



# SERIES MHV (H4) HIGH VOLTAGE CONNECTORS

## Description

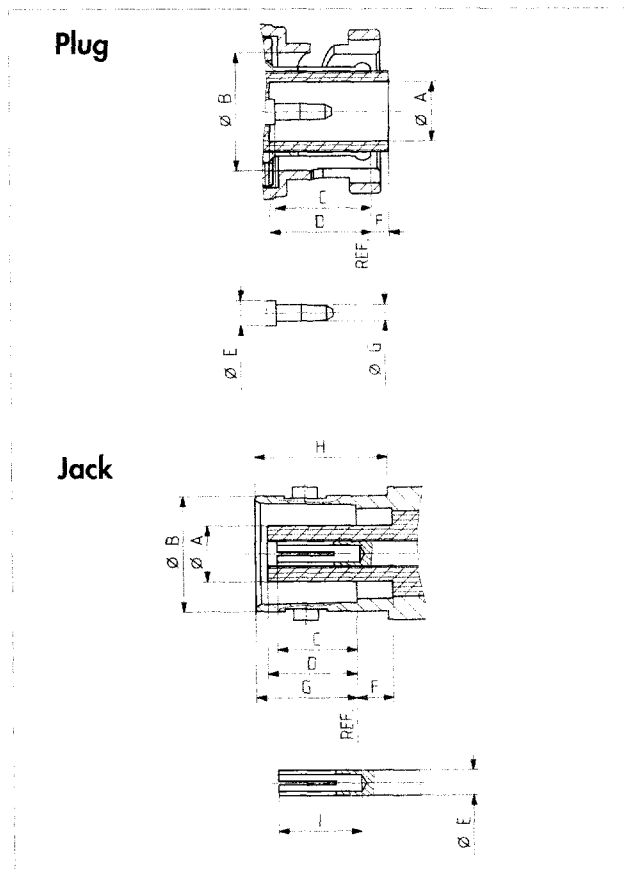
SUHNER MHV connectors are coaxial miniature high voltage (MHV = Miniature High Voltage) connectors with 5 kV rms test voltage (mated pairs). The MHV connectors have a working voltage up to 1.6 kV rms in mated condition and are suitable for applications up to 300 MHz. MHV connectors are of similar design to BNC connectors but the insulators protrude over the outer contacts to give a degree of shock-protection when unmated. However, if a high degree of shock protection in the unmated condition is required, use of series SHV is recommended.

## Contents

Page

Description .....	289
Interface Dimensions .....	289
Interface Dimensions in mm / inches .....	289
Technical Data .....	290
Cable Connectors for Flexible Cables .....	291
Receptacles with Solder End .....	292
Adaptors Within-Series .....	294

## Interface Dimensions



## Interface Dimensions in mm / inches

	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	—	—	4.72/.186
B	9.78/.385	9.91/.390	9.60/.378	9.70/.382
C	7.18/.283	—	—	7.11/.280
D	8.10/.319	—	—	8.05/.317
E	—	2.31/.091	2.06/.081	2.31/.091
F	—	2.18/.086	2.18/.086	—
G	1.32/.052	1.37/.054	8.31/.327	8.51/.335
H	—	—	10.52/.414	—
I	—	—	6.86/.270	—

MHV

## Technical Data

ELECTRICAL DATA	REQUIREMENTS
Impedance	50 $\Omega$
Frequency range	DC ... 300 MHz (see also Appendix page 436)
Dielectric withstanding voltage (at sea level, mated pair)	5.0 kV rms, 50 Hz
Working voltage (at sea level, mated pair)	$\leq$ 1.6 kV rms, 50 Hz
Corona extinction voltage (at 21000 m)	$\geq$ 300 V rms, 50 Hz
Insulation resistance	$\geq$ 10 <sup>6</sup> M $\Omega$
Contact resistance	
– centre contact	$\leq$ 2 m $\Omega$
– outer contact	$\leq$ 1 m $\Omega$
Current rating, continuous	$\leq$ 10 A

MECHANICAL DATA	REQUIREMENTS
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in.-lbs ... 2.5 in.-lbs
Coupling nut retention force	$\geq$ 450 N / 101.2 lbs
Contact captivation	$\geq$ 27 N / 6.1 lbs
Cable retention force <sup>1)</sup>	see pages 36 – 41
Durability (matings)	$\geq$ 500

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

ENVIRONMENTAL DATA	TEST CONDITIONS
Temperature range	-65°C ... +165°C / -85°F ... +329°F
Climatic category acc. to IEC	55/155/21
Thermal shock	MIL-STD-202, Method 107, Condition B
Moisture resistance	MIL-STD-202, Method 106
Corrosion	Saltspray test acc. to MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition B
Shock	MIL-STD-202, Method 213, Condition I

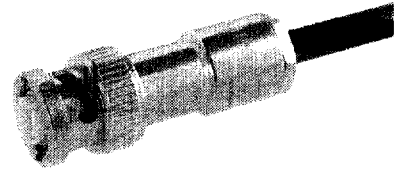
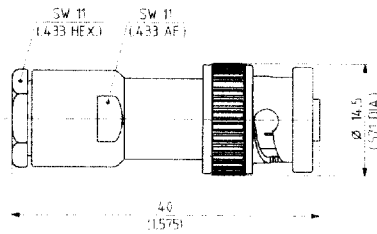
MATERIAL DATA			
CONNECTOR PART	STANDARDS	MATERIAL	SURFACE/PLATING
Bodies	QQ-B-626	brass	SUCOPLATE <sup>®</sup> gold plated
Pin contact			
Socket contact	QQ-C-530	beryllium-copper, hardened	gold plated
Crimp ferrules	SUHNER <sup>®</sup> specification	copper	SUCOPLATE <sup>®</sup>
Insulators, standard version	ASTM-D-1457, BS 4271 Grade B	PTFE	
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

> cable entry clamp



SUHNER TYPE	Ident. no.	Cable group (example)		Assembly instruction	Weight	Notes
11 H4-50-3-1	541732	U7 (RG 58 C/U)		3012	22.0 g/.770 oz.	
11 H4-50-4-1	541742	U15 (RG 59 B/U)		3012	22.0 g/.770 oz.	UG 932A/U

> cable entry crimp  
> taper sleeves see page 423

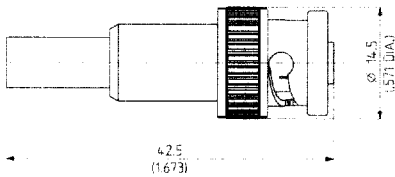
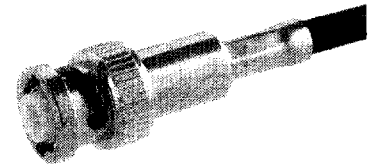


Fig. 1

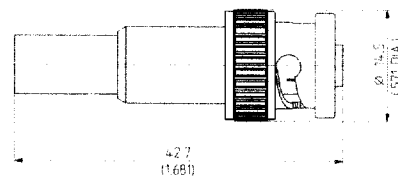
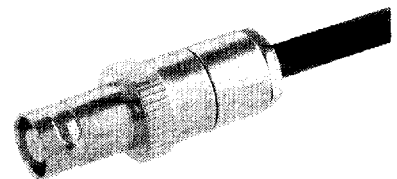
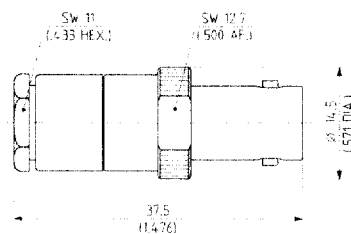


Fig. 2

SUHNER TYPE	Ident. no.	Cable group (example)	Crimp insert	Assembly instruction	Weight	Fig.	Notes
11 H4-50-3-3	541737	U7 (RG 58 C/U)	B	3078	18.0 g/.630 oz.	1	
11 H4-50-4-4	543809	U16 (RG 59 B/U)	C	3078	18.0 g/.630 oz.	2	

## straight jack

> cable entry clamp



SUHNER TYPE	Ident. no.	Cable group (example)		Assembly instruction	Weight	Notes
21 H4-50-3-1	541756	U7 (RG 58 C/U)		3012	21.0 g/.735 oz.	

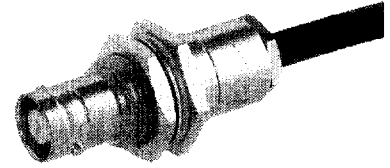
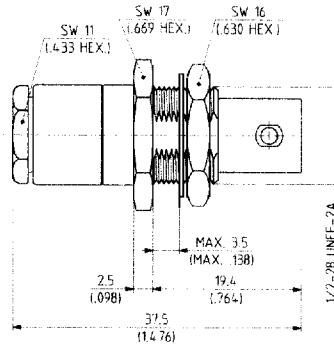
cable groups see pages 36

assembly tools see page 403

mounting holes see page 44

## bulkhead jack

- > cable entry clamp
- > with panel seal

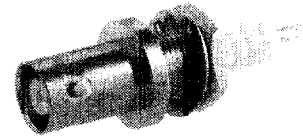
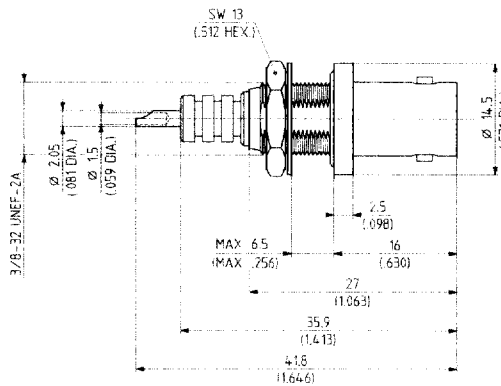


SUHNER TYPE	Ident. no.	Cable group (example)	Assembly instruction	Mounting hole	Weight	Notes
24 H4-50-3-1	541784	U7 (RG 58 C/U)	3012	ML 4	25.0 g/.875 oz.	

## Receptacles with Solder End

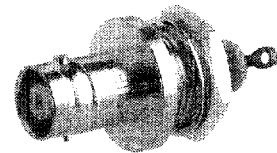
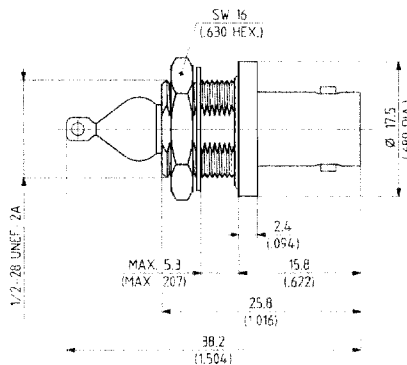
### receptacles, female

- > bulkhead mounted
- > with panel seal



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
22 H4-50-0-1	• 652095	ML 1	11.0 g/.385 oz.	

- > bulkhead mounted
- > hermetically sealed



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
22 H4-50-0-6	• 541764	ML 4	17.0 g/.595 oz.	leak rate $10^{-6}$ Torr l/sec. (atm cc/s) max. glass to metal seal

- centre contact captivated

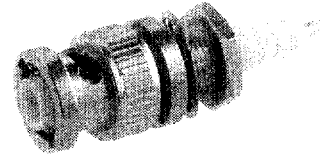
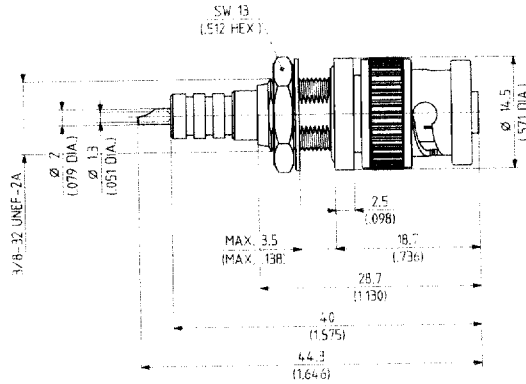
cable groups see page 36

assembly tools see page 403

mounting holes see page 441

### receptacle, male

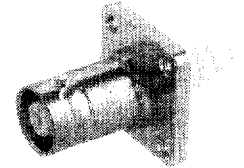
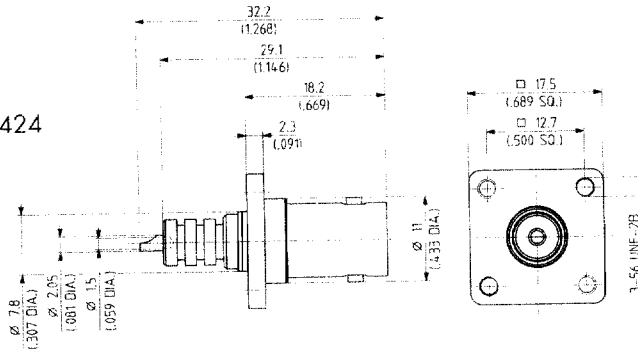
- > bulkhead mounted
- > with panel seal



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
12 H4-50-0-1	• 543467	ML 2	16.0 g/.560 oz.	with panel seal

### receptacles, female

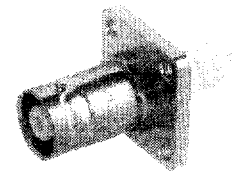
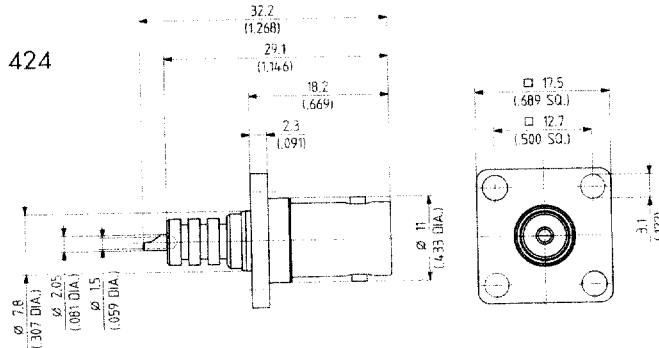
- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
23 H4-50-0-7	• 541776	ML 6	11.0 g/.385 oz.	UG-931/U*

\* mounting also possible with screws ISO M 2.5

- > panel mounted
- > fastening screws see page 424



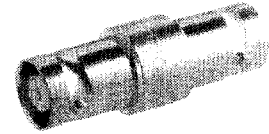
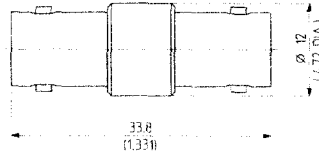
SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
23 H4-50-0-8	• 541779	ML 6	11.0 g/.385 oz.	

- centre contact captivated

## Adaptors Within-Series

### straight adaptor

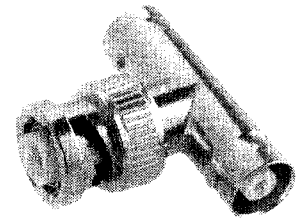
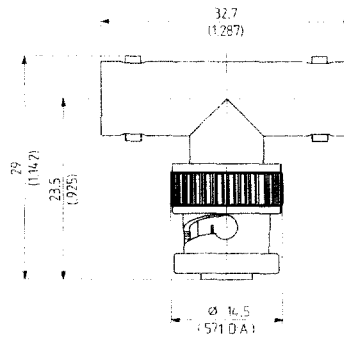
> jack to jack



SUHNER TYPE	Ident. no.	Weight	Notes
31 H4-50-0-1	• 541798	13.0 g / .455 oz.	

### T-adaptor

> 2 jacks, 1 plug



SUHNER TYPE	Ident. no.	Weight	Notes
43 H4-50-0-1	• 541806	18.0 g / .630 oz.	

- centre contact captivated