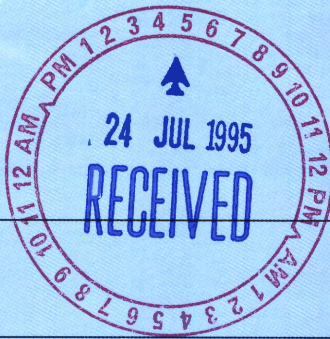




SUHNER

COAXIAL CONNECTOR

SERIES 4.1 / 9.5

HUBER+SUHNER AG, Coaxial Connector Department, Herisau, Switzerland



SUHNER

COAXIAL CONNECTORS SERIES 4.1/9.5

Description

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

Low loss transmission of RF signals of medium power and of reception 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 and are water protected for outdoor assembly.

Series 4.1/9.5 coaxial connectors are due to their lower space requirements and prices an attractive alternative to series 7/16.

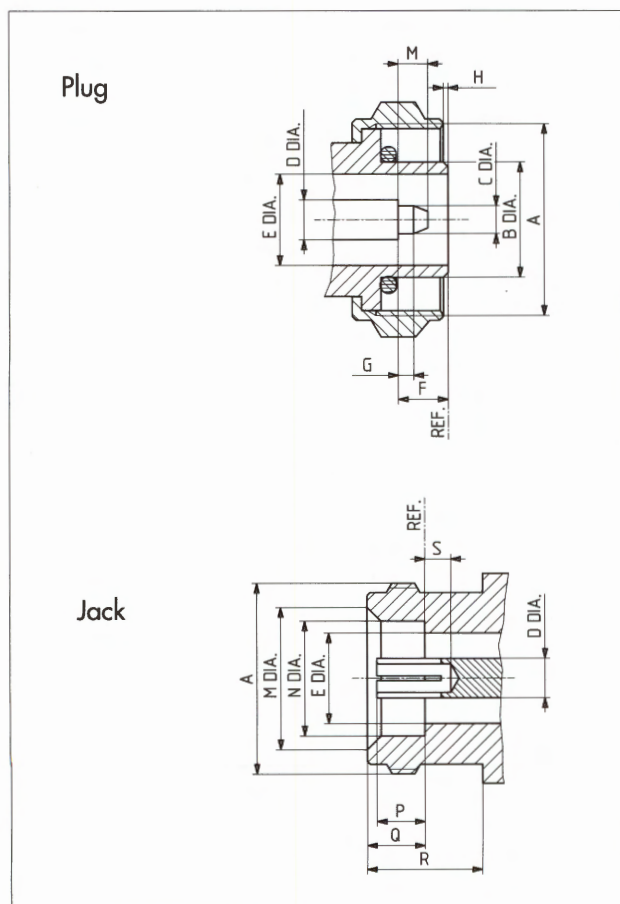
Contents

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Standards

IEC 169-11
VG 95277

Interface



Interface Dimensions in mm / inch conform to IEC 169-11

	Plug		Jack	
	min.	max.	min.	max.
A	M 20 x 1		M 20 x 1	
B	11.84/.4661	12.02/.4732		
C	2.855/.1124	2.945/.1159		
D	4.13 / .1626 nom.		4.13 / .1626 nom.	
E	9.4/.3701	9.6/.3780	9.4/.3701	9.6/.3780
F	5.05/.1988	5.35/.2106		
G	0.8/.031	1.6/.063		
H	0	1.0/.039		
M	2.0/.079	4.0/.157	14.9/.5866	15.0/.5906
N			12.03/.4736	12.21/.4807
P			4.73/.1862	5.03/.1980
Q			5.8/.2283	6.2/.2441
R			8.0/.315	—
S			0	—

Technical Data

Electrical Data	Requirements	
Impedance	50Ω	
Frequency range	DC ... 14 GHz	
VSWR:		
Cable connectors:	≤ 1.12 (RL ≥ 25 dB) f ≤ 2.5 GHz Combination types: ≤ 1.22 (RL ≥ 20 dB)	
Adaptors:	≤ 1.06 (RL ≥ 30 dB) f ≤ 14 GHz	
PIMP ¹⁾	≥ 155 dBc	for SUHNER QUICK-FIT and cable entries group A
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 with 1 GHz	
Insulation resistance	≥ 5 · 10 ³ MΩ	
Contact resistance		
– inner conductor	≤ 0.8 mΩ	
– outer conductor	≤ 2.0 mΩ	

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

Mechanical Data	Requirements	
Coupling nut torque		
– recommended	4 ... 10 Nm / 35 in.-lbs ... 89 in.-lbs	
– proof torque	17 Nm / 150 in.-lbs	
Contact captivation	≥ 80 N / 18 lbs	
Cable retention force:		
Flexible cables:		
– RG 223	≥ 250 N / 56 lbs	
– RG 213	≥ 415 N / 93 lbs	
– RG 214	≥ 530 N / 119 lbs	
Foam dielectric corrugated copper tube cables:		
– 1/2" Superflex	≥ 800 N / 180 lbs	
– 1/2"	≥ 1200 N / 270 lbs	
– 7/8"	≥ 1800 N / 405 lbs	
Durability (matings)	≥ 500	

Environmental Data

	Requirements/tests	
Temperature range	– 65°C ... + 165°C / – 85° F ... + 329° F	
SUHNER QUICK-FIT	– 40°C ... + 85°C / – 40° F ... + 185° F	
Climatic category acc. to IEC	55/155/56	
Corrosion (coupled connectors)	Saltspray test acc. to MIL-STD-202, Method 101, Condition B and IEC-68-2-11, test Ka	
Vibration	IEC-68-2-6, test Fc (10–500 Hz, 10g)	
Moisture resistance (grade of protection acc. to IEC 529)	IP 66	for SUHNER QUICK-FIT

Material Data

Connector part	Material	Plating
Outer conductors	brass	silver plated
Body and other metal parts	brass	Sucoplate®
Contact pins	brass	silver plated
Contact sockets	Beryllium-copper SUHNER QUICK-FIT: phosphor bronze	
Crimp ferrules	copper	
Insulators	PTFE	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from above mentioned data. See individual type specifications.

Cable Connectors

cable plugs, combi-heads

for use as straight or right angle plugs

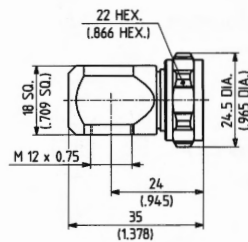


fig. 1

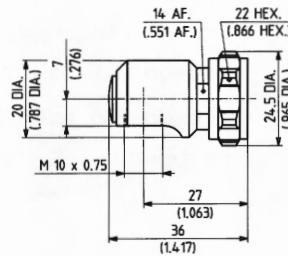


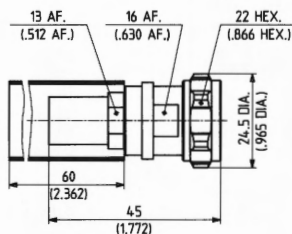
fig. 2



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

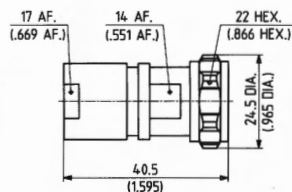
*fitting cable entries see page 7 and 8

straight plugs



SUHNER TYPE	Ident. no.	Suitable cables	Weight	AI	Notes
11 4195-50-7-36c	648495	S 07262 BD RG 214/U	43 g/1.51 oz.	27012	outer conductor crimp D inner conductor soldered

straight plugs



SUHNER TYPE	Ident. no.	Suitable cables	Weight	AI	Notes
11 4195-50-8-10c	645445	LDF2-50 LCF 3/8" Cu2Y	58 g/2.03 oz.	27008	outer conductor clamp inner conductor plugged

straight plugs

SUHNER QUICK-FIT

stripping tools see page 11

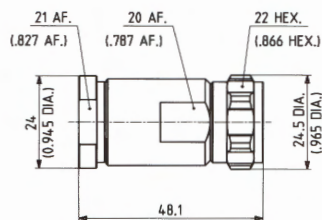


fig. 1

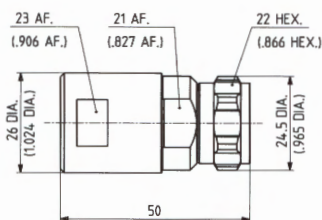


fig. 2

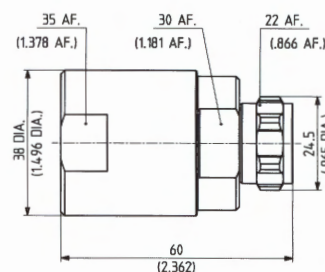


fig. 3

SUHNER TYPE	Ident. no.	Suitable cables	Weight	Al	Fig.
11 4195-50-9-2c	650784	1/2" Superflex *: FSJ4-50B, HCF 1/2" Cu2Y AlCu	88 g/3.08 oz.	9152	1
11 4195-50-12-36c	650786	1/2" *: SUCOFEED 1/2", LDF4-50A, LCF 1/2" Cu2Y	98 g/3.42 oz.	9153	2
11 4195-50-23-1c	650788	7/8" *: SUCOFEED 7/8", LDF5-50A, LCF 7/8" Cu2Y	221 g/7.74 oz.	9154	3

* foam dielectric corrugated copper tube cable

right angle plugs

VSWR ≤ 1.22 for $f \leq 2.0$ GHz

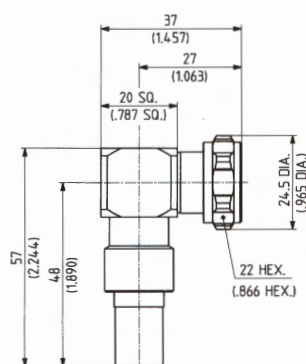


fig. 1

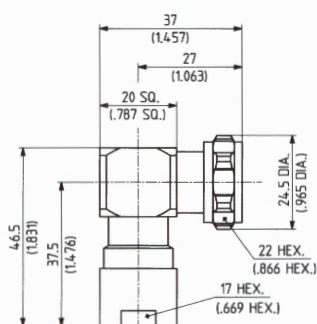
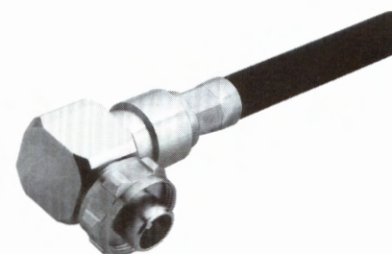


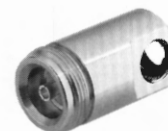
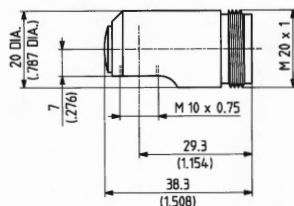
fig. 2



SUHNER TYPE	Ident. no.	Suitable cables	Weight	Al	Notes	Fig.
16 4195-50-7-1c	650520	S 07262 BD, RG214/U	104 g/3.64 oz.	27016	outer conductor crimp D inner conductor soldered	1
16 4195-50-8-10c	647000	LDF2-50, LCF 3/8" Cu2Y	109 g/3.82 oz.	27008	outer conductor clamp inner conductor plugged in	2

cable jacks, combi-head

for use as straight or right angle jacks



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

*fitting cable entries see page 8

cable jacks

SUHNER QUICK-FIT

stripping tools see page 11

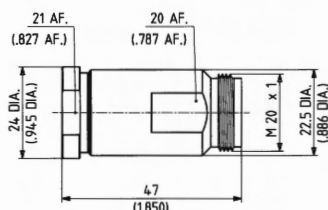


fig. 1

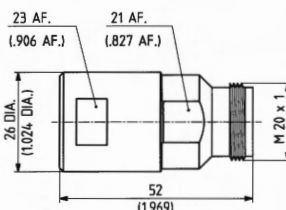


fig. 2

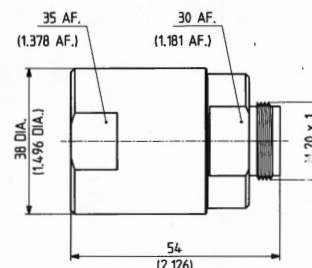


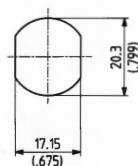
fig. 3

SUHNER TYPE	Ident. no.	Suitable cables	Weight	Al	Fig.
21 4195-50-9-36c	650785	1/2" Superflex *: FSJ4-50B, HCF 1/2" Cu2Y AICu	84 g/2.94 oz.	9152	1
21 4195-50-12-36c	650787	1/2" *: SUCOFEED 1/2", LDF4-50A, LCF 1/2" Cu2Y	100 g/3.50 oz.	9153	2
21 4195-50-23-1c	650789	7/8" *: SUCOFEED 7/8", LDF5-50A, LCF 7/8" Cu2Y	209 g/7.32 oz.	9154	3

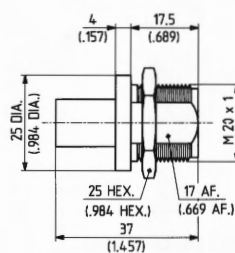
* foam dielectric corrugated copper tube cable

bulkhead jack

outer conductor crimp D
inner conductor crimp 3



Mounting hole

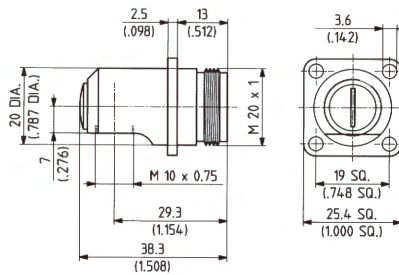


SUHNER TYPE	Ident. no.	Suitable cables	Weight	Al	Notes
24 4195-50-7-1c	646305	RG 214/U	52 g/ 1.82 oz.	3061	VSWR ≤ 1.12; f ≤ 4.0 GHz

panel jacks, combi-head

panel mounted

for use as straight or right angle jacks



SUHNER TYPE	Ident. no.	Cable entries*	Weight	Notes
25 4195-50-0-10c	646501	Group D	74 g/2.59 oz.	inner conductor slot 2.55 mm/.100 in.

*fitting cable entries see page 8

Cable entries

Group A

for foam dielectric corrugated copper tube cables

outer conductor clamp
inner conductor soldered

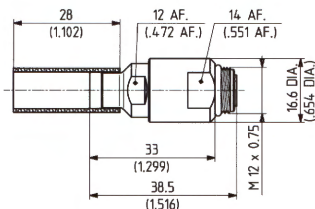


fig. 1

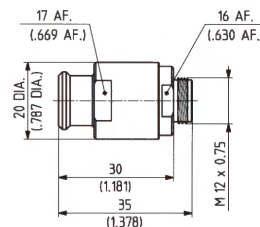


fig. 2

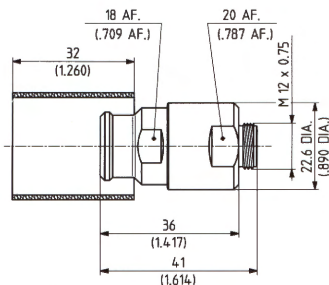


fig. 3

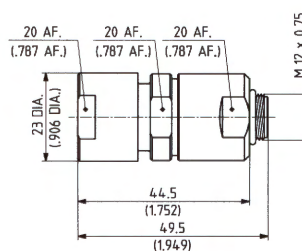


fig. 4



SUHNER TYPE	Ident. no.	Suitable cables	Weight	Al	Fig.
73 Z-0-5-1	650616	1/4" Superflex *: FSJ1-50A, HCF 1/4" Cu2Y	32 g/1.12 oz.	27015	1
73 Z-0-8-1	648823	3/8" *: LDF2-50, LCF 3/8" Cu2Y	38 g/1.33 oz.	27013	2
73 Z-0-9-1	649434	1/2" Superflex *: FSJ4-50B, HCF 1/2" Cu2Y	59 g/2.07 oz.	9161	3
73 Z-0-9-4	649705	1/2" Superflex *: FSJ4-50B, HCF 1/2" Cu2Y	78 g/2.73 oz.	27014	4

* foam dielectric corrugated copper tube cable

Group D for flexible cables

Crimp

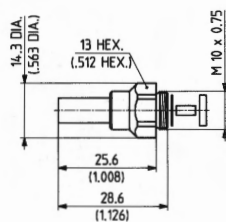


fig. 1

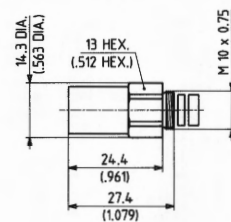
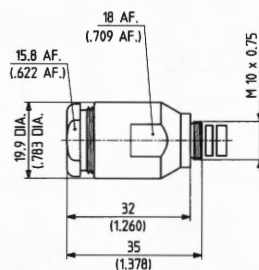


fig. 2



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

clamp
pressure sleeve



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

Receptacles

receptacles, female

panel mounted

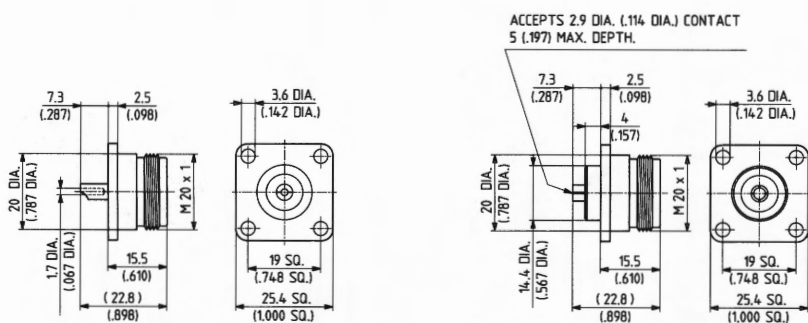
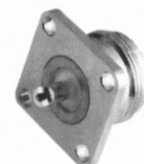


fig. 1

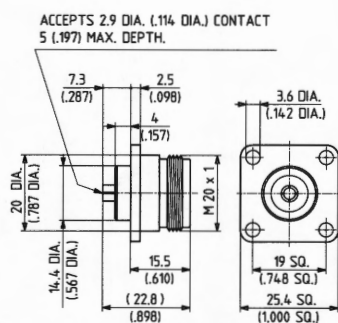


fig. 2

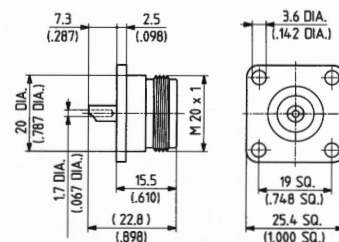
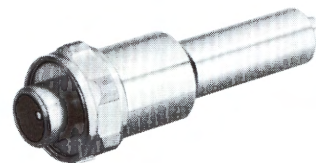
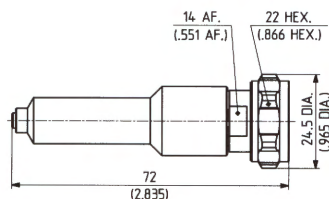


fig. 3

SUHNER TYPE	Ident. no.	Weight	Fig.
23 4195-50-0-11	648289	33 g/1.16 oz.	1
23 4195-50-0-12	648558	37 g/1.30 oz.	2
23 4195-50-0-13	650118	33 g/1.16 oz.	3

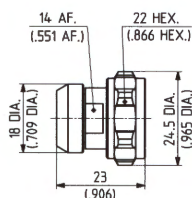
Shorts

offset-short



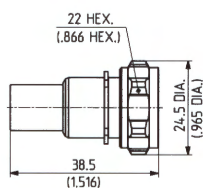
SUHNER TYPE	Ident. no.	Weight	Notes
64 4195-50-0-10	645312	69 g/2.42 oz.	

offset-short

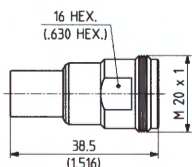


SUHNER TYPE	Ident. no.	Weight	Notes
64 4195-50-0-11	645311	32 g/1.12 oz.	

Terminations



SUHNER TYPE	Ident. no.	Connector	Impedance	VSWR 2.5 GHz	Weight	Power
65 4195-50-0-1	649644	4.1/9.5 plug	50Ω ± 1%	≤ 1.06	43 g/1.51 oz.	1 Watt, 2.5 kW peak ¹⁾

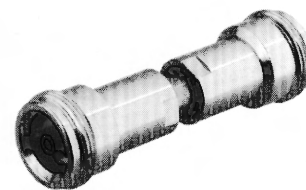
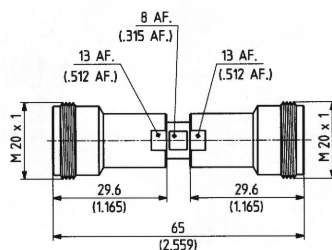


SUHNER TYPE	Ident. no.	Connector	Impedance	VSWR 2.5 GHz	Weight	Power
65 4195-50-0-31	649643	4.1/9.5 jack	50Ω ± 1%	≤ 1.06	43 g/1.51 oz.	1 Watt, 2.5 kW peak ¹⁾

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

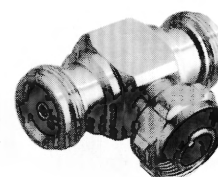
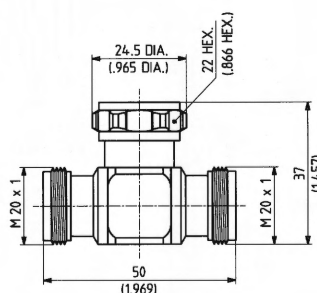
Adaptors Within-Series

straight adaptor
jack to jack



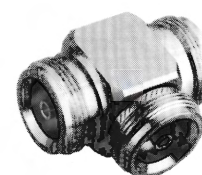
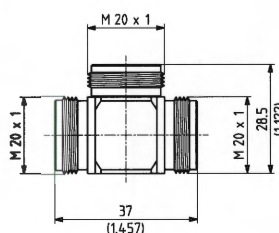
SUHNER TYPE	Ident. no.	Weight	Notes
31 4195-50-0-1	648684	76 g/2.66 oz.	VSWR ≤ 1.06 ; $f \leq 2.5$ GHz VSWR ≤ 1.13 ; $2.5 \text{ GHz} < f \leq 14.0 \text{ GHz}$

T-adaptor
2 jacks
1 plug



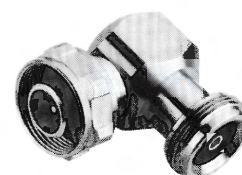
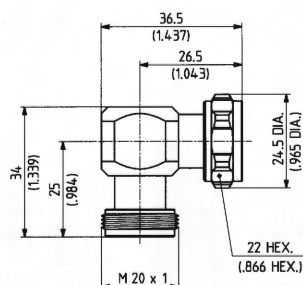
SUHNER TYPE	Ident. no.	Weight	Notes
43 4195-50-0-10	646335	116 g/4.06 oz.	

T-Adaptor
3 jacks



SUHNER TYPE	Ident. no.	Weight	Notes
46 4195-50-0-10	645446	89 g/3.12 oz.	

right angle adaptor
plug to jack



SUHNER TYPE	Ident. no.	Weight	Notes
53 4195-50-0-10	646334	79 g/2.77 oz.	VSWR ≤ 1.06 ; $f \leq 4.0 \text{ GHz}$

Adaptors Between-Series

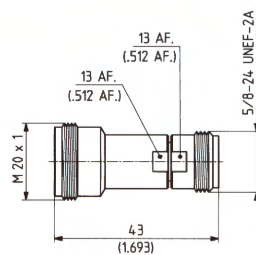
SUHNER TYPE

31 N-4195-50-12

N jack
4.1/9.5 jack

VSWR ≤ 1.06 ; $f \leq 14$ GHz

Weight: 48 g/1.68 oz.
Ident. no. 646160



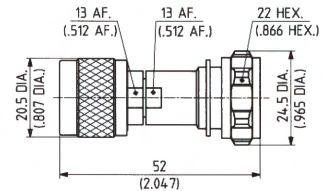
SUHNER TYPE

32 4195-N-50-1

4.1/9.5 plug
N plug

VSWR ≤ 1.06 ; $f \leq 14$ GHz

Weight: 65 g/2.28 oz.
Ident. no. 650781



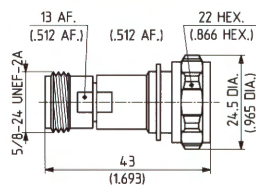
SUHNER TYPE

33 4195-N-50-1

4.1/9.5 plug
N jack

VSWR ≤ 1.06 ; $f \leq 14$ GHz

Weight: 47 g/1.65 oz.
Ident. no. 646154



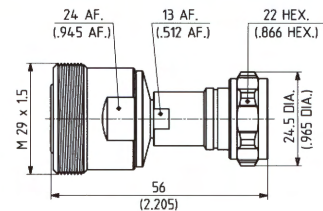
SUHNER TYPE

33 4195-716-50-1

4.1/9.5 plug
7/16 jack

VSWR ≤ 1.06 ; $f \leq 7.5$ GHz

Weight: 108 g/3.78 oz.
Ident. no. 650069



Assembly tools

SUHNER QUICK-FIT cable stripping tools for foam dielectric corrugated copper tube cables

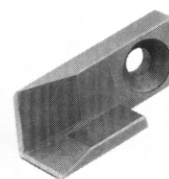
For easy cable preparation in one single operation



SUHNER TYPE	Ident. no.	Cable type	Weight	Assembly instruction
74 Z-0-9-13	650818	1/2" Superflex *: FSJ4-50B, HCF 1/2" Cu2Y	340 g/11.90 oz.	9152
74 Z-0-12-13	650122	1/2" *: SUCOFEED 1/2", LDF4-50A, LCF 1/2" Cu2Y	330 g/11.55 oz.	9153
74 Z-0-23-13	650123	7/8" *: SUCOFEED 7/8", LDF5-50A, LCF 7/8" Cu2Y	410 g/14.35 oz.	9154

* foam dielectric corrugated copper tube cables

**Spare parts
for SUHNER QUICK-FIT-stripping tools**



SUHNER TYPE	Ident. no.	Part	Application	Function
74 Z-0-0-291	650564	knife	74 Z-0-12-13 74 Z-0-23-13	stripping jacket
74 Z-0-0-293	650566	triangle knife	74 Z-0-9-13 74 Z-0-12-13 74 Z-0-23-13	deburring inner conductor
74 Z-0-0-296	650530	knife	74 Z-0-9-13 74 Z-0-12-13	cutting corrugated copper tube
74 Z-0-0-297	650531	knife	74 Z-0-23-13	cutting corrugated copper tube
74 Z-0-0-298	650725	machine adaptor	74 Z-0-9-13 74 Z-0-12-13 74 Z-0-23-13	machine operation