

SERIES TNC 50 Ω

COAXIAL MINIATURE CONNECTORS

Description

SUHNER TNC connectors are threaded RF connectors applicable from DC up to 11 GHz. Precision designs using a dielectric bead are suitable for use up to 18 GHz. The threaded coupling mechanism improves control over the interface dimensions and allows them to be used under a higher environmental load than BNC, especially under a high vibration load.

Compatibility

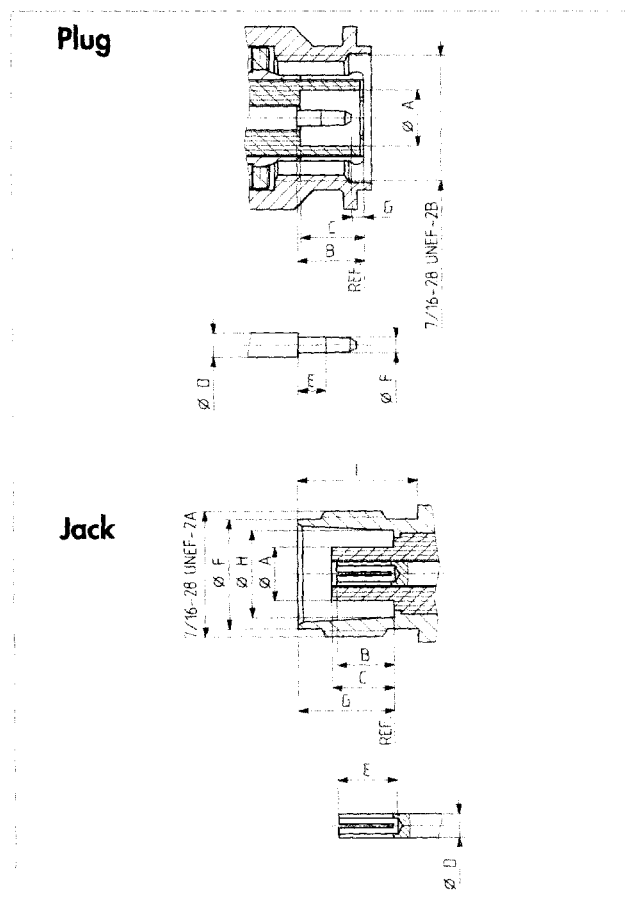
All 75 Ω TNC connectors and 50Ω connectors are intermateable without restrictions.

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Interface Dimensions



Interface Dimensions in mm / inches

	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	—	—	4.72/.186
B	5.33/.210	5.84/.230	4.72/.186	5.23/.206
C	5.28/.208	5.79/.228	4.78/.188	5.28/.208
D	2.06/.081	2.21/.087	2.06/.081	2.21/.087
E	1.98/.078	—	4.95/.195	—
F	1.32/.052	1.37/.054	9.60/.378	9.70/.382
G	0.08/.003	—	8.31/.327	8.51/.335
H	—	—	8.10/.319	8.15/.321
I	—	—	10.52/.414	—

Standards

Interface dimensions conform to:
IEC 169-17
MIL-STD-348A/313
CECC 22 200

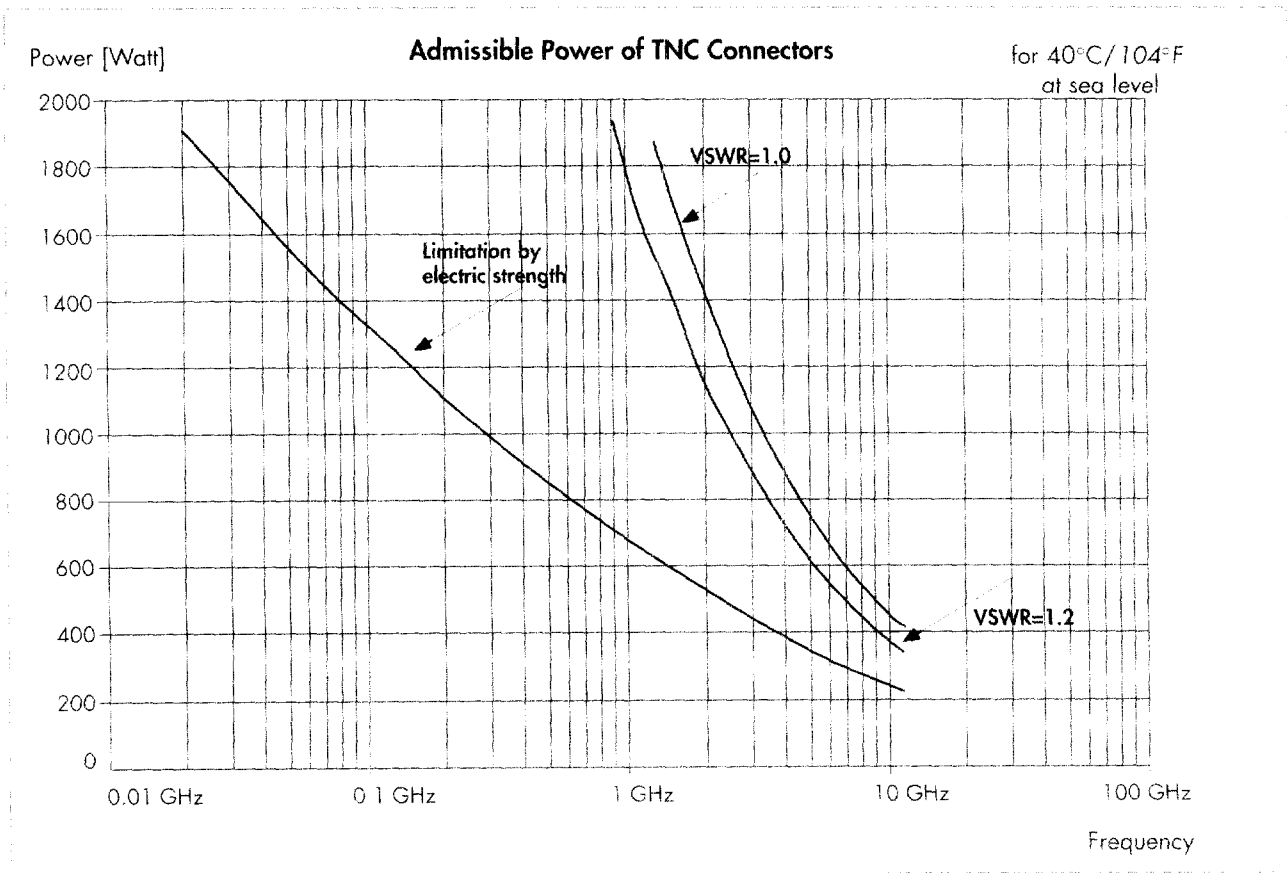
TNC

Technical Data

ELECTRICAL DATA	REQUIREMENTS
Impedance	50 Ω
Frequency range	DC ... 11 GHz (see also Appendix page 436)
VSWR	see table below
Insertion loss	see Appendix page 437
RF-leakage (between 2 ÷ 3 GHz)	≥ 60 dB
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz
Working voltage (at sea level) – unmated	≤ 500 V rms, 50 Hz
Insulation resistance	$\geq 5 \cdot 10^3$ M Ω
Contact resistance – centre contact – outer contact	≤ 1.5 m Ω ≤ 1 m Ω

TYPICAL VSWR	FREQUENCY RANGE		FREQUENCY RANGE		CABLE GROUP
	1 GHz	2.5 GHz	5 GHz	11 GHz	
straight connectors	1.06	1.08	1.11	1.30	Y3, Y11
	1.06	1.08	1.11	1.22	Y5, Y12
	1.10	1.15	1.20		U2, U4
	1.10	1.15	1.17		U7, U9
	1.04	1.06	1.08		U33
right angle connectors	1.06	1.12	1.30		U2, U4
	1.05	1.18	1.25		U7, U9
	1.09	1.16	1.30		U33

Other connectors and cables on request



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

MECHANICAL DATA

REQUIREMENTS

Coupling nut torque	
- recommended	46 Ncm ... 69 Ncm / 4.1 in.-lbs ... 6.1 in.-lbs
- proof torque	170 Ncm / 15.0 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
Temperature range	- 65°C ... + 165°C / - 89°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
Sealing	connectors with clamp type cable entry are waterproof

MATERIAL DATA			
CONNECTOR PART	STANDARDS	MATERIAL	PLATING
Bodies Pin contact	QQ-B-626	brass	SUCOPLATE [®] gold plated
Socket contact	QQ-C-530	beryllium-copper, hardened	gold plated
Crimp ferrules	SUHNER [®] specification	copper	SUCOPLATE [®]
Insulators, standard version	ASTM-D-1457, BS 4271 Grade B	PTFE	
Gaskets	ASTM-M-E 1418 PS 1	silicone rubber	

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

Connectors for Semi-Rigid Cables

straight plugs

- > cable entry soldered
- > centre contact soldered

3 security holes $\varnothing 1/039$ DIA

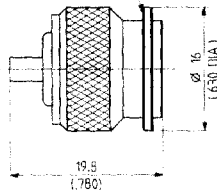


Fig. 1

3 security holes $\varnothing 1/039$ DIA

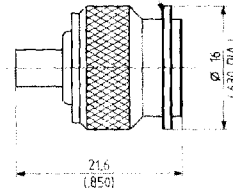
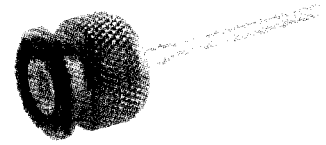


Fig. 2



SUHRER TYPE	Ident. no.	Cable group (example)	Assembly instruction	Weight	Fig.	Notes
11 TNC-50-2-20	642519	Y3, Y11 (EZ 86)	9100	9.5 g/ .333 oz.	1	
11 TNC-50-3-29	544841	Y5, Y12 (EZ 141)	9106	9.5 g/ .333 oz.	2	

bulkhead jacks

- > cable entry soldered
- > with panel seal
- > suitable for insulated mounting
- > insulating washers see page 425

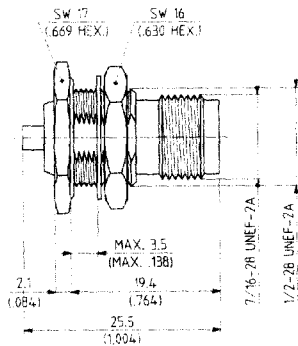


Fig. 1

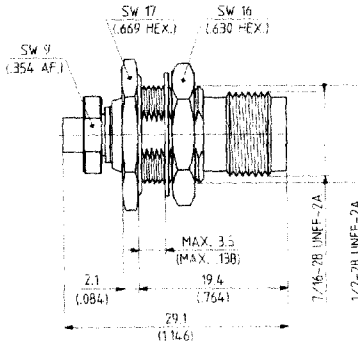


Fig. 2



SUHRER TYPE	Ident. no.	Cable group (example)	Assembly instruction	Mounting hole	Weight	Fig.	Notes
24 TNC-50-2-20	642396	Y3, Y11 (EZ 86)	9100	ML 4	16.0 g/ .560 oz.	1	
24 TNC-50-3-29	651580	Y5, Y12 (EZ 141)	9005	ML 4	17.5 g/ .613 oz.	2	

cable groups see page 36

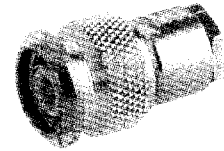
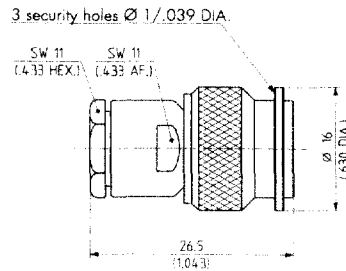
assembly tools see page 403

mounting holes see page 441

Connectors for Flexible Cables

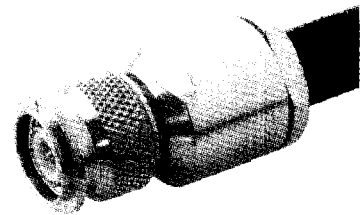
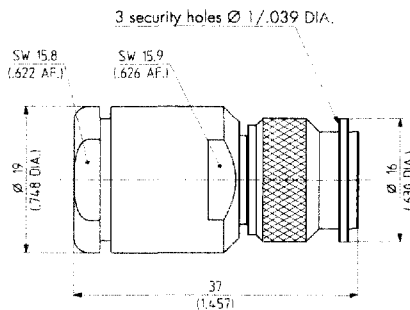
straight plugs

- > cable entry clamp
- > centre contact soldered



SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Assembly instruction	Weight	Notes
11 TNC-50-2-1	• 640783	U2 (RG 316/U)		3005	22.0 g/ .770 oz.	
11 TNC-50-3-5	• 640798	U7,10 (RG58C/U)	26-0101	3005	20.0 g/ .700 oz.	
11 TNC-50-3-6	543475	U7,10 (RG58C/U)		3004	20.0 g/ .700 oz.	

- > cable entry clamp
- > centre contact soldered



SUHNER TYPE	Ident. no.	Cable group (example)		Assembly instruction	Weight	Notes
11 TNC-50-7-2	• 640466	U28 (RG 213/U) U33 (RG 214/U)		3008	42.0 g/ 1.47 oz.	

- centre contact captivated

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

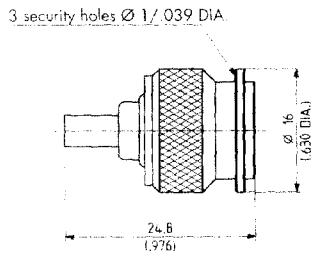


Fig. 1

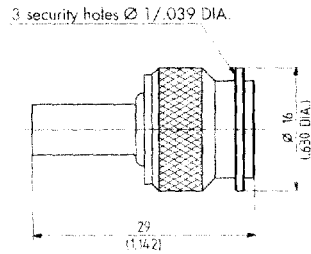
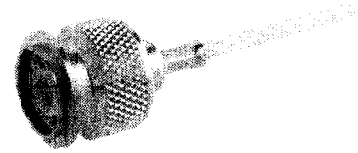
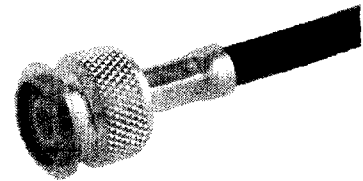
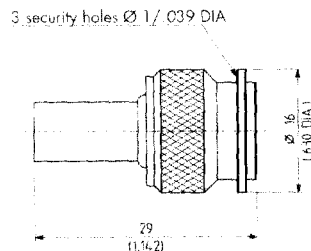


Fig. 2



SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Crimp insert	Assembly instruction	Weight	Fig.	Notes
11 TNC-50-1-6	• 641660	U1 (RG 178 B/U)		1 A	9068	14.0 g/.490 oz.	1	
11 TNC-50-2-9	• 641652	U2 (RG 316/U)		1 A	9068	14.0 g/.490 oz.	1	
11 TNC-50-2-10	• 641659	U4 (K 02252 D)		1 A	9068	14.0 g/.490 oz.	1	
11 TNC-50-3-9	• 640423	U7 (RG 58 C/U)	26-0005	2 B	3015	14.5 g/.501 oz.	2	
11 TNC-50-3-14	• 640432	U9 (RG 223/U)	26-0016	2 B	3015	14.5 g/.501 oz.	2	
11 TNC-50-3-25	• 640444	U11 (RG 400/U)		2 B	3015	14.5 g/.501 oz.	2	

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



SUHNER TYPE	Ident. no.	Cable group (example)	Crimp insert	Assembly instruction	Weight	Notes
11 TNC-50-4-14	• 652089	S16 (S 04172 D)	2 C	3015	14.5 g/.508 oz.	

- centre contact captivated

right angle plugs

- > cable entry clamp
- > centre contact soldered

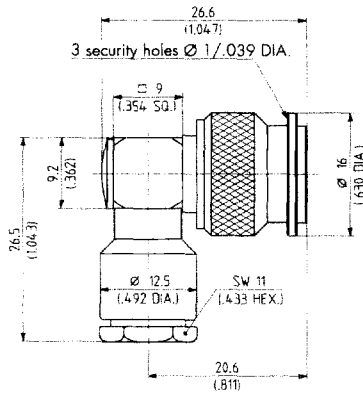


Fig. 1

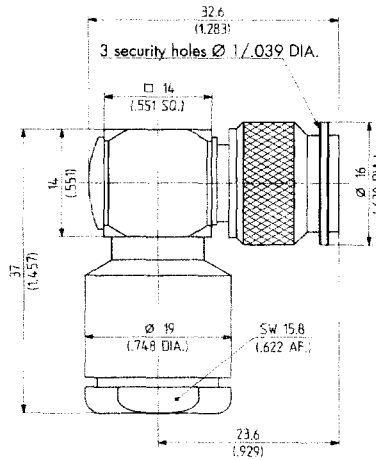
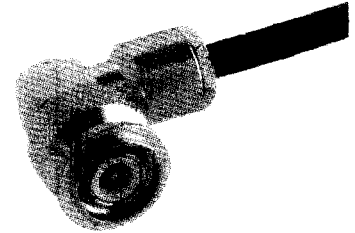


Fig. 2



SUHNER TYPE	Ident. no.	Cable group (example)	Assembly instruction	Weight	Fig.	Notes
16 TNC-50-3-5	● 640485	U7,10 (RG58C/U)	3024	29.0 g/ 1.02 oz.	1	
16 TNC-50-7-4	● 651587	U28 (RG 213/U) U33 (RG 214/U)	3003	56.0 g/ 1.96 oz.	2	

- > cable entry crimp
- > centre contact soldered
- > taper sleeves see page 423

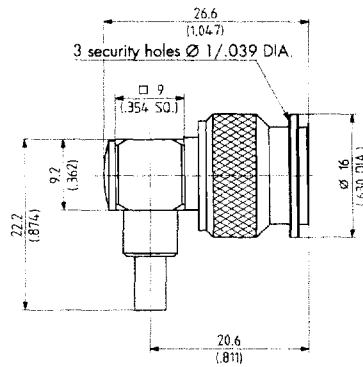


Fig. 1

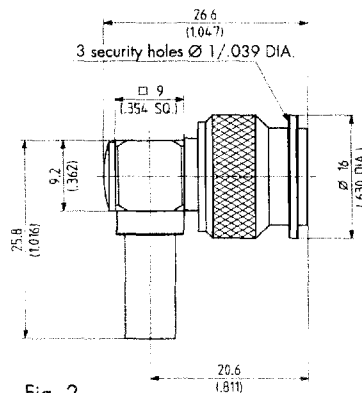
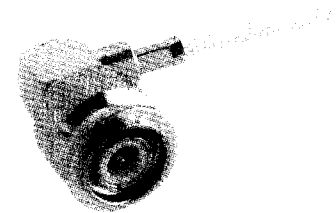


Fig. 2



SUHNER TYPE	Ident. no.	Cable group (example)	Crimp insert	Assembly instruction	Weight	Fig.	Notes
16 TNC-50-2-3	● 641607	U2 (RG 316/U)	A	3079	21.0 g/ .735 oz.	1	
16 TNC-50-2-5	● 646224	U4 (K 02252 D)	A	3079	20.0 g/ .700 oz.	1	
16 TNC-50-3-9	● 640489	U7 (RG 58 C/U)	B	3058	22.0 g/ .770 oz.	2	
16 TNC-50-3-10	● 640491	U9 (RG 223/U)	B	3058	22.0 g/ .770 oz.	2	

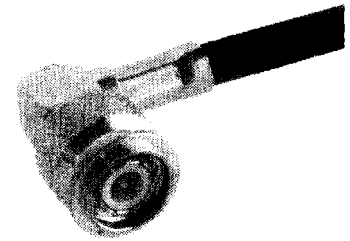
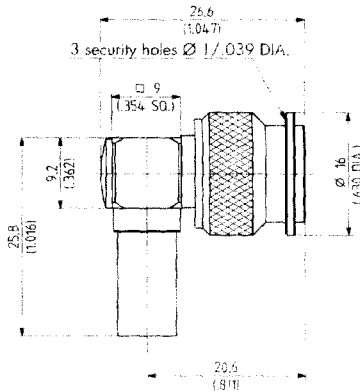
● centre contact captivated

cable groups see page 36

assembly tools see page 403

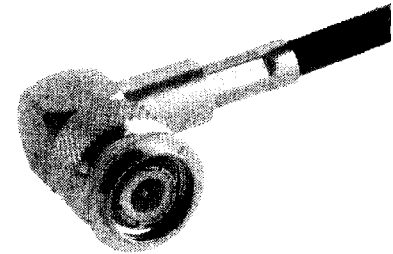
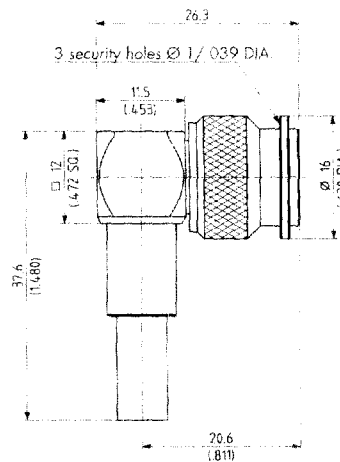
mounting holes see page 441

- > cable entry crimp
- > centre contact soldered
- > taper sleeves see page 423



SUHNER TYPE	Ident. no.	Cable group (example)	Crimp insert	Assembly instruction	Weight	Notes
16 TNC-50-4-14	• 652090	S16 (S 04172 D)	C	3058	21.0 g/.735 oz.	

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



SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Crimp insert	Assembly instruction	Weight	Notes
16 TNC-50-3-13	• 640492	U7 (RG 58 C/U)	30-0005	2 B	3015	30.5 g/1.068 oz.	
16 TNC-50-3-18	• 543606	U9 (RG 223/U)	30-0016	2 B	3015	30.5 g/1.068 oz.	

- centre contact captivated

straight jacks

- > cable entry clamp
- > centre contact soldered

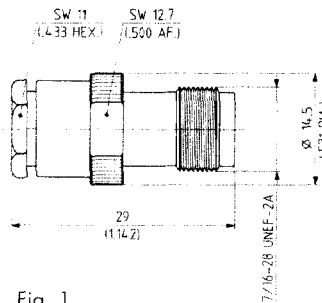


Fig. 1

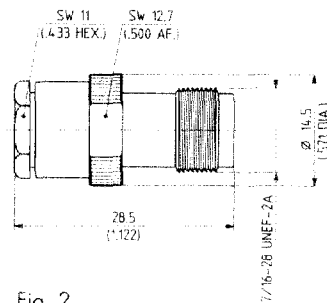
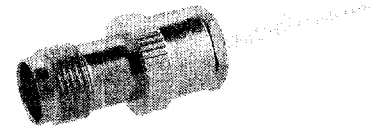
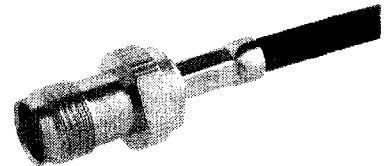
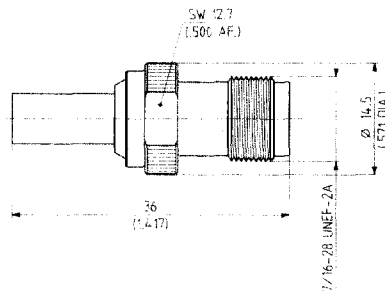


Fig. 2



SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Assembly instruction	Weight	Fig.	Notes
21 TNC-50-2-2	● 640515	U2 (RG 316/U)		3005	17.0 g/.595 oz.	1	
21 TNC-50-3-4	● 640523	U7.10 (RG58C/U)	27-0101	3005	15.5 g/.543 oz.	2	

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

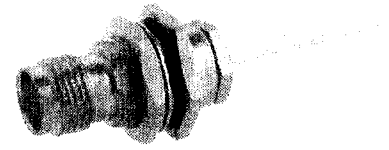
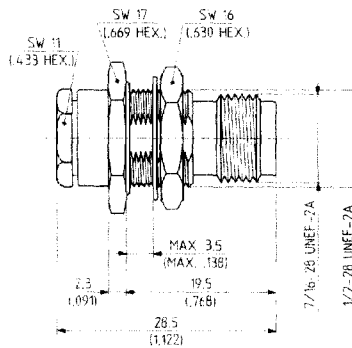


SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Crimp insert	Assembly instruction	Weight	Notes
21 TNC-50-3-7	● 640526	U7 (RG 58 C/U)	27-0005	2 B	3015	14.9 g/.522 oz.	
21 TNC-50-3-9	● 641755	U9 (RG 223/U)	27-0016	2 B	3015	14.0 g/.490 oz.	

- centre contact captivated

bulkhead jacks

- > cable entry clamp
- > centre contact soldered
- > with panel seal
- > rear mounting
- > suitable for insulated mounting
- > insulating washers see page 425



SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Assembly instruction	Mounting hole	Weight	Notes
24 TNC-50-1-1	● 652091	U1 (RG 178 B/U)		3005	ML 4	21.5 g/.753 oz.	
24 TNC-50-2-1	● 543398	U2 (RG 316/U)		3005	ML 4	21.5 g/.753 oz.	
24 TNC-50-3-3	● 543406	U7,10 (RG58C/U)	28-0101	3005	ML 4	19.0 g/.665 oz.	

- > SUHNER® full crimp
- > with panel seal
- > rear mounting
- > taper sleeves see page 423
- > suitable for insulated mounting
- > insulating washers see page 425

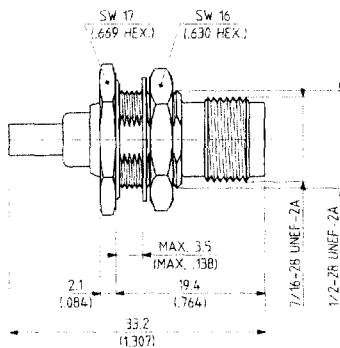


Fig. 1

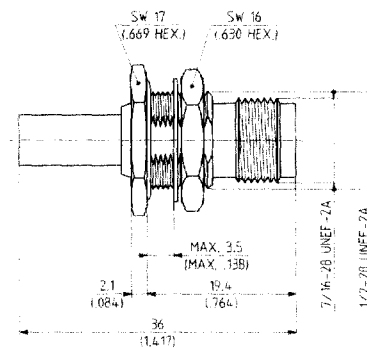
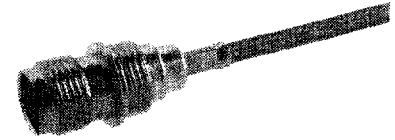
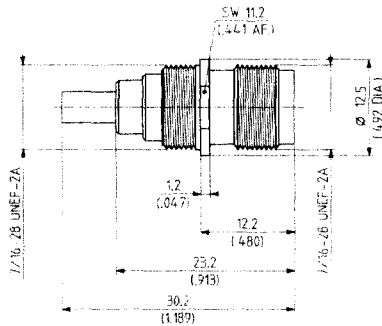


Fig. 2

SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Crimp insert	Assembly instruction	Mounting hole	Weight	Fig.
24 TNC-50-2-4	● 641799	U2 (RG 316/U)		1A	9068	ML 4	17.0 g/.595 oz.	1
24 TNC-50-2-7	● 643533	U4 (K 02252 D)		1A	9068	ML 4	17.0 g/.595 oz.	1
24 TNC-50-3-6	● 640565	U7 (RG 58 C/U)	28-0005	2B	3015	ML 4	17.5 g/.613 oz.	2
24 TNC-50-3-8	● 640567	U9 (RG 223/U)	28-0016	2B	3015	ML 4	17.5 g/.613 oz.	2

- centre contact captivated

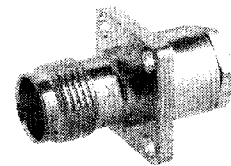
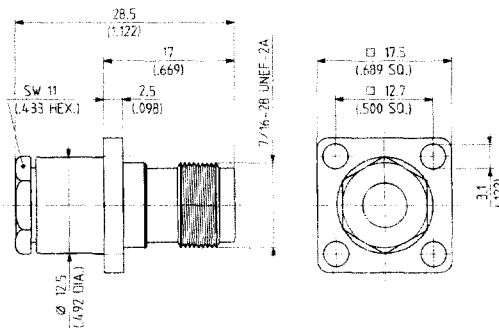
- > SUHNER® full crimp
- > taper sleeves see page 423
- > front mounting, screw-in



SUHNER TYPE	Ident. no.	Cable group (example)	Crimp insert	Assembly instruction	Weight	Notes
24 TNC-50-2-15	● 652092	U4 (K 02252 D)	2 A	27081	9.5 g/.333 oz.	

panel jacks

- > cable entry clamp
- > centre contact soldered
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	Cable group (example)	Assembly instruction	Mounting hole	Weight	Notes
25 TNC-50-1-1	● 640575	U1 (RG 178 B/U)	3005	ML 8	19.5 g/.683 oz.	
25 TNC-50-2-1	● 640578	U2 (RG 316/U)	3005	ML 8	19.5 g/.683 oz.	
25 TNC-50-3-9	● 643707	U7,10 (RG58C/U)	3005	ML 8	18.5 g/.648 oz.	

- centre contact captivated

- > SUHNER® full crimp
- > fastening screws see page 424
- > taper sleeves see page 423

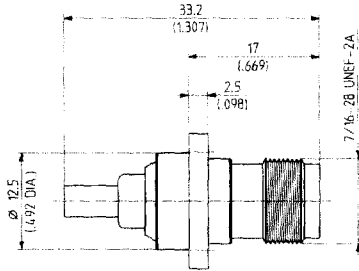
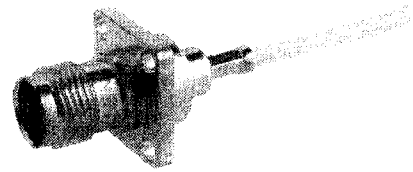


Fig. 1

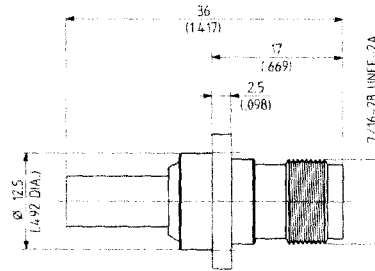
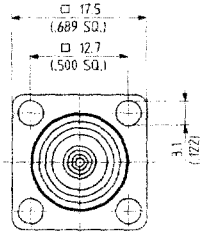
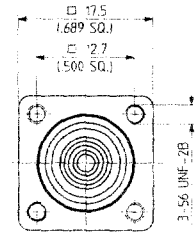


Fig. 2

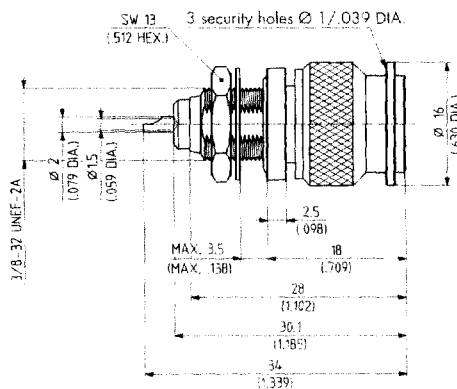


SUHNER TYPE	Ident. no.	Cable group (example)	MIL M 39012/	Crimp insert	Assembly instruction	Mounting hole	Weight	Fig.
25 TNC-50-2-11	• 643545	U2 (RG 316/U)		1 A	9068	ML 8	17.0 g/.595 oz.	1
25 TNC-50-3-14	• 543594	U7 (RG 58 C/U)	29-0005	2 B	3015	ML 8	17.0 g/.595 oz.	2
25 TNC-50-3-22	• 652093	U9 (RG 223/U)	29-0016	2 B	3015	ML 8	17.0 g/.595 oz.	2

Receptacles with Solder End

receptacle, male

- > bulkhead mounted
- > with panel seal
- > suitable for insulated mounting
- > insulating washers see page 425
- > solder tags see page 426



TNC 50

SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
12 TNC-50-0-1	• 640467	ML 2	21.0 g/.735 oz.	

- centre contact captivated

receptacles, female

- > bulkhead mounted
- > suitable for insulated mounting
- > insulating washers see page 425
- > solder tags see page 426

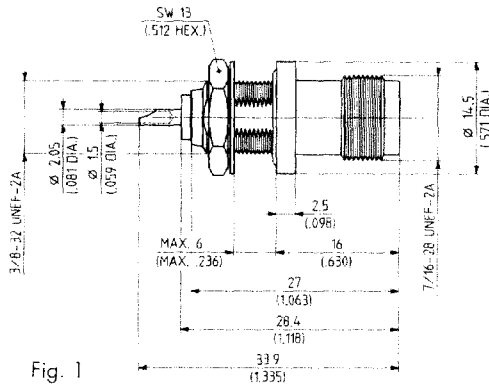
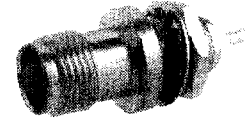


Fig. 1

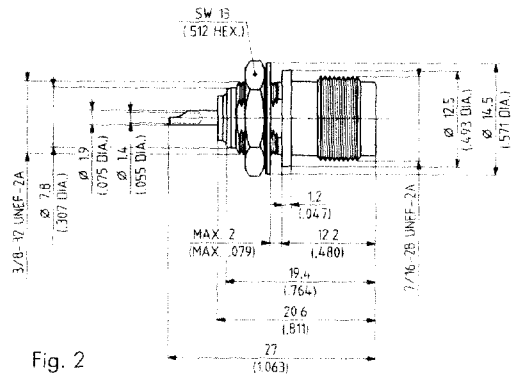
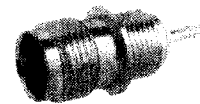
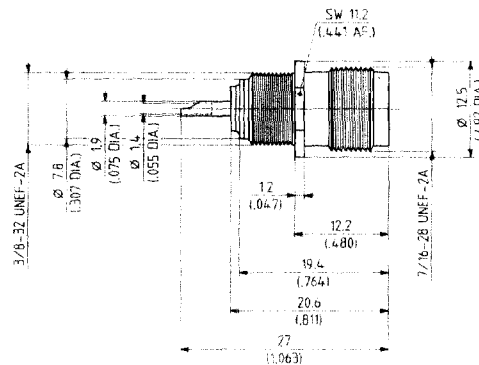


Fig. 2

SUHRER TYPE	Ident. no.	Mounting hole	Weight	Fig.	Notes
22 TNC-50-0-1	● 640537	ML 1	12.0 g/ .420 oz.	1	with panel seal
22 TNC-50-0-2	● 640539	ML 2	8.5 g/ .298 oz.	2	

- > bulkhead mounted

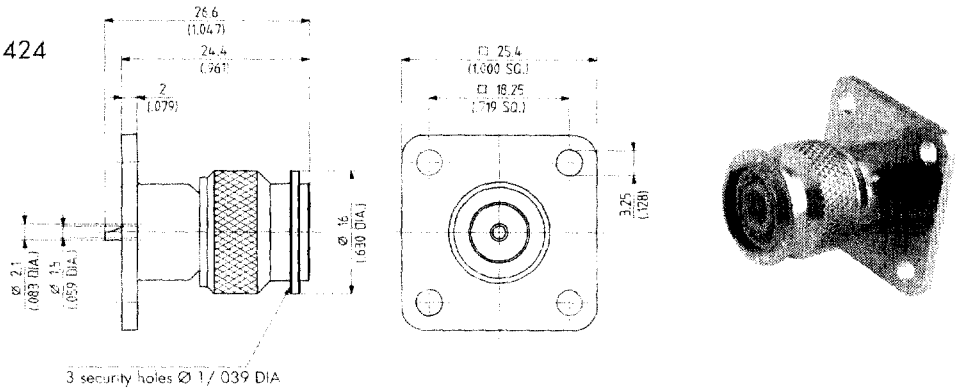


SUHRER TYPE	Ident. no.	Weight	Notes
22 TNC-50-0-27	652094	6.0 g/ .210 oz.	

- centre contact captivated

receptacle, male

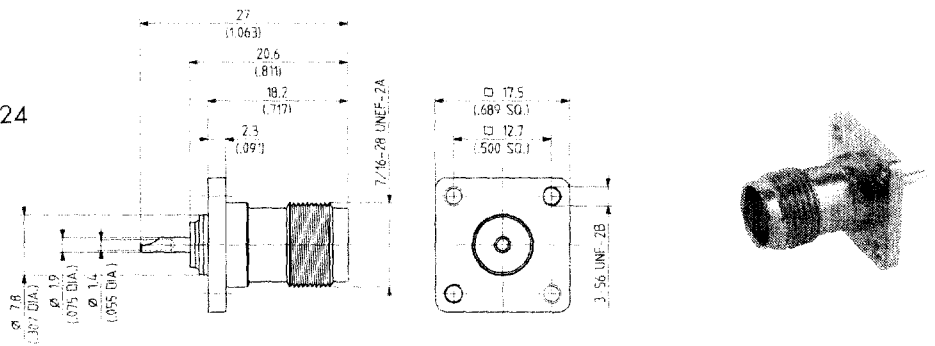
- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
13 TNC-50-0-2	• 640470	ML 5	25.0 g/.875 oz.	suitable for SUCOBX® applications, see page 428

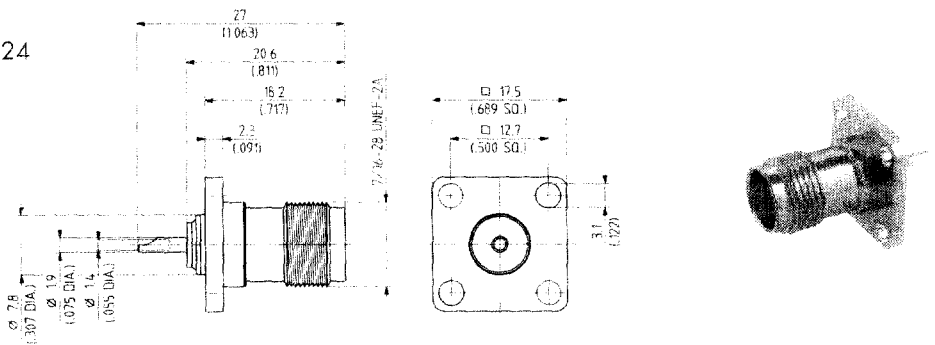
receptacles, female

- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	MIL M	Mounting hole	Weight	Notes
23 TNC-50-0-1	• 640547	39012/	ML 6	11.0 g/.385 oz.	

- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
23 TNC-50-0-2	• 640549	ML 6	11.0 g/.385 oz.	

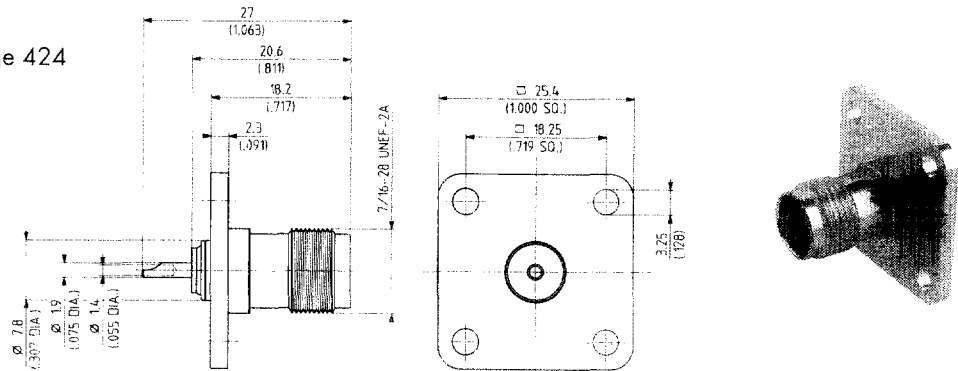
• centre contact captivated

cable groups see pages 36

assembly tools see page 403

mounting holes see page 441

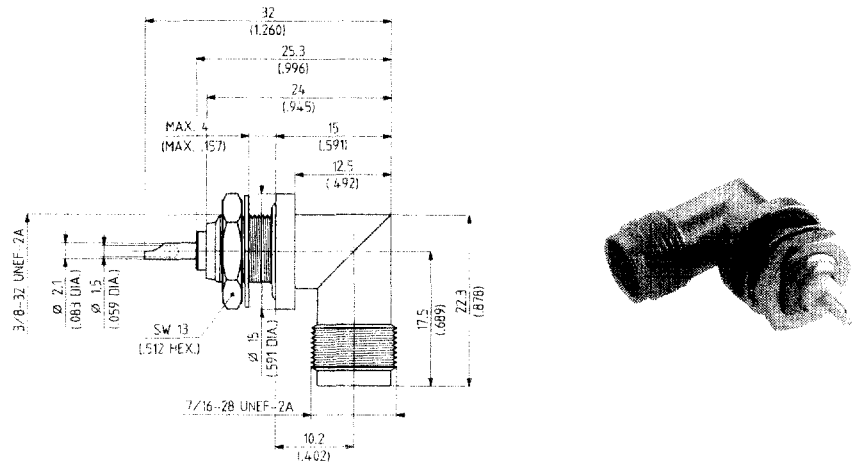
- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	Mounting hole	Weight	Notes
23 TNC-50-0-6	• 640551	ML 5	18.0 g/.630 oz.	suitable for SUCOBOX® applications, see page 428

right angle receptacle, female

- > bulkhead mounted
- > with panel seal
- > suitable for insulated mounting
- > insulating washers see page 425
- > solder tags see page 426



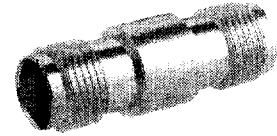
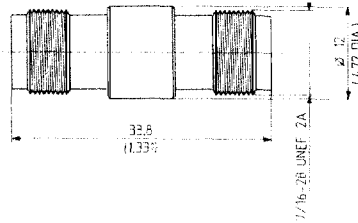
SUHNER TYPE	Ident. no.	MIL M	Mounting hole	Weight	Notes
27 TNC-50-0-1	• 543405	39012/	ML 2	17.0 g/.595 oz.	

- centre contact captivated

Adaptors Within-Series

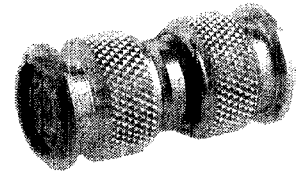
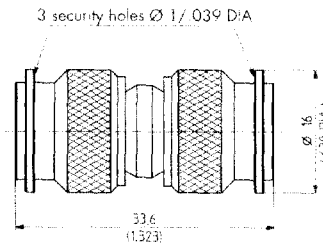
straight adaptors

> jack to jack



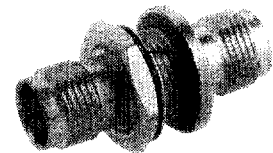
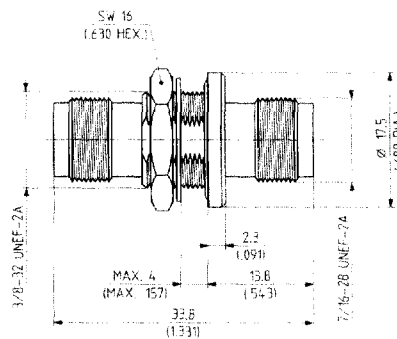
SUHNER TYPE	Ident. no.	MIL M	VSWR	Weight	Notes
31 TNC-50-0-1	• 640623	55339/ 33-00001	DC - 11 GHz ≤ 1.06 + 0.11 f	13.5 g / .473 oz.	

> plug to plug



SUHNER TYPE	Ident. no.	MIL M	VSWR	Weight	Notes
32 TNC-50-0-1	• 543407	55339/ 36-00001	DC - 11 GHz ≤ 1.03 + 0.025 f	28.0 g / .980 oz.	

> jack to jack
> bulkhead mounted
> with panel seal

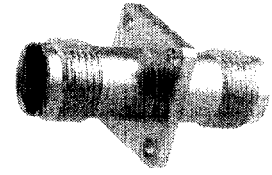
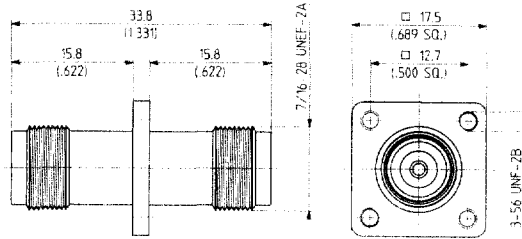


SUHNER TYPE	Ident. no.	MIL M	VSWR	Mounting hole	Weight
34 TNC-50-0-1	• 640643	55339/ 34-00001	DC - 2 GHz 2 - 8 GHz 8 - 11 GHz ≤ 1.05 ≤ 1.50 ≤ 1.90	ML 4	18.5 g / .648 oz.

• centre contact captivated

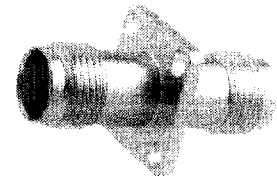
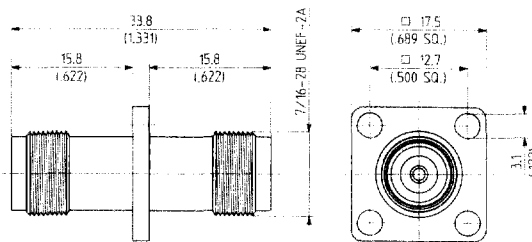
TNC 50

- > jack to jack
- > panel mounted
- > fastening screws see page 424



SUHNER TYPE	Ident. no.	VSWR DC – 9 GHz	Mounting hole	Weight	Notes
37 TNC-50-0-1	• 640646	$\leq 1.09 + 0.16 f$	ML 8	14.5 g / .508 oz.	

- > jack to jack
- > panel mounted
- > fastening screws see page 424

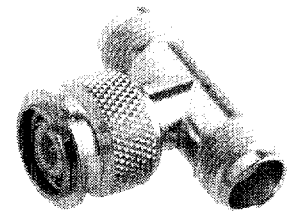
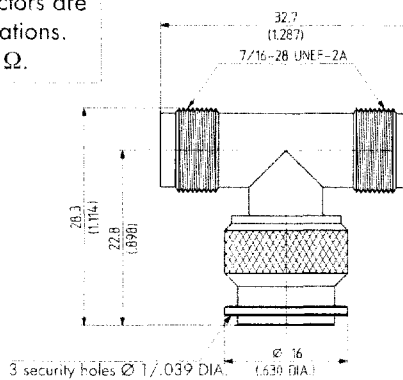


SUHNER TYPE	Ident. no.	VSWR DC – 11 GHz	Mounting hole	Weight	Notes
37 TNC-50-0-2	• 640648	$\leq 1.03 + 0.025 f$	ML 8	14.0 g / .490 oz.	

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.	MIL M 55339/	Weight	Notes
43 TNC-50-0-1	• 640651	35-00001	23.5 g / .823 oz.	

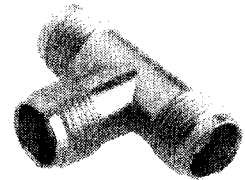
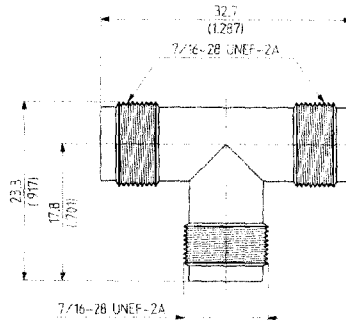
- centre contact captivated

cable groups see page 36

assembly tools see page 403

mounting holes see page 441

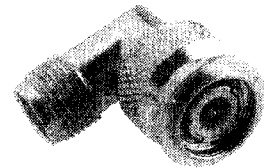
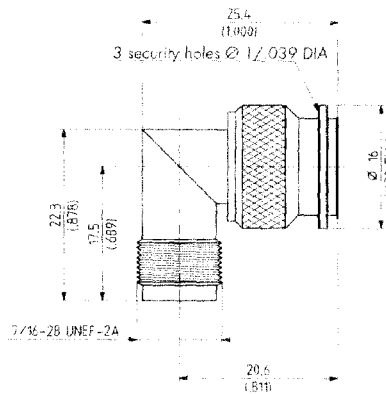
> 3 jacks



SUHNER TYPE	Ident. no.	Weight	Notes
46 TNC-50-0-1	• 640655	13.0 g/.455 oz.	

right angle adaptor

> plug to jack



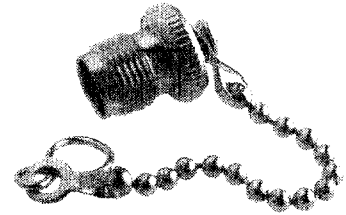
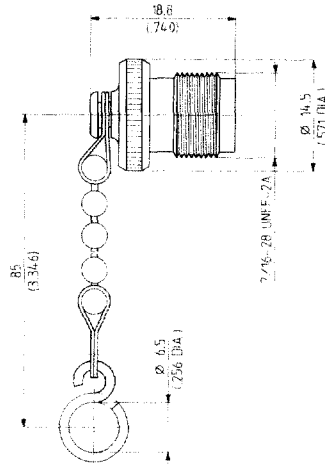
SUHNER TYPE	Ident. no.	MIL M	VSWR	Weight	Notes
53 TNC-50-0-1	• 640659	55339/	DC - 5 GHz	5 - 11 GHz	
		32-00001	$\leq 1.03 + 0.11 f$	≤ 1.58	20.5 g/.718 oz.

• centre contact captivated

TNC 50

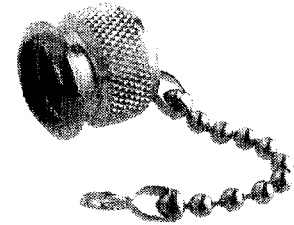
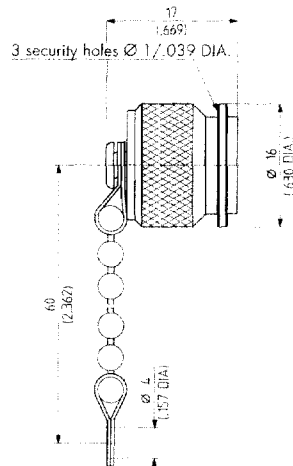
Protective Caps and Shorts

protective cap for plugs



SUHNER TYPE	Ident. no.	MIL M 39012/	Weight	Notes
61 TNC-0-0-1	640661	25-00018	9.0 g/.315 oz.	

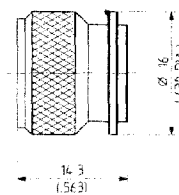
protective cap for jacks



SUHNER TYPE	Ident. no.	MIL M 39012/	Weight	Notes
62 TNC-0-0-1	640665	25.0020	12.0 g/.420 oz.	

short circuit for jacks

3 security holes Ø 1/039 DIA.



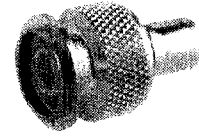
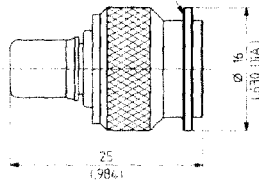
SUHNER TYPE	Ident. no.	Weight	Notes
64 TNC-50-0-2	• 544615	11.0 g/.385 oz.	

- centre contact captivated

Terminations

50 Ω, plug

3 security holes Ø 1/039 DIA.

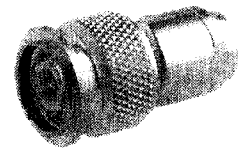
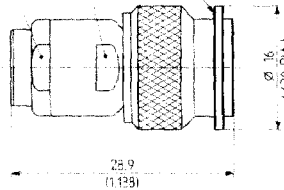


SUHNER TYPE	Ident. no.	Impedance	VSWR DC - 1 GHz	Power ¹⁾	Weight	Notes
65 TNC-50-0-7	642741	50 Ω ± 2%	≤ 1.10	0.5 Watt	12.0 g/ .420 oz.	plug

50 Ω, plug

3 security holes Ø 1/039 DIA.

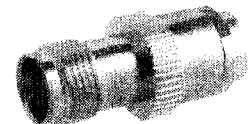
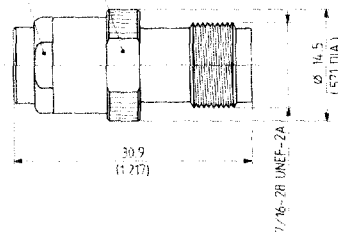
SW 11 (4.33 AF) SW 11 (4.33 AF)



SUHNER TYPE	Ident. no.	Impedance	VSWR 1 GHz 1.5 GHz 2 GHz	Power ¹⁾	Weight	Notes
65 TNC-50-0-1	640680	50 Ω ± 2%	≤ 1.05 ≤ 1.10 ≤ 1.20	1 Watt ²⁾	20.0 g/ .700 oz.	plug

50 Ω, jack

SW 11 (4.33 AF) SW 12.7 (5.00 AF)



SUHNER TYPE	Ident. no.	Impedance	VSWR 1 GHz 1.5 GHz 2 GHz	Power ¹⁾	Weight	Notes
65 TNC-50-0-31	640683	50 Ω ± 2%	≤ 1.05 ≤ 1.10 ≤ 1.20	1 Watt ²⁾	16.0 g/ .560 oz.	jack

1) at max. 30°C / 86°F ambient temperature, derated linearly to zero power at 130°C / 266°F

2) 2 kW peak; pulsed power with a duration of ≤ 10 ns, rise time ≥ 5 ns