

## SINGLE POLE HIGH VOLTAGE CONNECTORS 10kV – 100kV

### FEATURES

- Up to 100kV<sub>DC</sub>
- 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<sub>DC</sub> 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 series replaces the discontinued SB100 series. The HC7 plugs and receptacles are intermateable with their counterparts of the SB100 series.

**The connectors must never be mated or unmated when energized.**

### 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	
Operating temperature:	housing:	-30°C to +80°C
	insulation inserts:	-50°C to +200°C
Rated temperature contacts:	+120°C	
Contact resistance:	30A type (HC7xAx):	max. 300μΩ
	80A type (HC7xBx):	max. 150μΩ
Wire gauge (plugs):	30A type (HC7xAx):	max. 2.5mm <sup>2</sup> / bore hole: ø2.6mm
	80A type (HC7xBx):	max. 10mm <sup>2</sup> / 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.:	
	<b>2124</b>	up to 100kV <sub>DC</sub> , AWG16, PE / PVC, 11.2mm, universal
	<b>HXC-60-1EA-8</b>	up to 60kV <sub>DC</sub> , AWG14, EPR / PVC, 11.1mm, <b>highly flexible</b>
	<b>HSL-15S-6-A-9</b>	up to 15kV <sub>DC</sub> , AWG10, Silicone, 11.6mm, flexible, high temperature
	<b>2024SVJ</b>	up to 60kV <sub>DC</sub> , AWG12, Silicone / PVC, 12.7mm, flexible
	<b>HSC-50-1S1SUA-0</b>	up to 50kV <sub>DC</sub> , AWG16, Silicone, 11.7mm, highly flexible even at low ambient temperatures

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 <sub>DC</sub>	15kV <sub>DC</sub>	30A
HC7M-10B-x	HC7F-10B	10kV <sub>DC</sub>	15kV <sub>DC</sub>	80A
HC7M-20A-x	HC7F-20A	20kV <sub>DC</sub>	30kV <sub>DC</sub>	30A
HC7M-20B-x	HC7F-20B	20kV <sub>DC</sub>	30kV <sub>DC</sub>	80A
HC7M-20B-x-P	HC7F-20B-P	20kV <sub>DC</sub>	30kV <sub>DC</sub>	80A
HC7M-30A-x	HC7F-30A	30kV <sub>DC</sub>	45kV <sub>DC</sub>	30A
HC7M-30B-x	HC7F-30B	30kV <sub>DC</sub>	45kV <sub>DC</sub>	80A
HC7M-50A-x	HC7F-50A	50kV <sub>DC</sub>	75kV <sub>DC</sub>	30A
HC7M-50B-x	HC7F-50B	50kV <sub>DC</sub>	75kV <sub>DC</sub>	80A
HC7M-60A-x	HC7F-60A	60kV <sub>DC</sub>	90kV <sub>DC</sub>	30A
HC7M-60B-x	HC7F-60B	60kV <sub>DC</sub>	90kV <sub>DC</sub>	80A
HC7M-100A-x	HC7F-100A	100kV <sub>DC</sub>	150kV <sub>DC</sub>	30A
HC7M-100B-x	HC7F-100B	100kV <sub>DC</sub>	150kV <sub>DC</sub>	80A

x: outer cable diameter code – see table below

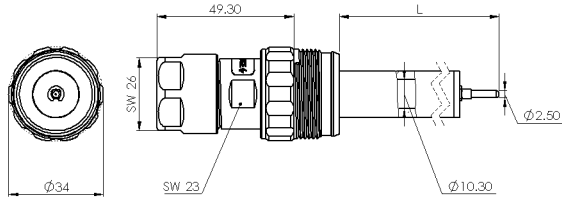
## ▪ OUTER CABLE DIAMETER CODE

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

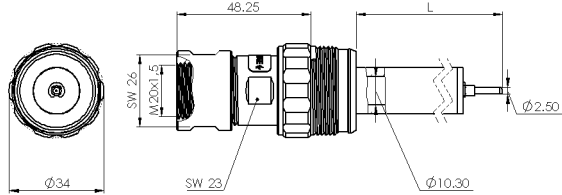
Bespoke ready-to-use high voltage cable assemblies based on several high voltage cable types are available. The cable assemblies are fully tested. Please contact hivolt.de for details.

## ■ DIMENSIONS 30A TYPE CONNECTORS

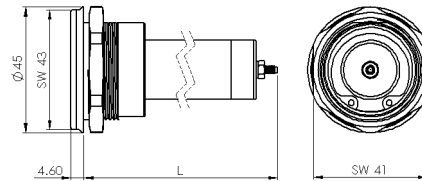
HC7M-xA-1 ... HC7M-xA-5



HC7M-xA-20



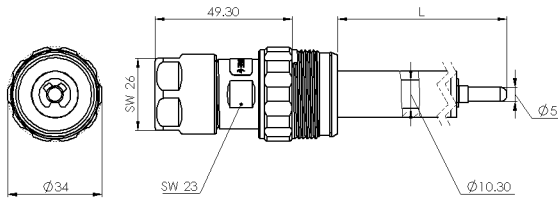
HC7F-xA, HC7F-xA-0



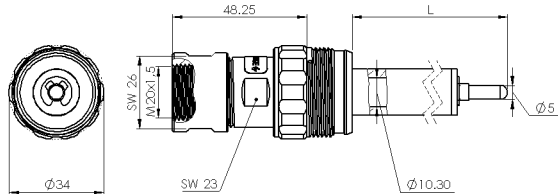
Model	L	Model	L
HC7M-10A	32.43	HC7F-10A	64.28
HC7M-20A	52.43	HC7F-20A	84.28
HC7M-30A	72.43	HC7F-30A	104.28
HC7M-50A	122.43	HC7F-50A	154.28
HC7M-60A	204.93	HC7F-60A	235.28
HC7M-100A	357.93	HC7F-100A	388.28

## ■ DIMENSIONS 80A TYPE CONNECTORS

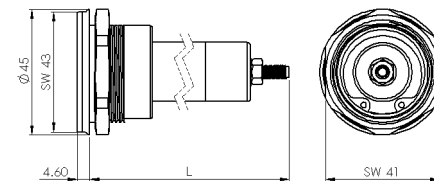
HC7M-xB-1 ... HC7M-xB-5



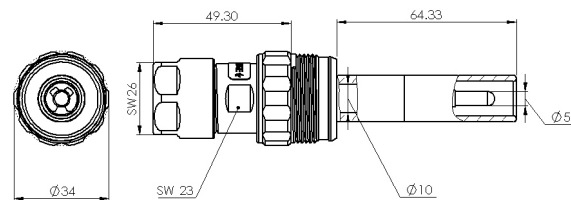
HC7M-xB-20



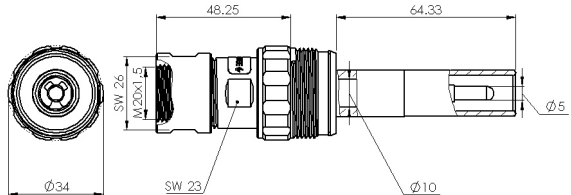
HC7F-xB, HC7F-xB-0, HC7F-20B-P, HC7F-20B-PO



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



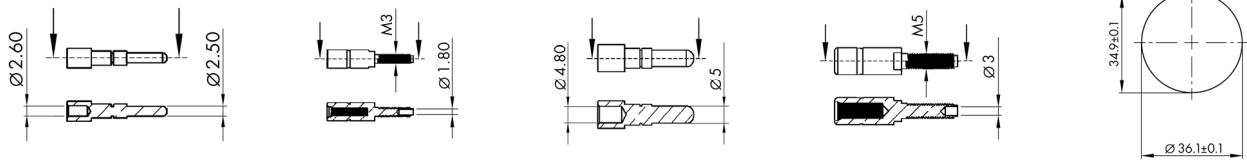
HC7M-20B-20-P



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**

<b>HC7</b>	<b>M</b>	-	<b>10</b>	<b>A</b>	-	<b>1</b>	-	<b>0</b>
Base Part Designation	M - Plug F - Receptacle		Operating Voltage [kV <sub>DC</sub> ]	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**

- 0 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.

**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!