HS/HB Series

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SINGLE POLE HIGH VOLTAGE CONNECTORS
10 / 20 / 30 / 40kV

FEATURES

- Up to 40kV$_{DC}$ / 30A
- 100,000 Mating Cycles
- UL94 V-0 Flammability Rating
- Extended Temperature Range
- Central Attachment
- Low Cost
- Made in Germany
- Completed cable assemblies available
- RoHS compliant

APPLICATIONS

- Instrument High Voltage Connections
- Test Stations

DESCRIPTION

The single pole high voltage connector pairs HSxx (cable mounting connector) and HBxx (instrument mounting socket) are available for operating voltages of 10kV$_{DC}$, 20kV$_{DC}$, 30kV$_{DC}$ and 40kV$_{DC}$. 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. Extended operating temperature range due to PTFE insulation. The 20kV models also with POM insulation.

The connectors must never be mated or unmated when energized.

Model		Operating Voltage	Test Voltage	Rated Current	Insulation material	Mounting type (panel mount connector HBxx)
Plug	**Receptacle**					
HS11-T	**HB11-T**	10kV$_{DC}$	15kV$_{DC}$	30A	PTFE	round flange
HS21	**HB21**	20kV$_{DC}$	30kV$_{DC}$	30A	POM	round flange
HS21-T	**HB21-T**	20kV$_{DC}$	30kV$_{DC}$	30A	PTFE	round flange
HS31-T	**HB31-T**	30kV$_{DC}$	45kV$_{DC}$	30A	PTFE	round flange
HS40-T	**HB40-T**	40kV$_{DC}$	60kV$_{DC}$	30A	PTFE	4-hole flange

SPECIFICATIONS

Termination inner contact:	soldering
Shield connection:	screw joint / cable gland
Contact surface:	Ag
Insulation material:	PTFE (Teflon®) white (POM (Delrin®) white on request for 20kV models)
Temperature range:	-30°C to +80°C
Insulation resistance:	$10^{16}\Omega$ (contact / housing)
Contact resistance:	max. 300 µΩ
Wire gauge:	max. 2.5mm² / bore hole: ø2.4mm
Mating / unmating force:	5.5N / 4.0N
Mating cycles:	100 000
Max. outer diameter - shielded:	6.0mm (6.5mm)
Max. inner insulation diameter:	5.0mm
Suitable cable types:	shielded high voltage cable; e.g:
	HPW-40S-0.5-A-2 up to 40kV$_{DC}$, PE / PUR, **LSZH**, universal
	130660 up to 30kV$_{DC}$, PE / PVC, universal
	HRG303-40-U-A-2 up to 40kV$_{DC}$, FEP / FEP, high temperature
	HRG58-20-2 up to 20kV$_{DC}$, PE / PUR, **LSZH**, universal
	HSL-8S-0.75-B-2 up to 8kV$_{DC}$, Silicone, high temperature
	HTV-30S-22-2 up to 30kV$_{DC}$, PE / PVC, UL (internal wiring)

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.

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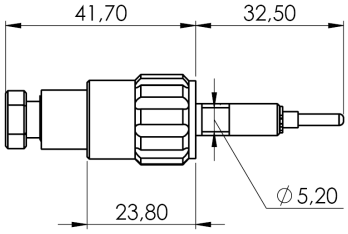
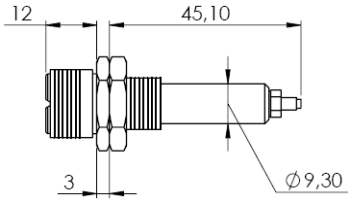
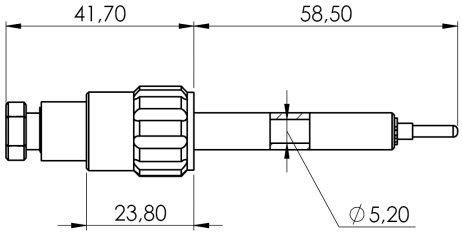
Ratings listed above apply to clean connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure etc.) the connector should be derated. The fitness for use must be proved by extended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

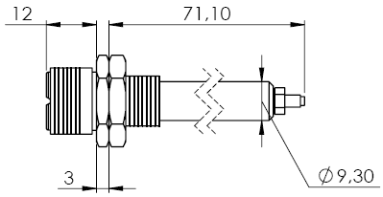
DIMENSIONS HS11 / HB11



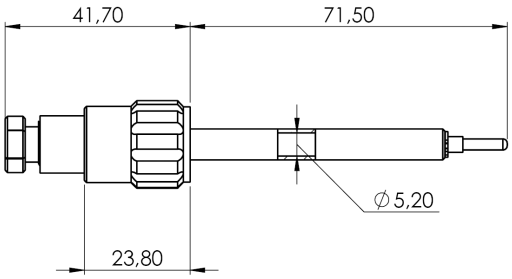


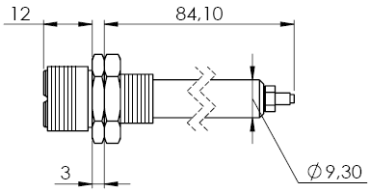
DIMENSIONS HS21 / HB21



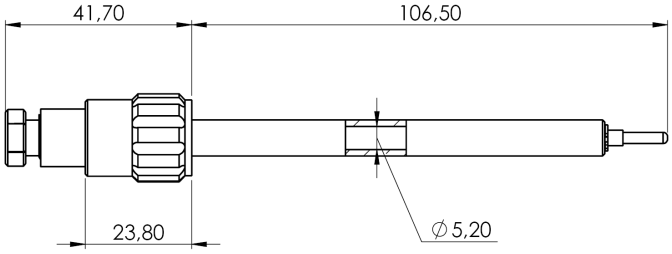


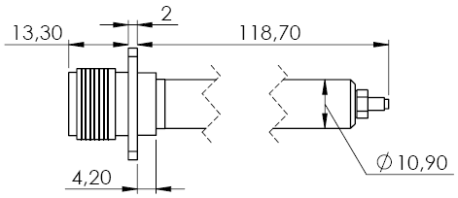
DIMENSIONS HS31 / HB31



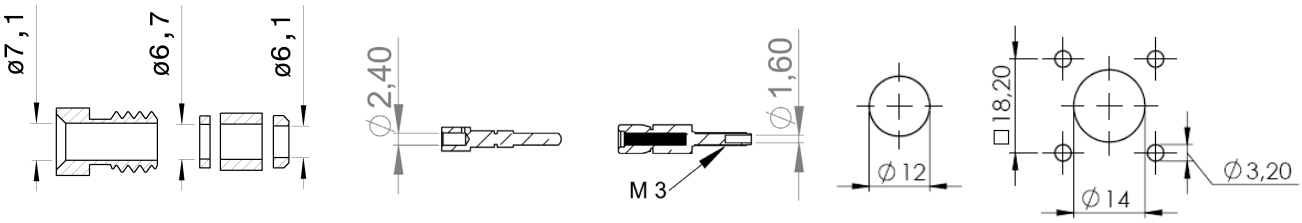


DIMENSIONS HS40 / HB40





DIMENSIONS CABLE GLAND / CONTACT HS / HB / PANEL CUT-OUT FOR ROUND / 4-HOLE FLANGE



Note: Dimensions are in mm. Drawings not to scale

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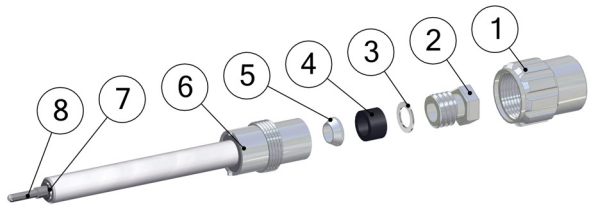
▪ ASSEMBLY INSTRUCTIONS - PLUG

1.

Part as delivered

2.

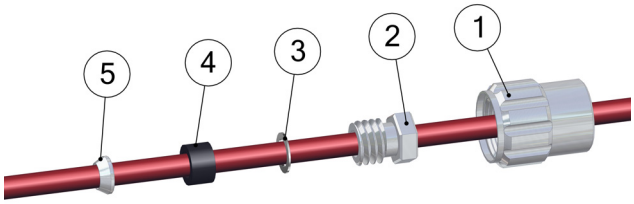


Parts included:
Screw joint (1), screw (2), washer (3), clamping rubber (4), outer cone (5), basic part (6), snap ring (7), male contact (8)

3.

Remove snap ring (7) and take out male contact (8)

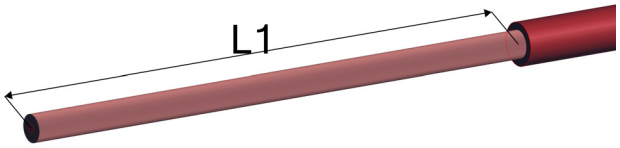
4.



Place screw joint (1), screw (2), washer (3), clamping rubber (4), outer cone (5) on cable

⚠ Respect correct order of parts (see picture)

5.

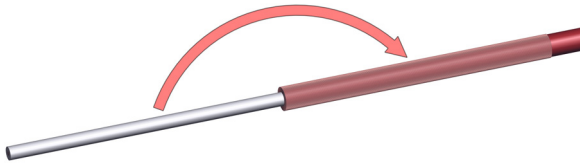


Remove cable jacket

⚠ Do not damage the shield wires. Do not damage the dielectric insulation.

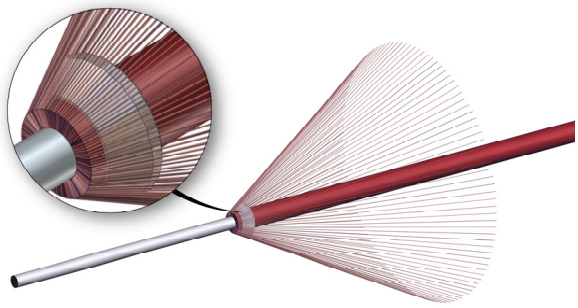
Model	L1 (mm)
HS11	31
HS21	56
HS31	69
HS40	104

6.



Fold back shield braid over jacket

7.



Prepare shield braid for cutting.
Completely widen braid. Push outer cone (5) completely under shield braid

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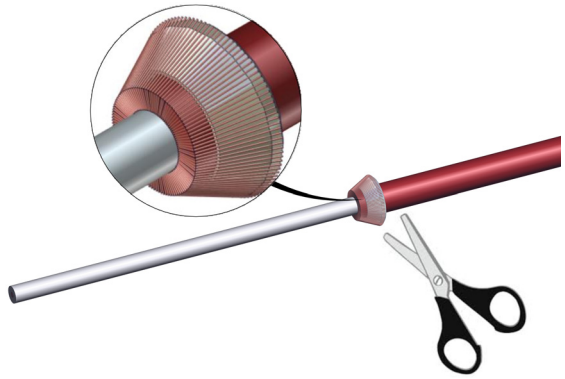
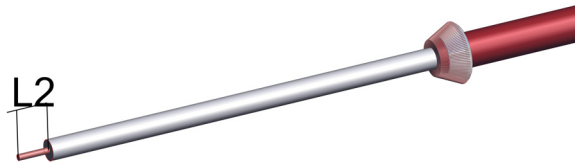
8.



Cut overlapping shield

⚠ Carefully remove loose shield wires completely.
Loose shield wires can cause electrical breakdown

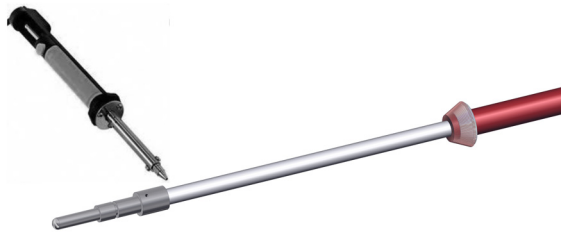
9.



Remove dielectric insulation (L2 = 5mm)

⚠ Do not damage the conductor

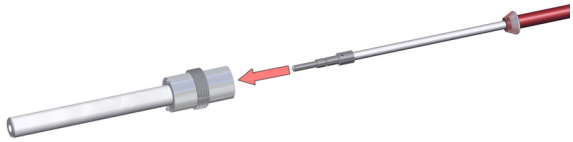
10.



Solder contact (8) on conductor

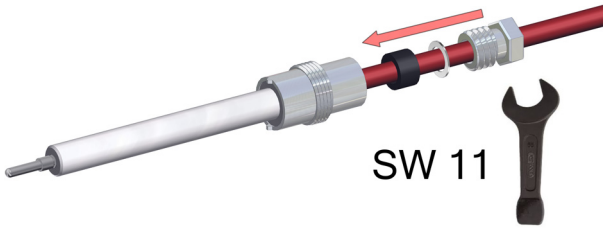
⚠ Tin-solder must not remain on contact surface

11.



Completely insert cable in basic part (6)

12.

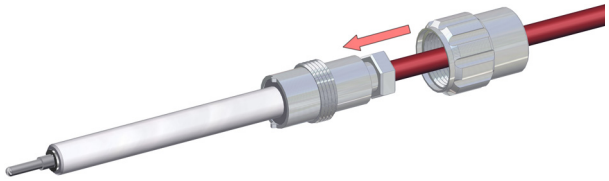


Completely slide clamping rubber (4) and washer (3) into basic part (6). Close housing with screw (2) (tightening torque = 3Nm)

13.

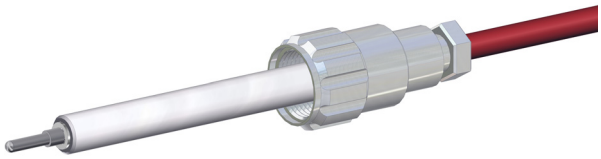
Secure male contact (8) with snap ring (7)

14.



Put screw joint (1) on basic part (6)

15.



Finished assembly

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▪ ASSEMBLY INSTRUCTIONS - RECEPTACLE

1.

Part as delivered (4-hole flange model shown)

2.

⚠ For shielded cables:
Fold back shield and make sure shield is insulated from solder point (conductor to contact - see step 4)
Appropriate creepage distance has to be followed.
The shield must be grounded on either or both ends depending on the application.
It is recommended to protect the shield wires with a heat shrinkable tube (heat shrinkable tube not included)

3.

Remove dielectric insulation

⚠ Do not damage the conductor

4.

Solder contact (8) on conductor

⚠ Tin-solder must not remain on contact surface

5.

It is recommended to protect solder point with a heat shrinkable tube (not included)

⚠ 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. 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!

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