



# SERIES 4.1/9.5 COAXIAL CONNECTORS

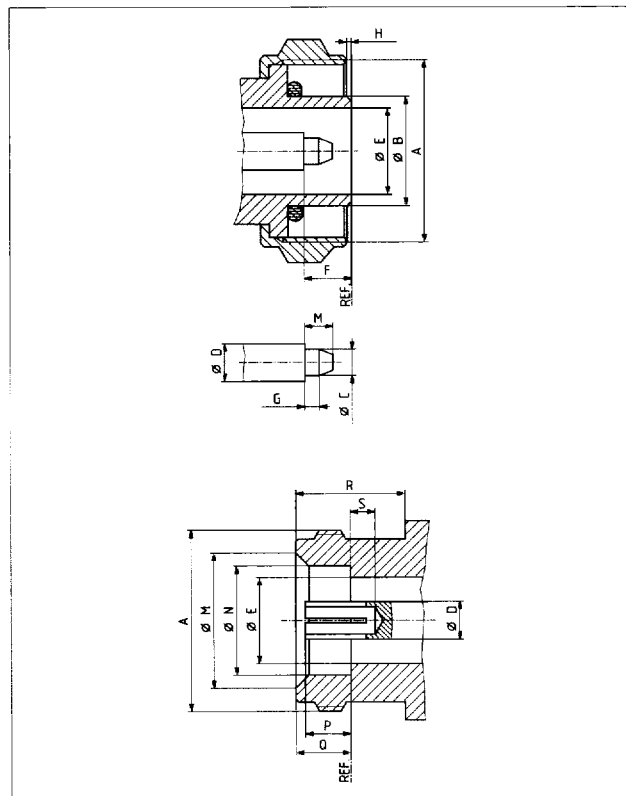
## Description

SUHNER 4.1/9.5 connectors are mechanically very rugged coaxial connectors with screw lock. They have a characteristic impedance of 50 Ω and are generally applicable up to 14 GHz.

Low loss transmission and reception of RF signals in radio transceivers as mobile phone base stations are typical applications. For this purpose many connectors are optimized up to 2.5 GHz, provide a specially low intermodulation product ( $\geq 155$  dBc) and are water protected for outdoor assembly.

Due to their smaller outer dimensions compared with 7/16 and their competitive pricing, the 4.1/9.5 is an attractive alternative to series 7/16 for medium power applications.

## Interface Dimensions



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## Interface Dimensions in mm / inches

	Plug		Jack	
	min.	max.	min.	max.
A	M 20 × 1		M 20 × 1	
B	11.84/.466	12.02/.473	—	—
C	2.86/.112	2.95/.116	—	—
D	4.13/.163 nom.		4.13/.163 nom.	
E	9.40/.370	9.60/.378	9.40/.370	9.60/.378
F	5.05/.199	5.35/.211	—	—
G	0.80/.031	1.60/.063	—	—
H	—	1.00/.039	—	—
M	2.00/.079	4.00/.157	14.90/.587	15.00/.591
N	—	—	12.03/.474	12.21/.481
P	—	—	4.73/.186	5.03/.198
Q	—	—	5.80/.228	6.20/.244
R	—	—	8.00/.315	—
S	—	—	—	—

4.1/9.5  
7/16

## Standards

Interface dimensions conform to  
**IEC 169-11**  
**VG 95277**

## Technical Data

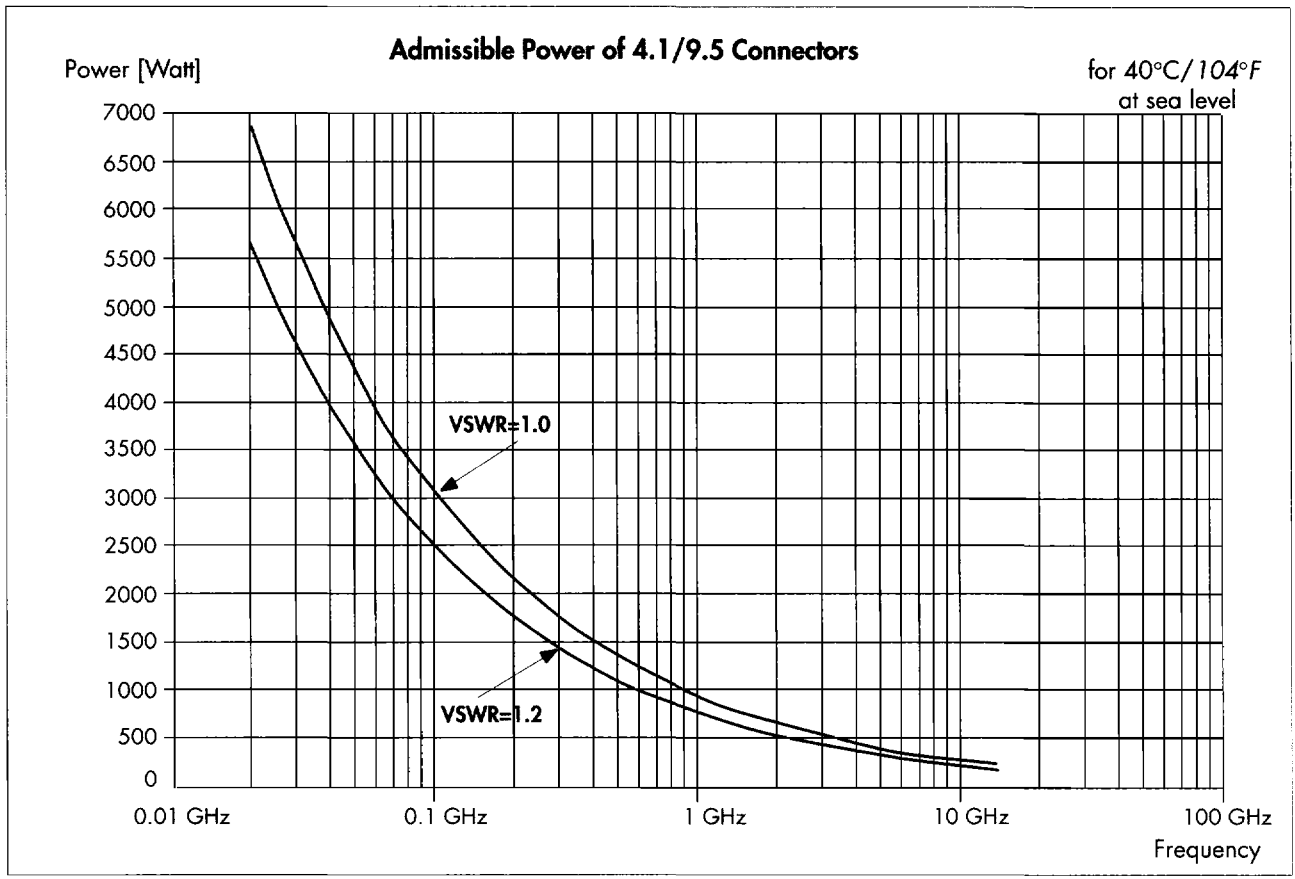
ELECTRICAL DATA	REQUIREMENTS	
Impedance	50 Ω	
Frequency range	DC ... 14 GHz	Combination types: DC – 1 GHz
VSWR	see table below	
PIM <sup>1)</sup>	≥ 155 dBc for SUHNER QUICK-FIT® and cable entries group A	
Insertion loss	see Appendix page 437	
Working voltage (at sea level)	≥ 1.4 kV rms, 50 Hz	Combination types: ≤ 0.7 kV rms, 50 Hz
Testing voltage (at sea level)	2.5 kV rms, 50 Hz	Combination types: 1.0 kV rms, 50 Hz
Screening effectiveness	≥ 114 dB at 1 GHz	
Insulation resistance	≥ 5 · 10 <sup>3</sup> MΩ	
Contact resistance		
– centre contact	≤ 0.8 mΩ	
– outer contact	≤ 2.0 mΩ	

1) Carrier to 3rd order intermodulation product ratio with 2 × 25 W carrier power, f ≤ 1.88 GHz

TYPICAL VSWR	FREQUENCY RANGE			CABLE GROUP
	1 GHz	2.5 GHz	5 GHz	
straight connectors	1.04	1.15		M9 – M23
	1.05	1.10	1.15	U9
right angle connectors	1.03	1.07	1.10	S32, U32
	1.06	1.10	1.20	M9
	1.06	1.20	1.29	S32, U32

Other connectors and cables on request

Combination types on request



For detailed information regarding power measurement, please refer to page 437.

MECHANICAL DATA	REQUIREMENTS
Coupling nut torque – recommended – proof torque	4 ... 10 Nm / 35 in.-lbs ... 89 in.-lbs 17 Nm / 150 in.-lbs
Contact captivation	≥ 80 N / 18 lbs
Cable retention force <sup>1)</sup>	see pages 36 – 41
Durability (matings)	≥ 500

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

ENVIRONMENTAL DATA	CECC 22000 TEST CONDITIONS	EQUIVALENT MIL TEST CONDITIONS
Temperature range SUHNER QUICK-FIT®		– 65°C ... + 165°C / – 85°F ... + 329°F – 40°C ... + 85°C / – 40°F ... + 185°F
Climatic category acc. to IEC	55/155/56	
Corrosion (coupled connectors)	4.6.10 → IEC-68-2-11 Ka	Saltspray test acc. to MIL-STD-202, Method 101, condition B
Vibration	4.6.3 → IEC-68-2-6 Fc	(10-500 Hz, 10g)
SUHNER QUICK-FIT® degree of protection (humidity)	IP 67 → IEC 529	

4.1/9.5

**MATERIAL DATA**

CONNECTOR PART	STANDARDS	MATERIAL	PLATING
Bodies Pin contact, outer contact	QQ-B-626	brass	SUCOPLATE® silver plated
Socket contact	DIN 17660	spring bronze	silver plated
Crimp ferrules	SUHNER® specification	copper	SUCOPLATE®
Insulators	ASTM-D-1457	PTFE	
Gaskets	ASTM-E-1418 PS 1	silicone rubber	

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

# Connectors for Flexible and Corrugated Copper Tube Cables

## cable plugs, combi-heads

> for use as straight or right angle plug

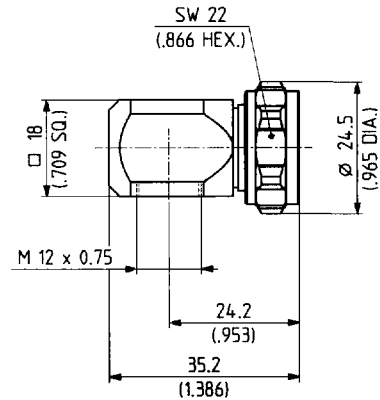


Fig. 1

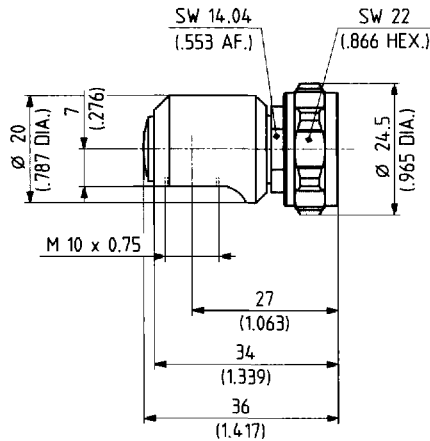
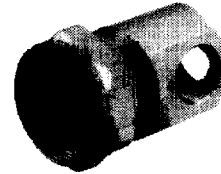


Fig. 2

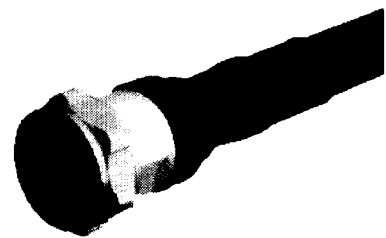
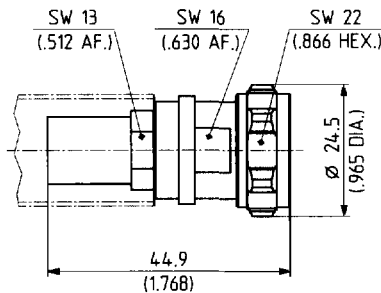


SUHNER TYPE	Ident. no.	Cable entries*	Weight	Fig.	Notes
11 4195-50-0-5	648822	group A	55 g/1.94 oz.	1	inner conductor slot 3.20 mm/.125 in.
11 4195-50-0-6	649432	group A	55 g/1.94 oz.	1	inner conductor slot 3.75 mm/.148 in.
11 4195-50-0-10	645808	group D	55 g/1.94 oz.	2	inner conductor slot 2.55 mm/.100 in.

\*fitting cable entries see page 352 and 353

## straight plugs

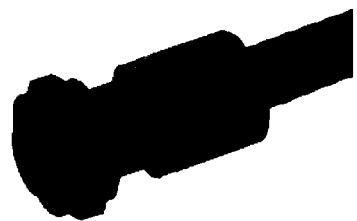
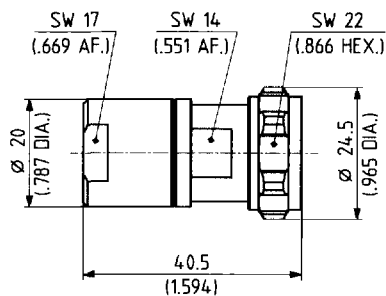
- > cable entry crimp
- > centre contact soldered



SUHNER TYPE	Ident. no.	Suitable cables	Crimp insert	Assembly instruction	Weight	Notes
11 4195-50-7-36	648495	S 07262 BD, RG 214/U	D	27012	43 g/1.51 oz.	

- centre contact captivated

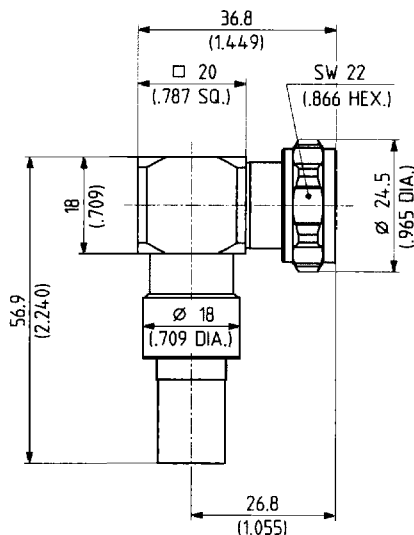
- > for corrugated copper tube cables
- > cable entry clamp
- > plug-in centre contact



SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight	Notes
11 4195-60-8-10	645445	LDF2-50, LCF 3/8" Cu2Y	27008	58 g/2.03 oz.	

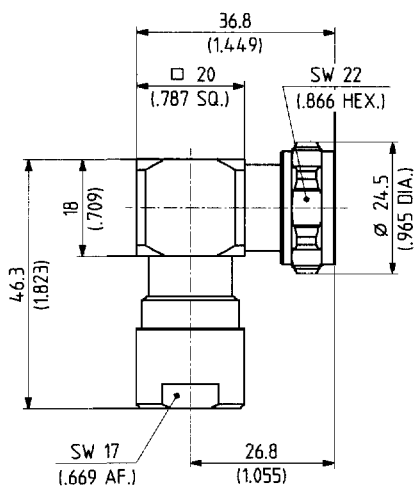
### right angle plugs

- > cable entry crimp
- > centre contact soldered



SUHNER TYPE	Ident. no.	Suitable cables	Crimp insert	Assembly instruction	Weight	Notes
16 4195-50-7-1	650520	S 07262 BD, RG 214/U	D	27016	104 g/3.64 oz.	

- > for corrugated copper tube cables
- > cable entry clamp
- > plug-in centre contact



SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight	Notes
16 4195-50-8-10	647000	LDF2-50, LCF 3/8" Cu2Y	27008	109 g/3.82 oz.	

- centre contact captivated

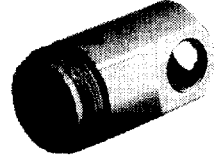
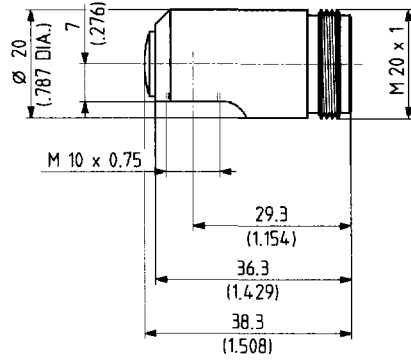
cable groups see page 36

assembly tools see page 403

mounting holes see page 441

**cable jack, combi-head**

> for use as straight or right angle jack

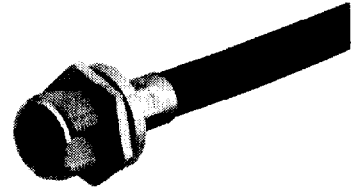
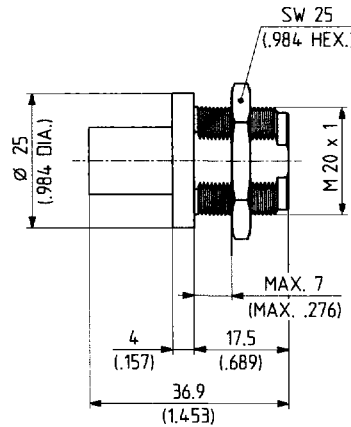


SUHNER TYPE	Ident. no.	Cable entries*	Weight	Notes
21 4195-50-0-10	646502	group D	67 g/2.35 oz.	center conductor slot 2.55 mm/.100 in.

\* fitting cable entries see page 353

**bulkhead jack**

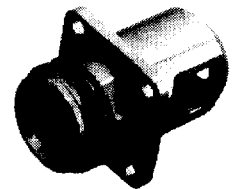
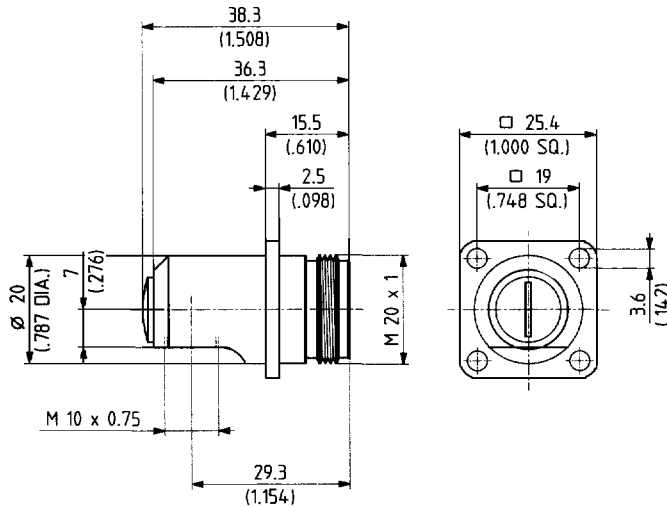
> SUHNER® full crimp



SUHNER TYPE	Ident. no.	Suitable cables	Crimp insert	Assembly instruction	Weight	Notes
24 4195-50-7-1	646305	RG 214/U	D	3061	52 g/1.82 oz.	

**panel jack, combi-head**

> panel mounted  
> for use as straight or right angle jack



SUHNER TYPE	Ident. no.	Cable entries*	Weight	Notes
23 4195-50-0-10	646501	group D	74 g/2.59 oz.	center conductor slot 2.55 mm/.100 in.

\* fitting cable entries see page 353

• centre contact captivated

## SUHNER QUICK-FIT® Coaxial Connectors

- low passive intermodulation types
- quick and easy assembly
- degree of protection IP 67
- suitable for outdoor applications

### straight plugs

> assembly tools see page 417

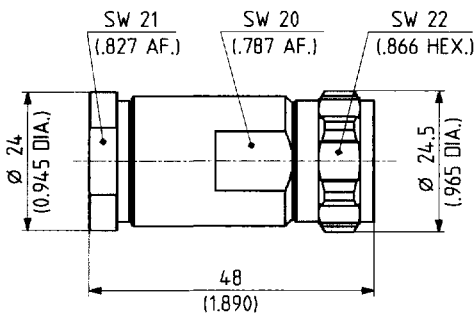
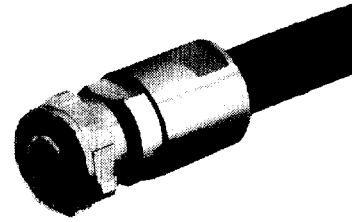


Fig. 1

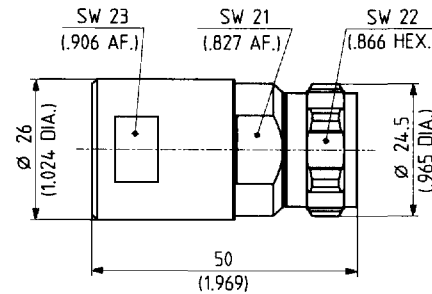
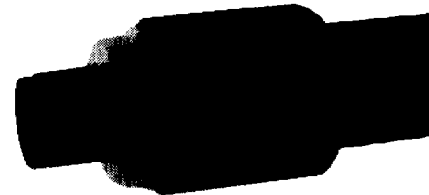
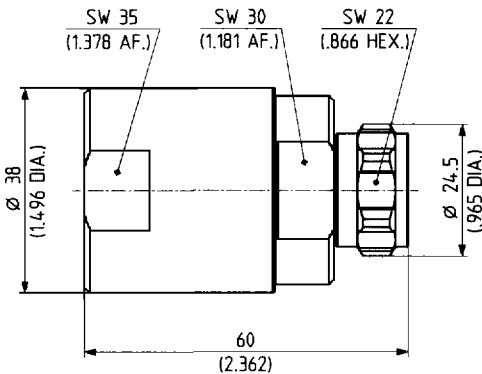


Fig. 2

SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight	Fig.
11 4195-50-9-2	650784	1/2" Highflex*: FSJ4-50B, HCF 1/2" Cu2Y AICu	9152	88 g/3.08 oz.	1
11 4195-50-12-36	650786	1/2"*: SUCOFEEED® 1/2", LDF4-50A, LCF 1/2" Cu2Y	9153	98 g/3.42 oz.	2

\* foam dielectric corrugated copper tube cable

> assembly tools see page 417



SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight
11 4195-50-23-101	651437	7/8"*: SUCOFEEED® 7/8", LDF5-50A, LCF 7/8" Cu2Y	9154	221 g/7.74 oz.

\* foam dielectric corrugated copper tube cable

- centre contact captivated

cable groups see page 36

assembly tools see page 403

mounting holes see page 441

**cable jacks**

> assembly tools see page 417

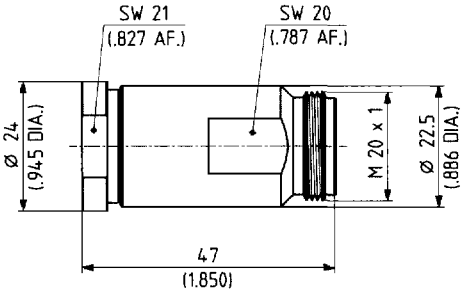
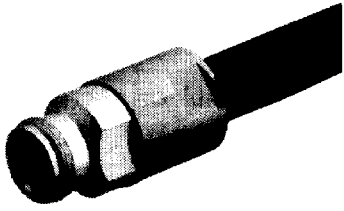


Fig. 1

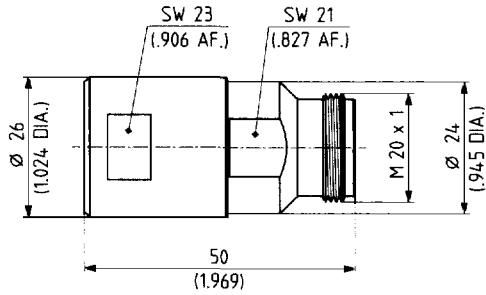
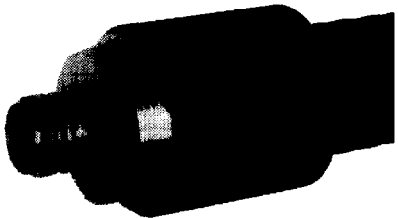
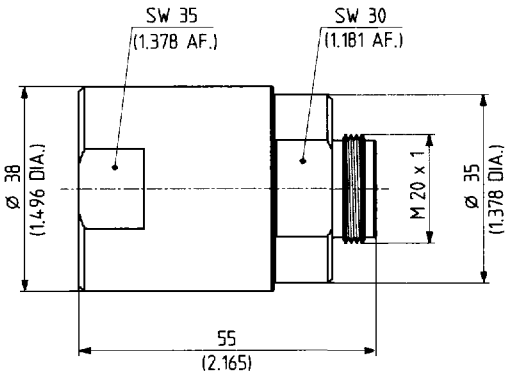


Fig. 2

SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight	Fig.
21 4195-50-9-36	650785	1/2" Highflex*: FSJ4-50B, HCF 1/2" Cu2Y AICu	9152	84 g/2.94 oz.	1
21 4195-50-12-36	650787	1/2"*: SUCOFEED® 1/2", LDF4-50A, LCF 1/2" Cu2Y	9153	100 g/3.50 oz.	2

\* foam dielectric corrugated copper tube cable

> assembly tools see page 417



SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight
21 4195-50-23-101	651438	7/8"*: SUCOFEED® 7/8", LDF5-50A, LCF 7/8" Cu2Y	9154	209 g/7.32 oz.

\* foam dielectric corrugated copper tube cable

● centre contact captivated

4.1/9.5

# Cable Entries

## group A, for foam dielectric corrugated copper tube cables

- > cable entry clamp
- > centre contact soldered

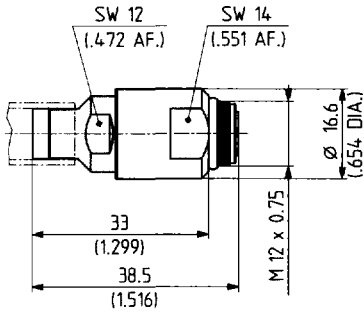
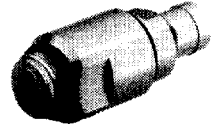


Fig. 1

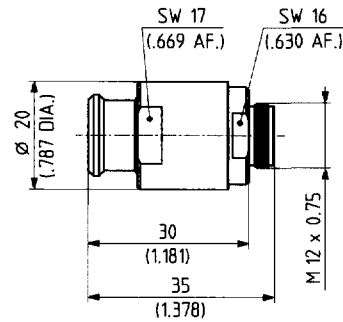


Fig. 2

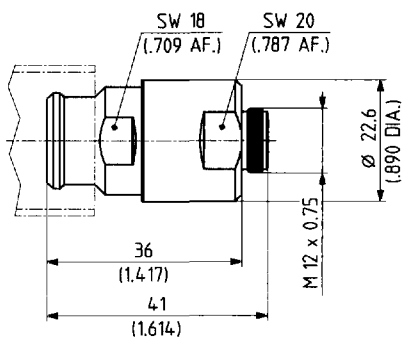


Fig. 3

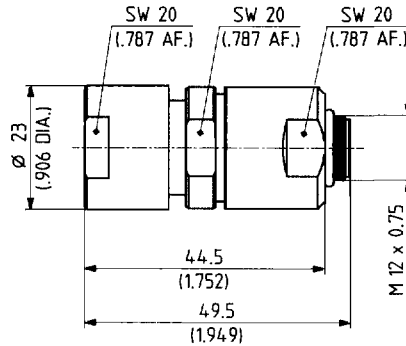


fig. 4

ORDER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight	Fig.
73 Z-0-1	650616	1/4" Superflex: FSJ1-50A, HCF 1/4" Cu2Y	27015	32 g/1.12 oz.	1
73 Z-0-2	648823	3/8": LDF2-50, LCF 3/8" Cu2Y	27013	38 g/1.33 oz.	2
73 Z-0-3	649434	1/2" Superflex: FSJ4-50B, HCF 1/2" Cu2Y	9161	59 g/2.07 oz.	3
73 Z-0-4	649705	1/2" Superflex: FSJ4-50B, HCF 1/2" Cu2Y	27014	78 g/2.73 oz.	4*

\* water-proof cable entry

**group D for flexible cables**

> cable entry crimp

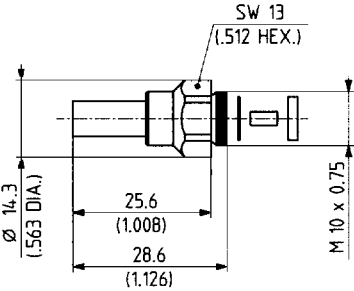


Fig. 1

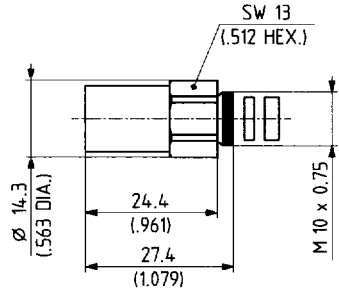


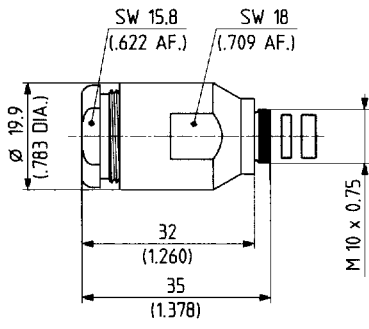
Fig. 2



SUHNER TYPE	Ident. no.	Suitable cables	Crimp insert	Assembly instruction	Weight	Fig.	Notes
73 Z-0-3-26	651043	RG 223/U	B	27009	14 g/0.49 oz.	1	
73 Z-0-7-4	651044	RG 214/U	D	27010	13 g/0.46 oz.	2	

> cable entry clamp

> pressure sleeve



SUHNER TYPE	Ident. no.	Suitable cables	Assembly instruction	Weight	Notes
73 Z-0-7-5	651045	RG 214/U	27011	40 g/1.40 oz.	

4.1/9.5

# Receptacles with Solder End

## receptacles, female

> panel mounted

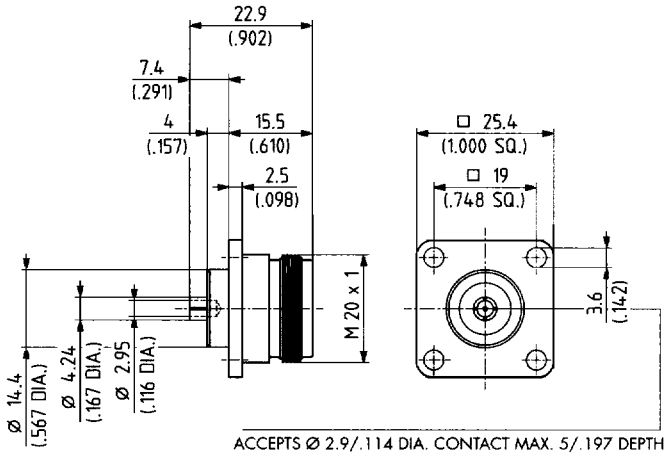
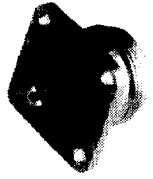


Fig. 1

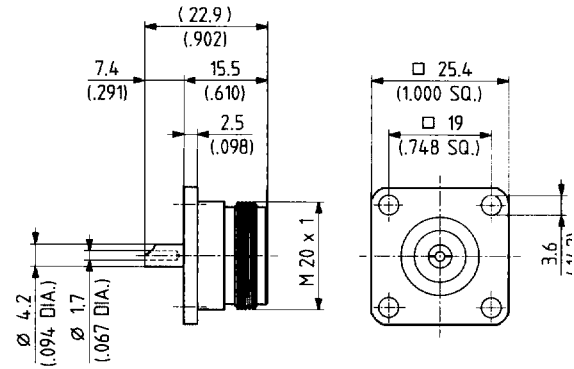


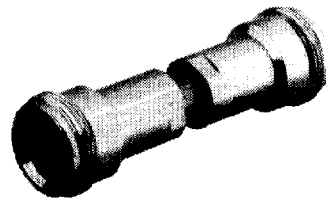
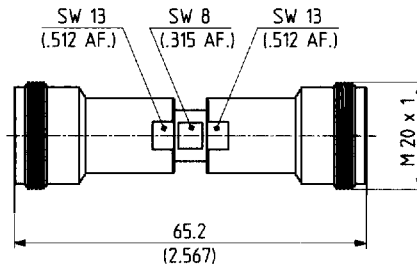
Fig. 2

SUHNER TYPE	Ident. no.	Weight	Fig.	Notes
23 4195-50-0-12	648558	37 g/1.30 oz.	1	
23 4195-50-0-13	650118	33 g/1.16 oz.	2	

# Adaptors Within-Series

## straight adaptor

> jack to jack



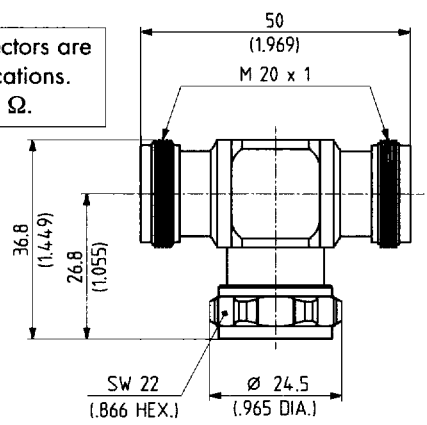
SUHNER TYPE	Ident. no.	Weight	Notes
31 4195-50-0-1	652116	76.0 g/2.66 oz.	VSWR $\leq$ 1.06; $f \leq$ 2.5 GHz VSWR $\leq$ 1.13; 2.5 GHz < $f \leq$ 14.0 GHz

• centre contact captivated

### T-adaptors

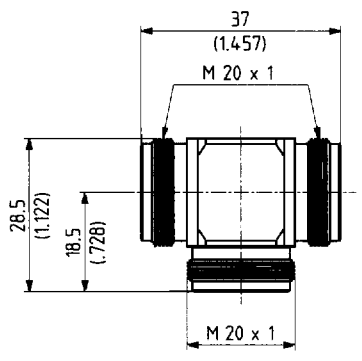
50 Ω nominal impedance. These connectors are non-matched 3 dB dividers for LF applications. VSWR ≥ 2.0 when terminated with 50 Ω.

> 2 jacks, 1 plug



SUHNER TYPE	Ident. no.	Weight	Notes
43 4193-50-0-10	646335	116 g/4.06 oz.	

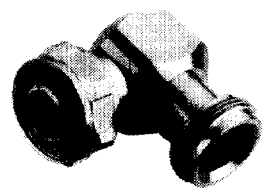
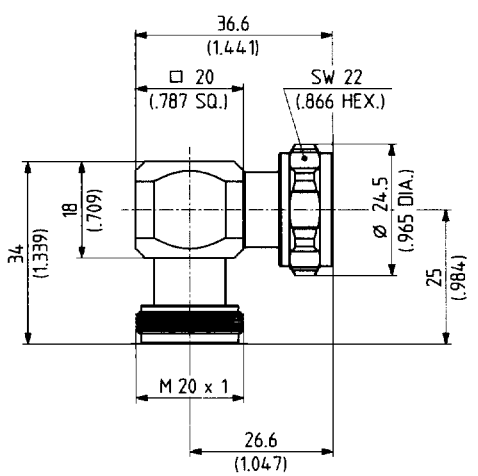
> 3 jacks



SUHNER TYPE	Ident. no.	Weight	Notes
46 4193-50-0-10	645446	89 g/3.12 oz.	

### right angle adaptor

> plug to jack



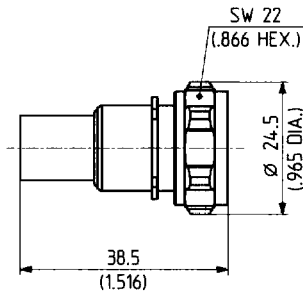
SUHNER TYPE	Ident. no.	Weight	Notes
53 4193-50-0-10	646334	79 g/2.77 oz.	VSWR ≤ 1.06; f ≤ 4.0 GHz

• centre contact captivated

cable groups see pages 36      assembly tools see page 403      mounting holes see page 441

# Terminations

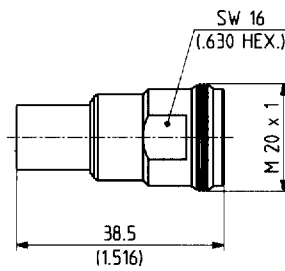
## plug



SUHNER TYPE	Ident. no.	VSWR (f = 2.5 GHz)	Impedance	Power	Weight	Notes
65 4195-50-0-1	649644	≤ 1.06	50 Ω ± 1 %	1 Watt, 2.5 kW peak <sup>1)</sup>	43 g/1.51 oz.	

1) pulsed power with a duration of ≤ 10 ns, rise time ≥ 5 ns

## jack



SUHNER TYPE	Ident. no.	VSWR (f = 2.5 GHz)	Impedance	Power	Weight	Notes
65 4195-50-0-31	649643	≤ 1.06	50 Ω ± 1 %	1 Watt, 2.5 kW peak <sup>1)</sup>	43 g/1.51 oz.	

1) pulsed power with a duration of ≤ 10 ns, rise time ≥ 5 ns

- centre contact captivated