

Series SHV – high voltage connectors

Description

HUBER+SUHNER SHV (Safe High Voltage) connectors provide more secure handling: centre contacts are well recessed to prevent shock hazards in unmated condition. When mating a connector pair the outer conductor contact is made prior to the inner conductor contacts.

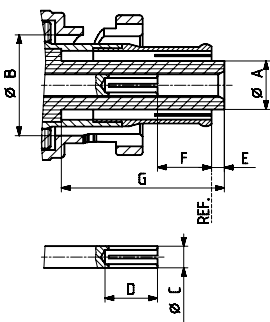
SHV connectors are suitable for all high voltage applications up to 5 kV DC or 3.5 kV rms. These connectors are typically used in nuclear instruments or test and measurement equipment. Voltages are valid for both, the mated and the unmated condition.

Content

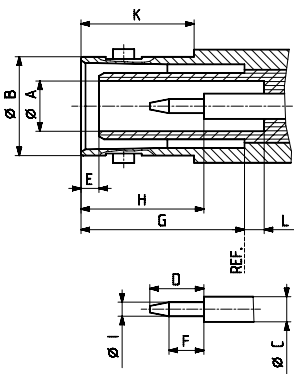
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Interface dimensions (mm/inches)

Plug (male)



Jack (female)



	Plug		Jack	
	min.	max.	min.	max.
A	4.57/0.180	4.72/0.186	4.83/0.190	4.98/0.196
B	9.78/0.385	9.91/0.390	9.60/0.378	9.70/0.382
C	2.06/0.081	-	2.06/0.081	-
D	5.44/0.214	-	5.26/0.207	5.44/0.214
E	1.17/0.046	1.63/0.064	1.55/0.061	1.98/0.078
F	4.42/0.174	-	3.30/0.130	-
G	15.90/0.626	16.10/0.634	15.90/0.626	16.00/0.630
H	-	-	11.59/0.456	12.70/0.500
I	-	-	1.32/0.052	1.37/0.054
K	-	-	10.85/0.427	-
L	-	-	1.63/0.064	2.18/0.086

Interface dimensions conformable to the standards:

International: IEC 60498, NIM ND-545
 USA: MIL-STD-348/314
 ANSI N 24.4

Series SHV – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC to 300 MHz
Dielectric withstanding voltage (at sea level)	5.0 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level)	3.5 kV rms, 50 Hz (depending on cable)
Insulation resistance	≥ 1 TΩ
Contact resistance <ul style="list-style-type: none"> • Centre contact • Outer contact 	≤ 2 mΩ ≤ 1.5 mΩ
Corona extinction voltage (at 21 000 m)	≥ 350 V rms, 50 Hz (depending on cable)
Current rating, continuous	≤ 10 A

Mechanical data	Requirements
Coupling nut torque	7 to 28 Ncm/0.6 to 2.5 in lbs
Coupling nut retention force	≥ 450 N/101.2 lbs
Contact captivation	≥ 27 N/6.1 lbs
Cable retention force ¹⁾	see pages 32 – 37
Durability (matings)	≥ 500

Environmental data	Test conditions (PTFE)	Test conditions (polystyrol)
Temperature range	–65 to +165 °C/–85 to +329 °F	–55 to +100 °C/–67 to +212 °F
Climatic category	IEC → 55/155/21	
Thermal shock	MIL-STD-202, method 107, condition B	
Moisture resistance	MIL-STD-202, method 103, condition B	
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B	
Vibration	MIL-STD-202, method 204, condition A	
Shock	MIL-STD-202, method 213, condition I	
Radiation resistance (with polystyrene dielectric)	≥ 10 ⁹ rad	

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
Crimp ferrules	copper	SUCOPLATE®
Insulators	PTFE or PFA	
Insulators (radiation resistant types)	polystyrol, crosslinked	

Some connectors may have a specification that differs from the above mentioned data.

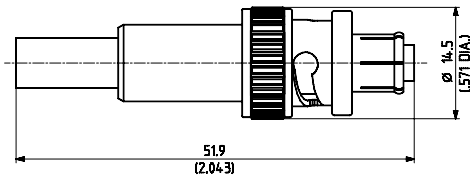
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Series SHV – cable connectors

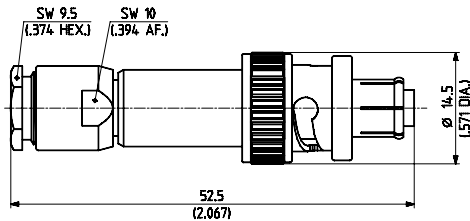
Straight cable plugs (male)

- HUBER+SUHNER full crimp
- Taper sleeves see page 526



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_SHV-50-3-1/133_NE	22541987	U7 (RG_58_C/U)	single	3092	2 B
11_SHV-50-4-1/133_NE	22541992	U16 (RG_59_B/U)			2 C

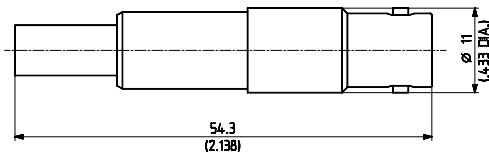
- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_SHV-50-3-10/133_NE	22541990	U7 (RG_58_C/U)	single	3094
11_SHV-50-4-10/133_NE	22541996	U16 (RG_59_B/U)		

Straight cable jacks (female)

- HUBER+SUHNER full crimp
- Taper sleeves see page 526

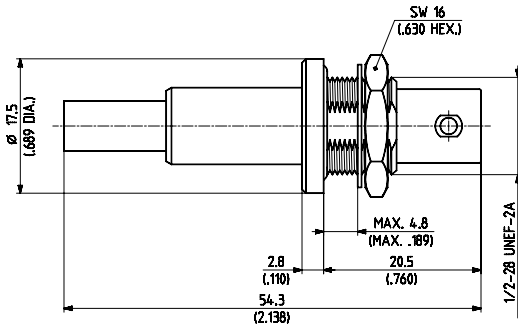


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_SHV-50-3-1/133_NE	22541998	U7 (RG_58_C/U)	single	3092	2 B
21_SHV-50-4-1/133_NE	22542001	U16 (RG_59_B/U)			2 C

Series SHV – cable connectors

Straight bulkhead cable jacks (female)

- HUBER+SUHNER full crimp
- With panel seal
- Taper sleeves see page 526

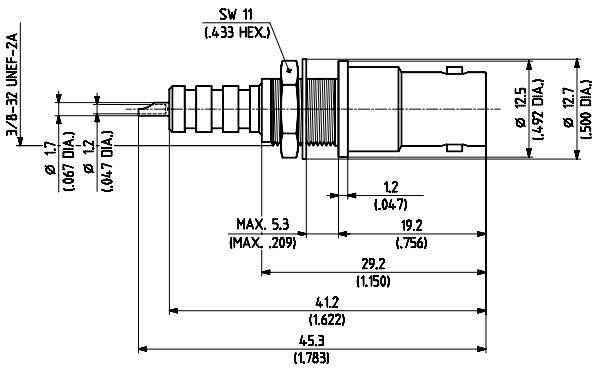


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_SHV-50-3-1/133_NE	22641281	U7 (RG_58_C/U)	single	3092	ML4	2 B
24_SHV-50-4-1/133_NE	22544592	U16 (RG_59_B/U)				2 C

Series SHV – receptacles with solder end

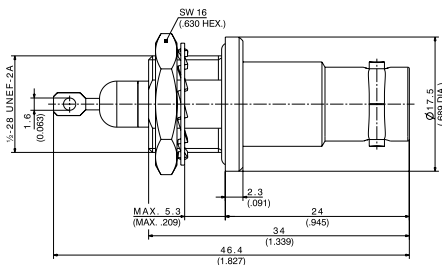
Receptacles, jacks (female)

- Bulkhead mounted
- Without panel seal



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Insulator	Notes
22_SHV-50-0-2/133_NE	22544054	single	ML 2	PTFE	
22_SHV-50-0-6/133_NE	22542007			polystyrol	radiation resistant

- Bulkhead mounted
- Hermetically sealed



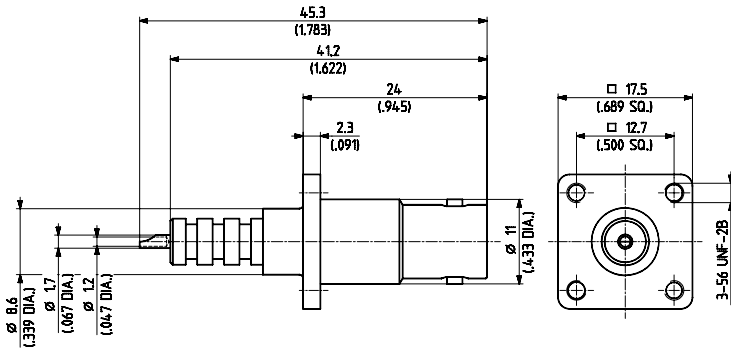
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body	Notes
22_SHV-50-0-3/100_NE ¹⁾	22543968	single	ML 4	silver	leak rate 10 ⁻⁶ Torr l/sec. (atm cc/s)

¹⁾ RoHS compliant alternative on request

Series SHV – receptacles with solder end

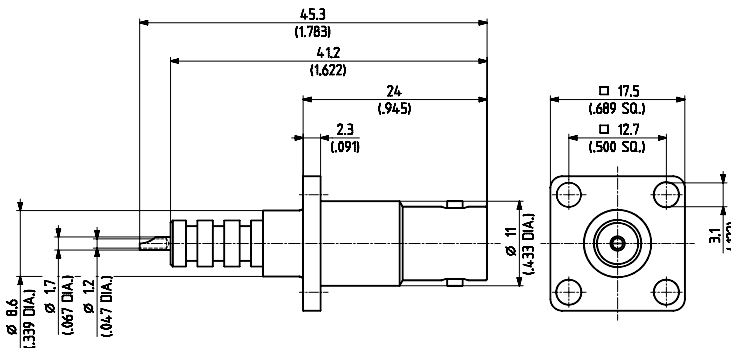
Receptacles, jacks (female)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_SHV-50-0-1/133_NE	22542008	single	ML 106	mounting also possible with screws ISO M 2.5

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_SHV-50-0-2/133_NE	22542010	single	ML 106	