

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

### FEATURES

- Up to 100kV<sub>DC</sub> / 30/80A
- Oil-tight Receptacles available
- UL94 V-0 Flammability Rating
- 100,000 Mating Cycles
- Extended Temperature Range
- Central Attachment
- Made in Germany
- Completed cable assemblies available
- RoHS compliant

### APPLICATIONS

- Instrument High Voltage Connections
- Test Stations

### DESCRIPTION

The single pole high voltage connector pairs S1xx (cable mounting plug) and B1xx (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 a metric cable gland. The cylindrical wedging results in a strong mechanical connection and an excellent shield connection. Three different sizes of cable glands (A / B / E) are available providing usability of a wide range of cable diameters.

The connectors are available with POM (SB135 – SB1100) or with PTFE (SB110 – SB165) insulation. PTFE insulation models have an extended operating temperature range. Optionally the receptacles are available as oil-tight versions.



Model		Operating Voltage	Test Voltage	Rated Current	Cable Diameter	
Plug	Receptacle				max. inner	outer
S110/A S110/B S110/E	B110	10kV <sub>DC</sub>	15kV <sub>DC</sub>	30A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S120/A S120/B S120/E	B120	20kV <sub>DC</sub>	30kV <sub>DC</sub>	30A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S130/A S130/B S130/E	B130	30kV <sub>DC</sub>	45kV <sub>DC</sub>	30A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S150/A S150/B S150/E	B150	50kV <sub>DC</sub>	75kV <sub>DC</sub>	30A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S160/A S160/B S160/E	B160	60kV <sub>DC</sub>	90kV <sub>DC</sub>	30A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S1100/A S1100/B	B1100	100kV <sub>DC</sub>	150kV <sub>DC</sub>	30A	10mm	7 - 12mm 10 - 14mm
S115/A S115/B S115/E	B115	10kV <sub>DC</sub>	15kV <sub>DC</sub>	80A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S125/A S125/B S125/E	B125	20kV <sub>DC</sub>	30kV <sub>DC</sub>	80A	10mm	7 - 12mm 10 - 14mm 5 - 10mm
S135/A S135/B	B135	30kV <sub>DC</sub>	45kV <sub>DC</sub>	80A	10mm	7 - 12mm 10 - 14mm
S155/A S155/B	B155	50kV <sub>DC</sub>	75kV <sub>DC</sub>	80A	10mm	7 - 12mm 10 - 14mm
S165/A S165/B	B165	60kV <sub>DC</sub>	90kV <sub>DC</sub>	80A	10mm	7 - 12mm 10 - 14mm

## ■ SPECIFICATIONS

Termination inner contact:	soldering	
Shield connection:	screw joint / cable gland	
Contact surface:	Ag (optionally: Au)	
Insulation material:	SB135, SB150, SB155, SB160, SB165, SB1100:	POM (Delrin®), white
	or	
	SB110-T, SB115-T, SB120-T, SB125-T, SB130-T, SB135-T, SB150-T, SB155-T, SB160-T, SB165-T:	PTFE (Teflon®), white
Temperature range:	-30°C to +120°C (POM) -50°C to +200°C (PTFE)	
Contact resistance:	30A type (S1x0):	max. 300µΩ
	80A type (S1x5):	max. 150µΩ
Wire gauge (plugs):	30A type (S1x0):	max. 2.5mm <sup>2</sup> / bore hole: ø2.4mm
	80A type (S1x5):	max. 10mm <sup>2</sup> / bore hole: ø4mm
Mating / unmating force:	30A type (S1x0):	5.5N / 4N
	80A type (S1x5):	15N / 10N
Mating cycles:	> 100000	
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-155-6-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>HSUS-1010-84-2</b>	up to 7kV <sub>DC</sub> , AWG10, Silicone, 8.7mm, UL (internal wiring), highly flexible, <b>high temperature</b>
	<b>HSUS-3012-65-2</b>	up to 20kV <sub>DC</sub> , AWG12, Silicone, 8.9mm, UL (internal wiring), highly flexible, <b>high temperature</b>

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.

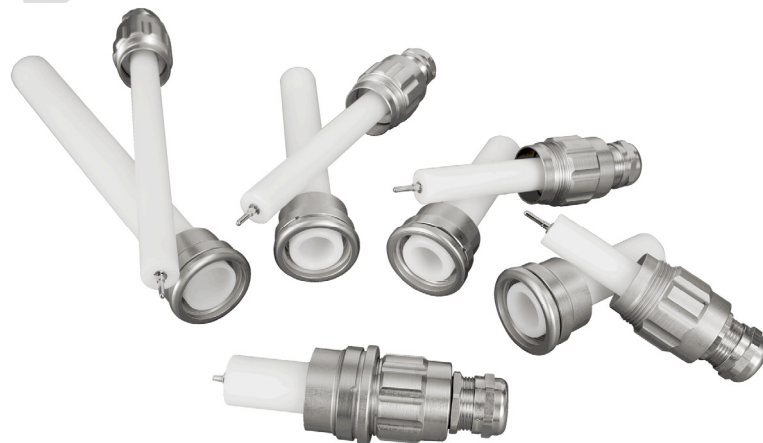
Ratings listed above apply to clean connector pairs in standard atmospheric conditions. When connectors are used in an adverse environment (such as high temperature, humidity, pollution content, extreme mechanical exposure etc.) the connector should be derated. The fitness for use must be proved by extended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

## ■ OPTIONS

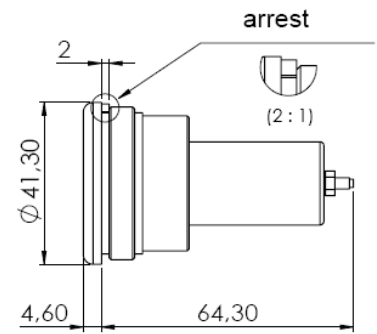
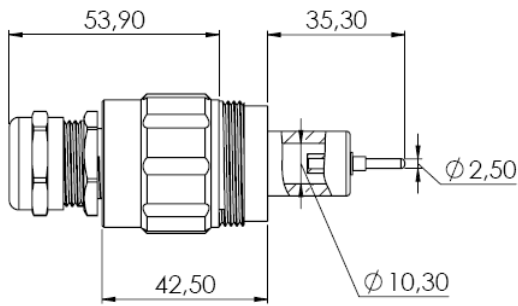
-T	PTFE insulators
-O	oil-tight receptacles
-AU	gold plated contacts

Preferred items / minimum order quantities may apply.

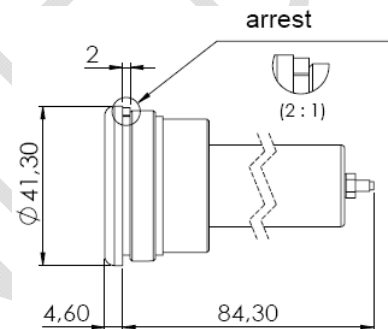
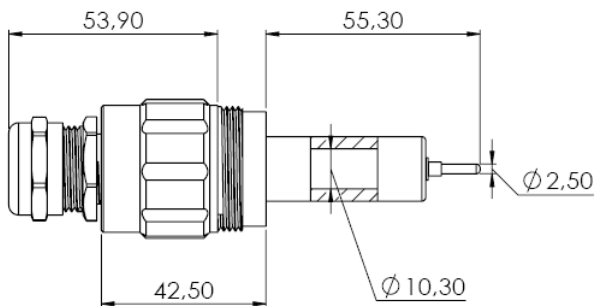
Connectors for cable diameter larger than 14mm are available on request.



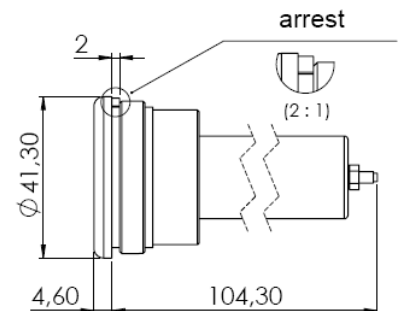
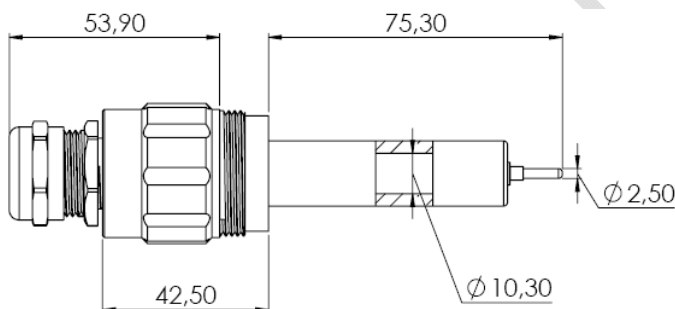
▪ **DIMENSIONS S110 / B110**



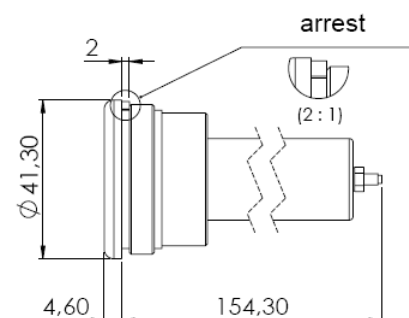
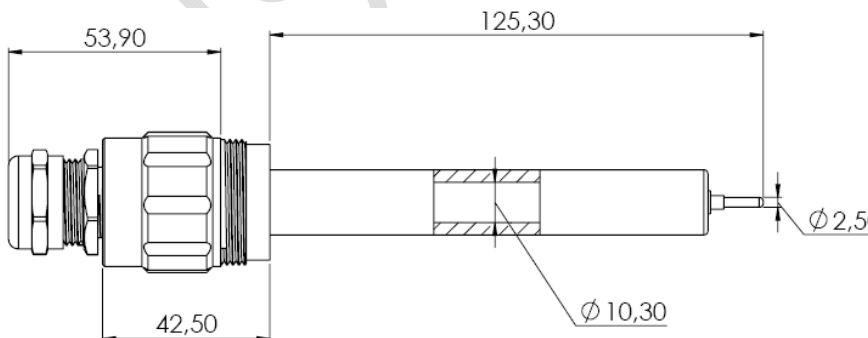
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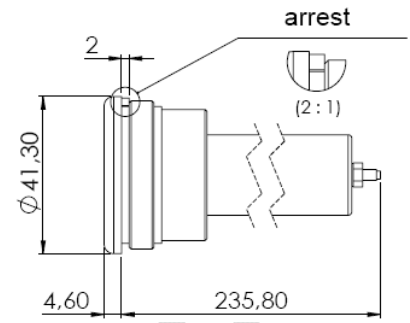
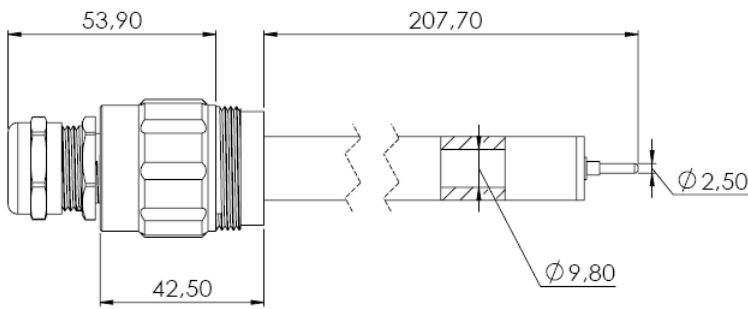
▪ **DIMENSIONS S130 / B130**



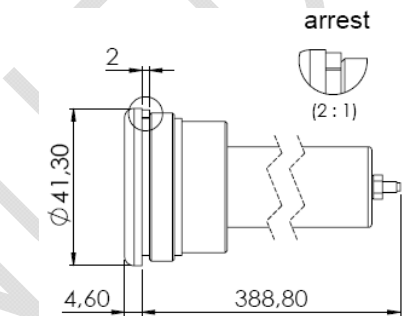
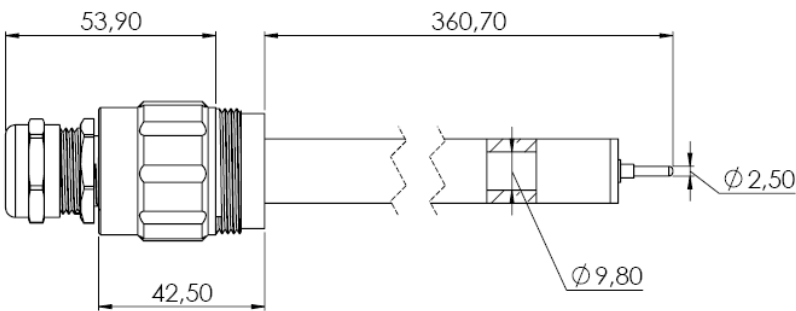
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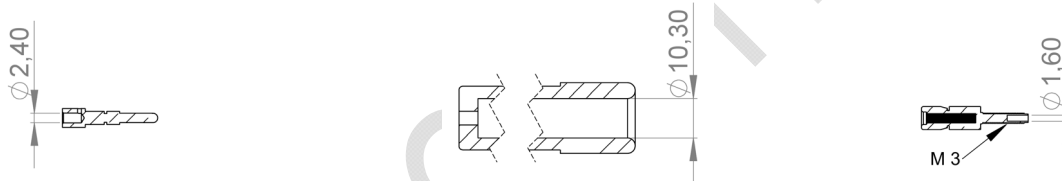
▪ **DIMENSIONS S160 / B160**



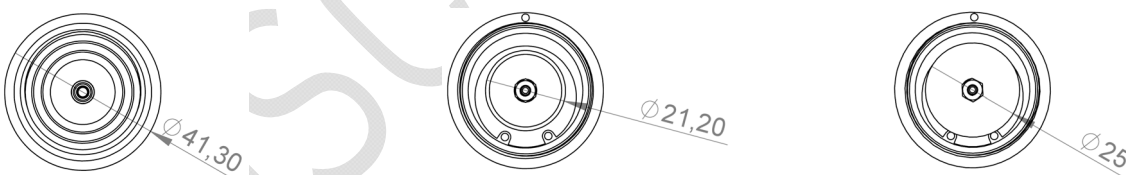
▪ **DIMENSIONS S1100 / B1100**



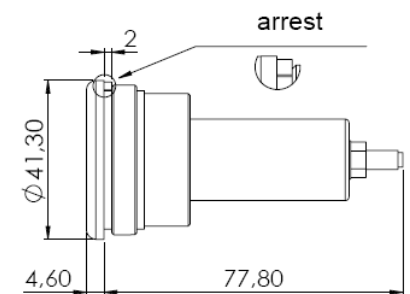
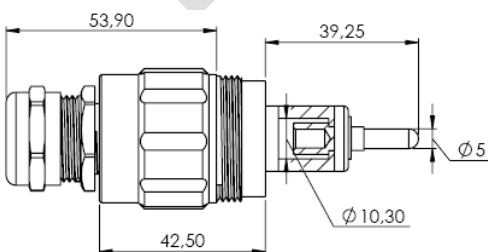
▪ **DIMENSIONS CONTACT S1X0 / ISOLATOR S1X0 / CONTACT B1X0**



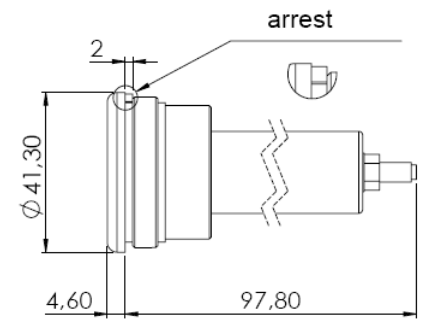
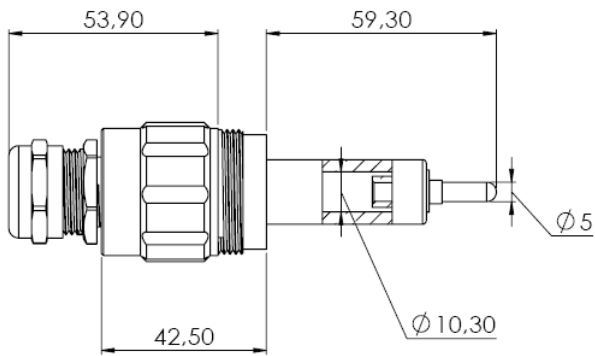
▪ **DIMENSIONS FRONT VIEW B1X0 / REAR VIEW B1X0 / REAR VIEW B160/B1100**



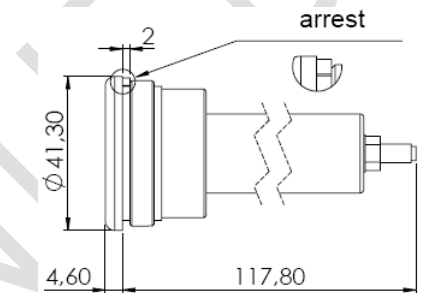
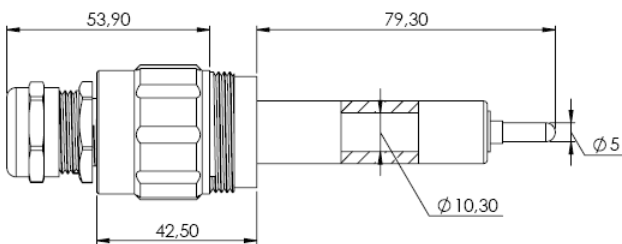
▪ **DIMENSIONS S115 / B115**



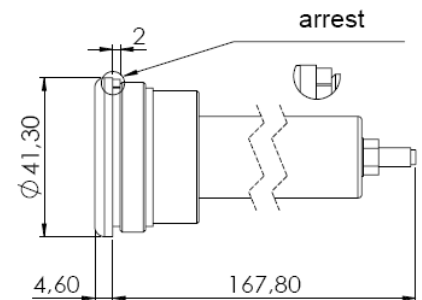
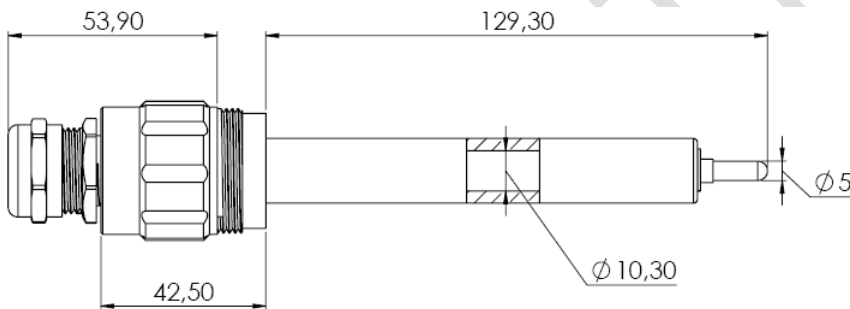
▪ **DIMENSIONS S125 / B125**



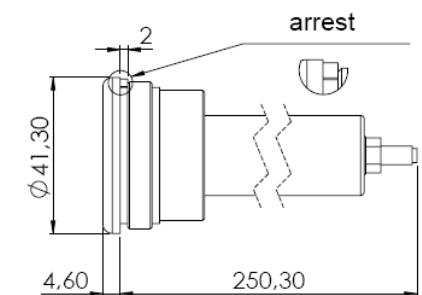
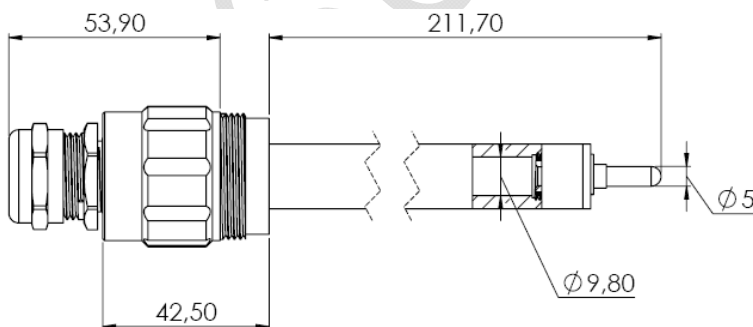
▪ **DIMENSIONS S135 / B135**



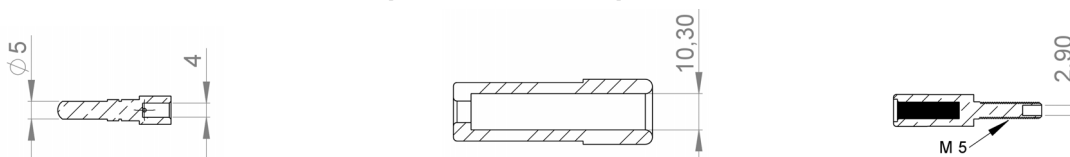
▪ **DIMENSIONS S155 / B155**



▪ **DIMENSIONS S165 / B165**



▪ **DIMENSIONS CONTACT S1X5 / ISOLATOR S1X5 / CONTACT B1X5**



Note: Dimensions are in mm. Drawings not to scale

## ASSEMBLY INSTRUCTIONS - PLUG

1.



Part as delivered

2.



Remove cap (1) and take out sealing insert (2) from housing (3)

3.



Remove snap ring (5), take out male contact (6) from insulation part (4)

4.



Place cap (1) and sealing insert (2) 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

Models	min. L1 (mm)	
	cable gland size A, B	cable gland size E
S110, S115	53	56.5
S120, S125	73	76.5
S130, S135	93	96.5
S150, S155	143	143.5
S160, S165	226	226
S1100	379	382

6.



Fold back shield braid over jacket

7.



Cut shield braid roughly about 30mm (L2)

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

8.



Remove dielectric insulation

Models	min. L3 (mm)
S110, S120, S130, S150, S160, S1100	5
S115, S125, S135, S155, S165	8

⚠ Do not damage the conductor

9.



Solder contact (6) on conductor

⚠ Tin-solder must not remain on contact surface

10.



Completely widen shield braid. Push seal insert (2) under shield braid

11.



Completely insert cable in insulation part (4) until seal insert (2) plugs in housing (3)

12.



Cut overlapping shield braid

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

13.



Screw cap (1) onto housing (3)

⚠ Wrench size: 24 / tightening torque 10Nm

14.



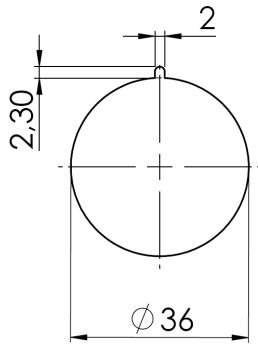
Secure male contact (6) with snap ring (5)

15.

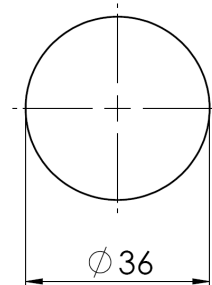


Finished assembly

## ▪ PANEL CUT-OUT



Standard receptacle



Oil tight receptacle

### ⚠ 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.