

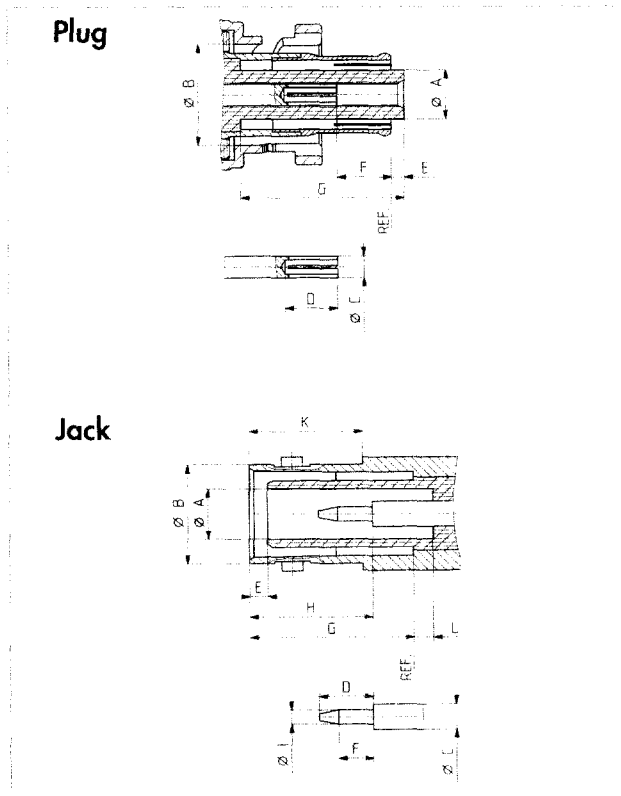
SERIES SHV HIGH VOLTAGE CONNECTORS

Description

SUHNER SHV (Safe High Voltage) connectors provide more secure handling: center contacts are well recessed to prevent shock hazards in unmated condition. All inner contacts are fully captivated and will withstand axial forces of 100 N minimum. 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.

Interface Dimensions



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Interface Dimensions in mm / inches

	Plug		Jack	
	min.	max.	min.	max.
A	4.57/.180	4.72/.186	4.83/.190	4.98/.196
B	9.78/.385	9.91/.390	9.60/.378	9.70/.382
C	2.06/.081	—	2.06/.081	—
D	5.44/.214	—	5.26/.207	5.44/.214
E	1.17/.046	1.63/.064	1.55/.061	1.98/.078
F	4.42/.174	—	3.30/.130	—
G	15.90/.626	16.10/.634	15.90/.626	16.00/.630
H	—	—	11.59/.456	12.70/.500
I	—	—	1.32/.052	1.37/.054
K	—	—	10.85/.427	—
L	—	—	1.63/.064	2.18/.086

Standards

Interface dimensions and all other technical data conform to **ANSI N 24.4, IEC 498, MIL-STD-348A/314 and NIM ND-545.**

SHV
MHV

Technical Data

ELECTRICAL DATA	REQUIREMENTS
Impedance	50 Ω
Frequency range	DC ... 300 MHz (see also Appendix page 436)
VSWR, mated pair	
– DC ... 100 MHz	≤ 1.10
– 100 ... 300 MHz	≤ 1.20
Dielectric withstanding voltage (at sea level)	5.0 kV rms, 50 Hz
Working voltage (at sea level, also in unmated condition)	≤ 3.5 kV rms, 50 Hz
Corona extinction voltage (at 21000 m)	≥ 350 V rms, 50 Hz
Insulation resistance	$\geq 10^6$ M Ω
Contact resistance	
– centre contact	≤ 2 m Ω
– outer contact	≤ 1.5 m Ω
Current rating, continuous	≤ 10 A

MECHANICAL DATA	REQUIREMENTS
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in.-lbs ... 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 36 – 41
Durability (matings)	≥ 500

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

ENVIRONMENTAL DATA	TEST CONDITIONS	TEST CONDITIONS
	PTFE	Polystyrene (XP)
Dielectric		
Temperature range	-65°C .. +165°C / -85°F .. +329°F	-55°C .. +100°C / -67°F .. +212°F
Climatic category acc. to IEC	55/155/21	
Thermal shock	MIL-STD-202, Method 107, Condition B	
Humidity	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, polystyrene dielectric	$\geq 10^9$ rad	

MATERIAL DATA

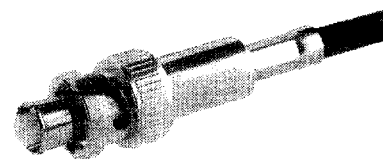
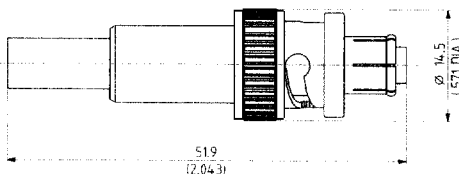
CONNECTOR PART	STANDARDS	MATERIAL	SURFACE/PLATING
Bodies Pin contact	QQ-B-626	brass	SUCOPLATE [®] gold plated
Outer spring contact, Socket contact	QQ-C-530	beryllium-copper, hardened	SUCOPLATE [®] gold plated
Crimp ferrules (full crimp)	SUHNER [®] specification	copper	SUCOPLATE [®]
Insulators, standard version	ASTM-D-1457, BS 4271 Grade B	PTFE	
Insulators, radiation resistant types	MIL-P-77 A	polystyrene, crosslinked	
Rubber gaskets	ASTM-E-1418 PS 1	silicone rubber	

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

Cable Connectors for Flexible Cables

straight plugs

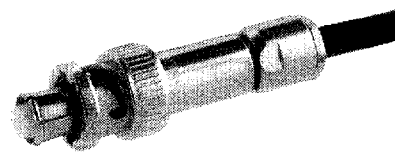
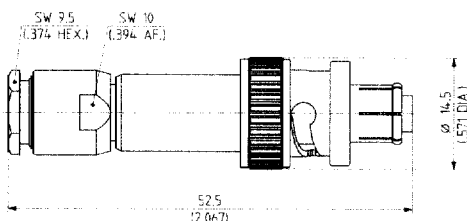
- > SUHNER® full crimp
- > taper sleeves see page 423



SUHNER TYPE	Ident. no.	Cable group (example)	Insulator	Crimp insert	Assembly instruction	Weight	Note
11 SHV-50-3-1	• 541987	U7 (RG 58 C/U)	PTFE	2B	3092	18.0 g/.630 oz.	
11 SHV-50-3-5	• 541989	U7 (RG 58 C/U)	polystyrene	2B	3092	18.0 g/.630 oz.	*
11 SHV-50-4-1	• 541992	U16 (RG 59 B/U)	PTFE	2C	3092	18.0 g/.630 oz.	
11 SHV-50-4-5	• 541994	U16 (RG 59 B/U)	polystyrene	2C	3092	18.0 g/.630 oz.	*

* radiation resistant

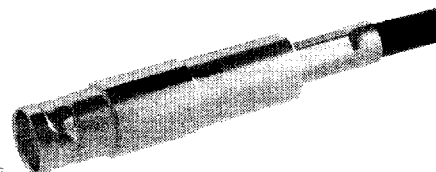
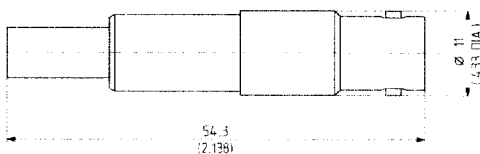
- > cable entry clamp



SUHNER TYPE	Ident. no.	Cable group (example)	Insulator	Assembly instruction	Weight
11 SHV-50-3-10	• 541990	U7 (RG 58 C/U)	PTFE	3094	23.0 g/.805 oz.
11 SHV-50-4-10	• 541996	U15 (RG 59 B/U)	PTFE	3094	23.0 g/.805 oz.

straight jacks

- > SUHNER® full crimp
- > taper sleeves see page 423



SUHNER TYPE	Ident. no.	Cable group (example)	Insulator	Crimp insert	Assembly instruction	Weight
21 SHV-50-3-1	• 541998	U7 (RG 58 C/U)	PTFE	2B	3092	18.0 g/.630 oz.
21 SHV-50-4-1	• 542001	U16 (RG 59 B/U)	PTFE	2C	3092	18.0 g/.630 oz.

- centre contact captivated

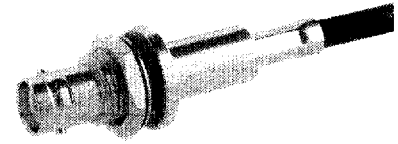
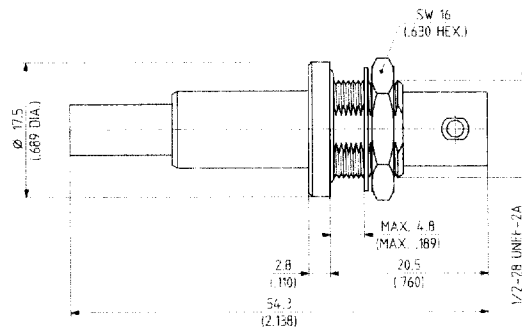
cable groups see page 36

assembly tools see page 403

mounting holes see page 441

bulkhead jacks

- > SUHNER® full crimp
- > with panel seal
- > taper sleeves see page 423

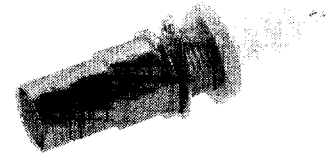
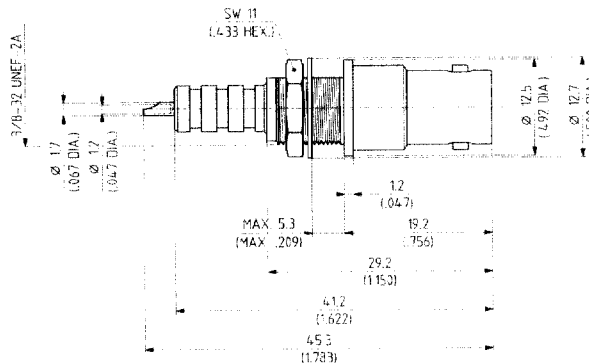


SUHNER TYPE	Ident. no.	Cable group (example)	Insulator	Crimp insert	Assembly instruction	Mounting hole	Weight
24 SHV-50-3-1	● 641281	U7 (RG 58 C/U)	PTFE	2 B	3092	ML 14	25.0 g/.875 oz.
24 SHV-50-4-1	● 544592	U16 (RG 59 B/U)	PTFE	2 C	3092	ML 14	25.0 g/.875 oz.

Receptacles with Solder End

receptacles, female

- > bulkhead mounted
- > without panel seal

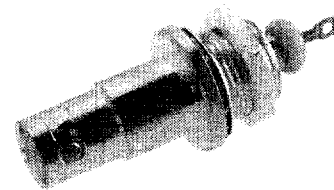
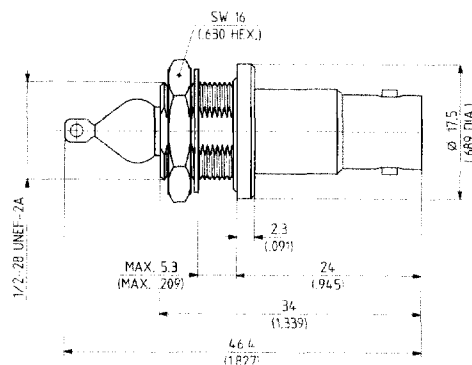


SUHNER TYPE	Ident. no.	Insulator	Mounting hole	Weight	Notes
22 SHV-50-0-2	● 544054	PTFE	ML 2	12.0 g/.420 oz.	
22 SHV-50-0-6	● 542007	polystyrene	ML 2	12.0 g/.420 oz.	radiation resistant

- centre contact captivated

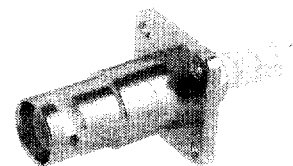
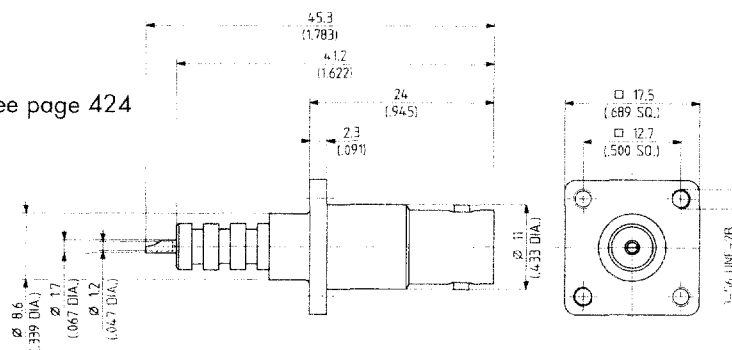
SHV

- > bulkhead mounted
- > hermetically sealed



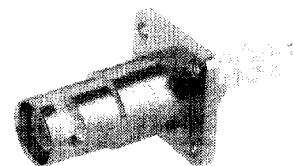
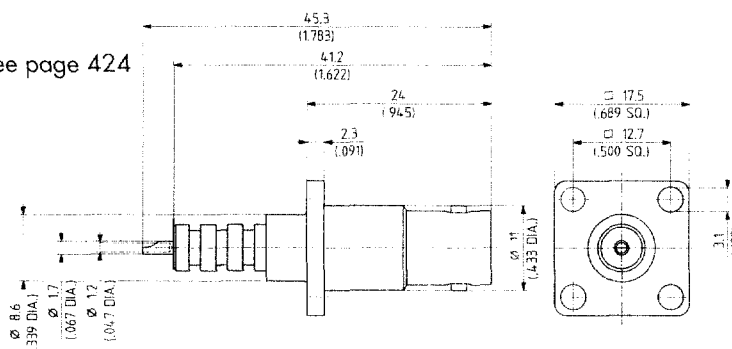
SUHNER TYPE	Ident. no.	Insulator	Mounting hole	Weight	Notes
22 SHV-50-0-3	• 543968	PTFE, glass	ML 4	21.0 g/.735 oz.	leak rate 10 ⁻⁶ Torr l/sec.(atm cc/s)

- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	Insulator	Mounting hole	Weight	Notes
23 SHV-50-0-1	• 542008	PTFE	ML 106	14.0 g/.490 oz.	

- > panel mounted
- > fastening screws see page 424



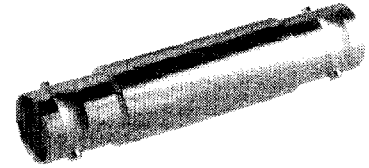
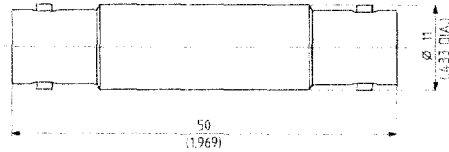
SUHNER TYPE	Ident. no.	Insulator	Mounting hole	Weight	Notes
23 SHV-50-0-2	• 542010	PTFE	ML 106	14.0 g/.490 oz.	

- centre contact captivated

Adaptors Within-Series

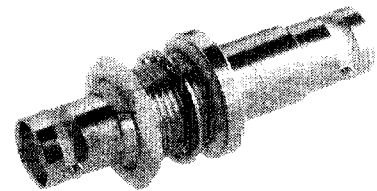
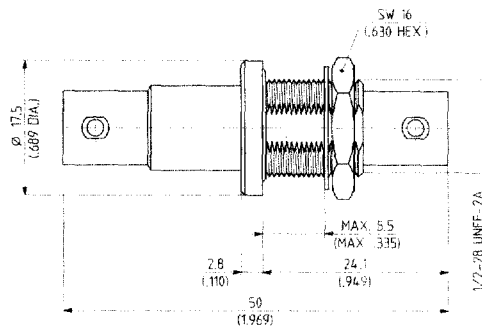
straight adaptors

> jack to jack



SUHNER TYPE	Ident. no.	Insulator	Weight	Notes
31 SHV-50-0-1	• 542018	PTFE	18.0 g/ .630 oz.	
31 SHV-50-0-5	• 544810	polystyrene	18.0 g/ .630 oz.	radiation resistant

> jack to jack
 > with panel seal
 > bulkhead mounted



SUHNER TYPE	Ident. no.	Insulator	Mounting hole	Weight	Notes
34 SHV-50-0-1	• 641233	PTFE	M4	25.0 g/ 0.875 oz.	
34 SHV-50-0-5	• 544583	polystyrene	M4	25.0 g/ 0.875 oz.	radiation resistant

• centre contact captivated

SHV