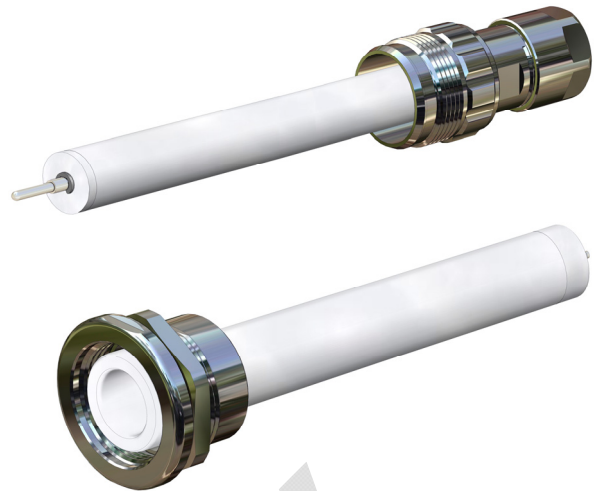
SINGLE POLE HIGH VOLTAGE CONNECTORS 10kV – 100kV

FEATURES

- Up to 100kV_{DC}
- Oil-Tight Receptacles Available
- PTFE Insulation
- Low Contact Resistance
- Extended Temperature Range
- Made in Germany
- Completed Cable Assemblies Available
- RoHS Compliant

APPLICATIONS

- Instrument High Voltage Connections
- Test Stations



DESCRIPTION

The single pole high voltage connector pairs HC7M-xx (cable mounting plug) and HC7F-xx (instrument mounting receptacle) are available for operating voltages of up to 100kV_{DC} in 30A or 80A versions. The connectors are suitable for use with shielded / screened high voltage cable.

The silver-plated central contact, the strong nickel-plated housing and the screw interlock warrant a safe and reliable connection. The cable is fixed to the connector housing by means of an integrated cable gland. The cylindrical wedging results in a strong mechanical connection and an excellent shield connection. Five different sizes of cable glands are available providing usability of a wide range of cable diameters. An external cable gland may be utilized using an M20x1.5 or M25x1.5 adaptor (xx-20 or xx-25 models, respectively).

The connectors are available with PTFE insulation and extended operating temperature range. Optionally the receptacles are available as oil-tight versions. Recessed male contacts may be ordered for the 20kV/80A connectors.

The HC7 plugs and receptacles are intermateable with their counterparts of the SB100 series.

SPECIFICATIONS

| | |
|----------------------------|---|
| Locking system: | threaded coupling |
| Termination inner contact: | solder (male contact), solder / screw (female contact) |
| Shield connection: | screw joint / cable gland |
| Contact surface: | Ag |
| Case material: | CuZn (brass), nickel plated |
| Insulation material: | PTFE (Teflon®), white |
| Flammability class: | UL94 V-0 |
| Temperature range: | -50°C to +200°C |
| Contact resistance: | 30A type (HC7xAx): max. 300μΩ 80A type (HC7xBx): max. 150μΩ |
| Wire gauge (plugs): | 30A type (HC7xAx): max. 2.5mm ² / bore hole: ø2.6mm 80A type (HC7xBx): max. 10mm ² / bore hole: ø4.8mm |
| Mating / unmating force: | 30A type (HC7xAx): 5.5N / 4N 80A type (HC7xBx): 15N / 10N |
| Mating cycles: | > 100000 |
| Inner cable diameter | max. 10mm |
| Suitable cable type: | shielded high voltage cable; numerous types available on request, e.g.: 2124 up to 100kV _{DC} , AWG16, PE / PVC, 11.2mm, universal HXC-60-1EA-8 up to 60kV _{DC} , AWG14, EPR / PVC, 11.1mm, highly flexible HSL-15S-6-A-9 up to 15kV _{DC} , AWG10, Silicone, 11.6mm, flexible, high temperature 2024SVJ up to 60kV _{DC} , AWG12, Silicone / PVC, 12.7mm, flexible HSUS-3012-65-2 up to 20kV _{DC} , AWG12, Silicone, 8.9mm, UL (internal wiring), highly flexible, high temperature |

Ratings listed above apply to clean 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.

MODEL OVERVIEW

| Model | | Operating Voltage | Type Test Voltage | Rated Current |
|--------------|------------|---------------------|---------------------|---------------|
| Plug | Receptacle | | | |
| HC7M-10A-x | HC7F-10A | 10kV _{DC} | 15kV _{DC} | 30A |
| HC7M-10B-x | HC7F-10B | 10kV _{DC} | 15kV _{DC} | 80A |
| HC7M-20A-x | HC7F-20A | 20kV _{DC} | 30kV _{DC} | 30A |
| HC7M-20B-x | HC7F-20B | 20kV _{DC} | 30kV _{DC} | 80A |
| HC7M-20B-x-P | HC7F-20B-P | 20kV _{DC} | 30kV _{DC} | 80A |
| HC7M-30A-x | HC7F-30A | 30kV _{DC} | 45kV _{DC} | 30A |
| HC7M-30B-x | HC7F-30B | 30kV _{DC} | 45kV _{DC} | 80A |
| HC7M-50A-x | HC7F-50A | 50kV _{DC} | 75kV _{DC} | 30A |
| HC7M-50B-x | HC7F-50B | 50kV _{DC} | 75kV _{DC} | 80A |
| HC7M-60A-x | HC7F-60A | 60kV _{DC} | 90kV _{DC} | 30A |
| HC7M-60B-x | HC7F-60B | 60kV _{DC} | 90kV _{DC} | 80A |
| HC7M-100A-x | HC7F-100A | 100kV _{DC} | 150kV _{DC} | 30A |
| HC7M-100B-x | HC7F-100B | 100kV _{DC} | 150kV _{DC} | 80A |

x: outer cable diameter code – see table below

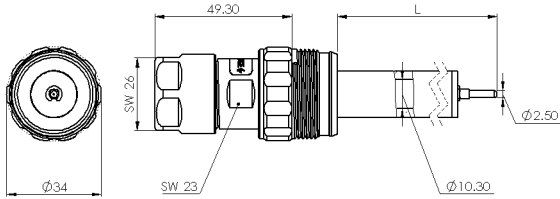
OUTER CABLE DIAMETER CODE

| Diameter Code | Outer Cable Diameter |
|---------------|----------------------|
| 1 | 6.5 – 8mm |
| 2 | 8 – 9.5mm |
| 3 | 9.5 – 11mm |
| 4 | 11 – 12.5mm |
| 5 | 12.5 – 14mm |
| 20 | adaptor M20x1.5 |
| 25 | adaptor M25x1.5 |

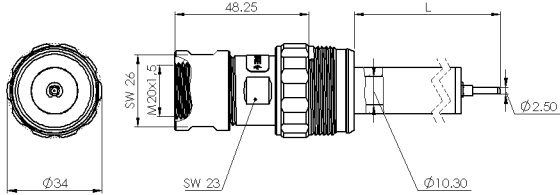
Bespoke ready-to-use high voltage cable assemblies based on several high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

■ DIMENSIONS 30A TYPE CONNECTORS

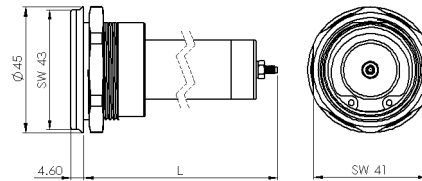
HC7M-xA-1 ... HC7M-xA-5



HC7M-xA-20



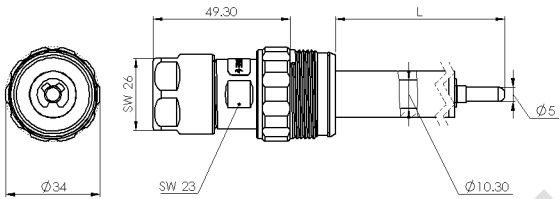
HC7F-xA, HC7F-xA-0



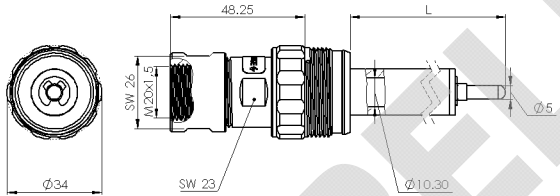
| Model | L | Model | L |
|-----------|--------|-----------|--------|
| HC7M-10A | 32.43 | HC7F-10A | 64.28 |
| HC7M-20A | 52.43 | HC7F-20A | 84.28 |
| HC7M-30A | 72.43 | HC7F-30A | 104.28 |
| HC7M-50A | 122.43 | HC7F-50A | 154.28 |
| HC7M-60A | 204.93 | HC7F-60A | 235.28 |
| HC7M-100A | 357.93 | HC7F-100A | 388.28 |

■ DIMENSIONS 80A TYPE CONNECTORS

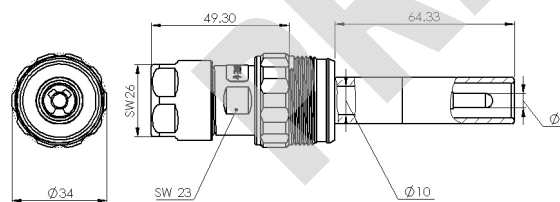
HC7M-xB-1 ... HC7M-xB-5



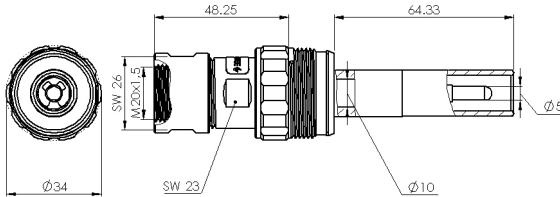
HC7M-xB-20



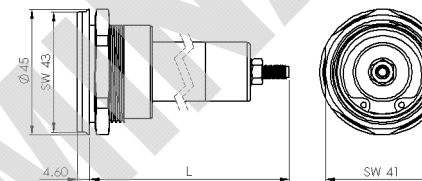
HC7M-20B-1-P ... HC7M-20B-5-P



HC7M-20B-20-P



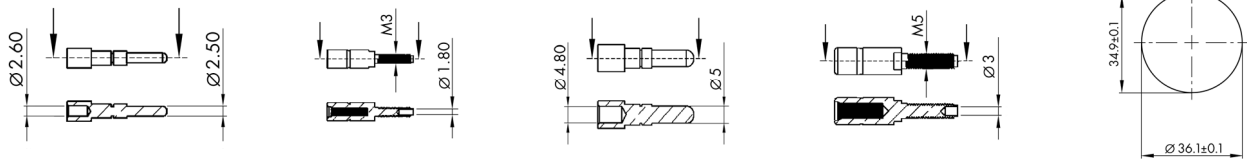
HC7F-xB, HC7F-xB-0, HC7F-20B-P, HC7F-20B-PO



| Model | L | Model | L |
|---------------|--------|------------|--------|
| HC7M-10B | 36.43 | HC7F-10B | 77.78 |
| HC7M-20B | 53.93 | HC7F-20B | 97.78 |
| HC7M-20B-xx-P | 64.33 | HC7F-20B-P | 97.78 |
| HC7M-30B | 76.43 | HC7F-30B | 117.78 |
| HC7M-50B | 126.43 | HC7F-50B | 167.78 |
| HC7M-60B | 208.93 | HC7F-60B | 249.78 |
| HC7M-100B | 361.93 | HC7F-100B | 402.78 |

Notes: "SW" = wrench size
Dimensions are in mm. Drawings not to scale

▪ **DIMENSIONS CONTACT 2.5MM (MALE / FEMALE) / 5MM (MALE / FEMALE) / PANEL CUT-OUT**



Note: Dimensions are in mm. Drawings not to scale

▪ **ORDERING INFORMATION**

| | | | | | | | | |
|-----------------------|----------------------------|---|---------------------------------------|--|---|--|---|---------|
| HC7 | M | - | 10 | A | - | 1 | - | 0 |
| Base Part Designation | M - Plug F - Receptacle | | Operating Voltage [kV _{oc}] | Contact size A - 2.5mm (30A) B - 5mm (80A) | | Outer Cable Diameter (plugs) 1 - 6.5-8mm 2 - 8-9.5mm 3 - 9.5-11mm 4 - 11-12.5mm 5 - 12.5-14mm 20 - adaptor M20 25 - adaptor M25 | | Options |

Examples: HC7M-10A-1 (HC7 series plug, 10kV, 30A, cable outer diameter 6.5-8mm)
 HC7M-20B-5-P (HC7 series plug, 20kV, 80A, cable outer diameter 12.5-14mm, recessed male contact)
 HC7F-100A (HC7 series receptacle, 100kV, 30A)
 HC7F-30B-0 (HC7 series receptacle, 30kV, 80A, oil-tight)

▪ **OPTIONS**

- O oil-tight receptacle
- P recessed male contact – only available for HC7x-20B connectors

Preferred items / minimum order quantities may apply.

Connectors for cable diameter larger than 14mm are available on request.

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!