Section II

Precision Coaxial Terminations DC - 50.0 GHz

For easy product identification please refer to the Coaxial Termination Selection Chart on pages 38 and 39 or pages 40 and 41 for the Short/Open Circuit Terminations.

Coaxial Terminations

INTRODUCTION: Terminations are forming two different groups of devices: the Absorptive Devices and the Reflective Devices.
Terminations, or loads are power absorbing devices. They are matched to the characteristic impedance of the transmission line.
The power reflecting devices are Short Circuit Terminations and Open Circuit Terminations. Shorts and Opens are both fully reflective, with the difference of a quarter wavelength.

Frequency and Bandwidth: Coaxial Terminations do usually operate over a multi-octave bandwidth. In special applications they may be tuned to certain criteria in narrower bands.

VSWR: It is desired that the loads are ideal, absorbing the power completely. In reality, the units will show some reflections and discontinuities within the circuit, as no design is perfect, and manufacturing tolerances do not allow perfect designs anyway. VSWR is the ratio of the reflected signal and the incident signal.
The power reflecting devices, the Opens and Shorts, are reflecting the signal by 100%, this means that the VSWR will become infinite.

Operating Temperature Range: The temperature ranges from -54°C to +85°C, or even wider, depending on the application. High Precision Terminations may have a rather limited temperature range for lowest possible VSWR, while Power Terminations in Systems are usually designed for extreme temperature ranges. The operating temperature will affect the power handling of absorptive units.

Average Power Handling: This is the maximum allowable CW power to which the unit can be subjected to without suffering permanent damage. The power handling of absorptive units is a function of temperature. High temperature units are supplied with cooling fins or heat sinks or both for better power dissipation.

Connectors: Terminations are available with a large variety of connectors, meeting the appropriate standard interface specifications, such as MIL-Standards, DIN- or IEC-Specifications, etc.

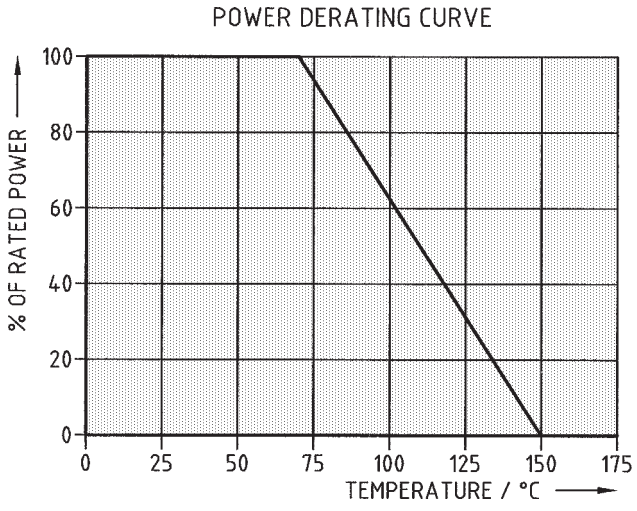
Custom Designs: In addition to the standard terminations, shown in this section, Spectrum Elektrotechnik GmbH has been designing and supplying special terminations to suit particular requirements, such as lowest VSWR, unique mechanical outline, unusual mounting or special connector requirements, higher power dissipation, characteristic impedance other than 50 Ohms, rough environment, etc., etc.

Applications: Power absorbing devices are needed during test and measurement, can also be integrated in components, and are used in systems applications as well. At a dual or multiport device, one terminal or the terminals that are not involved in the measurement or the function should be terminated in their characteristic impedance, in order to ensure proper measurement or function. Certain components require terminations at at least one port such as the directional couplers.
The Short Circuit and Open Circuit Terminations are mainly used for calibration purposes, to establish measurement planes for known reflection phase and magnitude in a test set. Without these short and open circuit terminations, usually no test set can be calibrated.

COLOUR CODING: Most of the Terminations, Spectrum Elektrotechnik GmbH has been designing and manufacturing, especially the new generations of Terminations, are colour coded for easy identification, especially during calibration sequences.
The system is most simple: Bright shiny nickel was chosen for the Shorts, easy to remember, as an electrical short circuit would cause bright lightning. Black endcaps were selected for the Opens, as with an open electrical circuit usually never anything happens, it is rather unexciting, or black. Gold plated endcaps were chosen for the Precision Terminations for convenience.

- **Short Circuit Terminations:** (Shorts) have bright shiny nickel plated endcaps.
- **Open Circuit Terminations:** (Opens) have black anodized endcaps.
- **Precision Terminations:** (Absorptive devices) have gold plated endcaps.

Power Derating versus Temperature



Selection Chart: Coaxial Terminations

Spectrum Elektrotechnik GmbH

Connector Type	Sex	Frequency Range	VSWR max.	Average Power max.	Part Number	Page
2.4mm As per Spectrum Specifications	Female	DC - 50.0 GHz	1.12 : 1	0.5 Watts	**TE-0050-HF00**	**42**
	Male				**TE-0050-HM00**	
3.5mm As per Spectrum Specifications	Female	DC - 35.0 GHz	1.10 : 1	0.5 Watts	**TE-0035-9200**	**44**
		DC - 26.5 GHz	1.07 : 1	1 Watt	**TE-0026-92P1**	
		DC - 26.5 GHz	1.15 : 1	1 Watt	**TE-0026-9200**	
		DC - 4.0 GHz	1.01 : 1	1 Watt	**TE-0004-92P1**	
	Male	DC - 35.0 GHz	1.10 : 1	0.5 Watts	**TE-0035-9100**	
		DC - 26.5 GHz	1.07 : 1	1 Watt	**TE-0026-91P1**	
		DC - 26.5 GHz	1.15 : 1	1 Watt	**TE-0026-9100**	
		DC - 4.0 GHz	1.01 : 1	1 Watt	**TE-0004-91P1**	
7mm As per IEC 457- 2	----	DC - 18.0 GHz	1.05 : 1	1 Watt	**TE-0018-90P1**	**46**
			1.15 : 1		**TE-0018-9000**	
7/16 As per DIN 47223	Female	DC - 7.5 GHz	1.10 : 1	1 Watt	**TE-0010-7601**	**47**
	Male				**TE-0010-7501**	
BNC As per MIL- C -39012 (IEC 169-2)	Female	DC - 4.0 GHz	1.05 : 1	1 Watt	**TE-0004-81P1**	**49**
			1.10 : 1		**TE-0004-8101**	
				2 Watts	**TE-0004-8102**	**50**
				5 Watts	**TE-0004-8105**	
				20 Watts	**TE-0004-8120**	
	Male		1.05 : 1	1 Watt	**TE-0004-71P1**	**49**
			1.10 : 1		**TE-0004-7101**	
				2 Watts	**TE-0004-7102**	**50**
				5 Watts	**TE-0004-7105**	
				20 Watts	**TE-0004-7120**	
HN As per MIL- C -3643	Female	DC - 8.0 GHz	1.15 : 1	5 Watts	**TE-0008-6805**	**51**
	Male				**TE-0008-6905**	
K* As per Spectrum Specifications	Female	DC - 40.0 GHz	1.10 : 1	0.5 Watts	**TE-0040-KF00**	**52**
	Male				**TE-0040-KM00**	
N As per MIL- C -39012	Female	DC - 18.0 GHz	1.07 : 1	1 Watt	**TE-0018-61P1**	**53**
			1.15 : 1		**TE-0018-6101**	**54**
				2 Watts	**TE-0018-6102**	
				5 Watts	**TE-0018-6105**	
				10 Watts	**TE-0018-6110**	
				20 Watts	**TE-0018-6120**	
		DC - 2.0 GHz	1.02 : 1	1 Watt	**TE-0002-61P1**	**53**
	Male	DC - 18.0 GHz	1.07 : 1	1 Watt	**TE-0018-51P1**	**54**
			1.15 : 1		**TE-0018-5101**	
				2 Watts	**TE-0018-5102**	
				5 Watts	**TE-0018-5105**	
				10 Watts	**TE-0018-5110**	
				20 Watts	**TE-0018-5120**	
		DC - 2.0 GHz	1.02 : 1	1 Watt	**TE-0002-51P1**	**53**

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Selection Chart: Coaxial Terminations

Connector Type	Sex	Frequency Range	VSWR max.	Average Power max.	Part Number	Page
SC As per MIL - C - 39012	Female	DC - 10.0 GHz	1.15 : 1	2 Watts	**TE-0010-7902**	**56**
				5 Watts	**TE-0010-7905**	
				10 Watts	**TE-0010-7910**	
				20 Watts	**TE-0010-7920**	
	Male			2 Watts	**TE-0010-8002**	
				5 Watts	**TE-0010-8005**	
				10 Watts	**TE-0010-8010**	
				20 Watts	**TE-0010-8020**	
SMA As per MIL - C - 39012	Female	DC - 20.0 GHz	1.05 : 1 DC - 12.4 GHz 1.10 : 1 12.4 - 18.0 GHz 1.15 : 1 18.0 - 20.0 GHz	0.5 Watts	**TE-0020-21P0**	**57**
			1.10 : 1	0.5 Watts	**TE-0020-2100**	
			1.15 : 1	1 Watt	**TE-0020-2101**	
		DC - 18.0 GHz	1.20 : 1	2 Watts	**TE-0018-2102**	
				5 Watts	**TE-0018-2105**	
				10 Watts	**TE-0018-2110**	
				20 Watts	**TE-0018-2120**	
		DC - 12.4 GHz 12.4 - 20.0 GHz	1.05 : 1 1.10 : 1	0.5 Watts	**TE-1220-2100**	
	Male	DC - 20.0 GHz	1.10 : 1	0.5 Watts	**TE-0020-1100**	
			1.15 : 1	1 Watt	**TE-0020-1101**	**58**
		DC - 18.0 GHz	1.20 : 1	2 Watts	**TE-0018-1102**	
				5 Watts	**TE-0018-1105**	
				10 Watts	**TE-0018-1110**	
				20 Watts	**TE-0018-1120**	
SMP As per DESC 94007 and DESC 94008	Female	DC - 40.0 GHz	1.15 : 1	1 Watt	**TE-0040-MP01**	**59**
		DC - 18.0 GHz	1.10 : 1		**TE-0018-MP01**	
	Male	DC - 40.0 GHz	1.15 : 1		**TE-0040-MJ01**	
		DC - 18.0 GHz	1.10 : 1		**TE-0018-MJ01**	
SPM As per Spectrum Specifications	Female	DC - 18.0 GHz	1.15 : 1	0.5 Watts	**TE-0018-PJ00**	**60**
	Male				**TE-0018-PM00**	
TNC As per MIL - C - 87104/2	Female	DC - 18.0 GHz	1.10 : 1	1 Watt	**TE-0018-41P1**	**61**
			1.15 : 1		**TE-0018-4101**	
				2 Watts	**TE-0018-4102**	
				5 Watts	**TE-0018-4105**	
				10 Watts	**TE-0018-4110**	
				20 Watts	**TE-0018-4120**	
	Male		1.10 : 1	1 Watt	**TE-0018-31P1**	
			1.15 : 1		**TE-0018-3101**	
				2 Watts	**TE-0018-3102**	
				5 Watts	**TE-0018-3105**	
				10 Watts	**TE-0018-3110**	
				20 Watts	**TE-0018-3120**	
TNX As per Spectrum Specifications	Female	DC - 18.0 GHz	1.15 : 1	1 Watt	**TE-0018-4900**	**63**
	Male				**TE-0018-3900**	

Selection Chart: Short/Open Circuit Coax. Terminations

Connector Type	Sex	Description	Frequency Range	Part Number	Page
2.4mm As per Spectrum Specifications	Female	Short Circuit	DC - 50.0 GHz	**1730-2101-02**	**43**
				1730-2102-02	
		Open Circuit		**1740-2101-02**	
				1740-2102-02	
	Male	Short Circuit		**1730-1101-02**	
				1730-1102-02	
		Open Circuit		**1740-1101-02**	
				1740-1102-02	
3.5mm As per Spectrum Specifications	Female	Short Circuit	DC - 26.5 GHz	**2130-2101-02**	**45**
				2130-2102-02	
		Open Circuit		**2140-2101-02**	
				2140-2102-02	
	Male	Short Circuit		**2130-1101-02**	
				2130-1102-02	
		Open Circuit		**2140-1101-02**	
				2140-1102-02	
7mm As per IEC 457- 2	----	Short Circuit	DC - 18.0 GHz	**9030-1101-02**	**46**
		Open Circuit		**9040-1101-02**	
7/16 As per DIN 47223	Female	Short Circuit	DC - 7.5 GHz	**7530-2101-02**	**48**
		Open Circuit		**7540-2101-02**	
	Male	Short Circuit		**7530-1101-02**	
		Open Circuit		**7540-1101-02**	
BNC As per MIL- C -39012 (IEC 169-2)	Female	Short Circuit	DC - 4.0 GHz	**4130-2101-02**	**50**
		Open Circuit		**4140-2101-02**	
	Male	Short Circuit		**4130-1101-02**	
		Open Circuit		**4140-1101-02**	
HN As per MIL- C -3643	Female	Short Circuit	DC - 8.0 GHz	**7030-2101-02**	**51**
		Open Circuit		**7040-2101-02**	
	Male	Short Circuit		**7030-1101-02**	
		Open Circuit		**7040-1101-02**	
K* As per Spectrum Specifications	Female	Short Circuit	DC - 40.0 GHz	**1530-2101-02**	**52**
		Open Circuit		**1540-2101-02**	
	Male	Short Circuit		**1530-1101-02**	
		Open Circuit		**1540-1101-02**	

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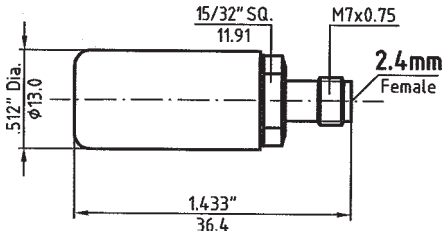
* 'K' Connector is a trademark of Wiltron Company.

Selection Chart: Short/Open Circuit Coax. Terminations

Connector Type	Sex	Description	Frequency Range	Part Number	Page
N As per MIL- C -39012	Female	Short Circuit	DC - 18.0 GHz	**3030-2101-02**	**55**
				3030-2102-02	
		Open Circuit		**3040-2101-02**	
				3040-2102-02	
	Male	Short Circuit		**3030-1101-02**	
				3030-1102-02	
		Open Circuit		**3040-1101-02**	
				3040-1102-02	
SC As per MIL - C - 39012	Female	Short Circuit	DC - 10.0 GHz	**6030-2101-02**	**56**
		Open Circuit		**6040-2101-02**	
	Male	Short Circuit		**6030-1101-02**	
		Open Circuit		**6040-1101-02**	
SMA As per MIL - C - 39012	Female	Short Circuit	DC - 18.0 GHz	**2030-2101-02**	**58**
		Open Circuit		**(Please refer to 3.5mm)**	**45**
	Male	Short Circuit		**2030-1101-02**	**58**
		Open Circuit		**(Please refer to 3.5mm)**	**45**
SMP As per DESC 94007 and DESC 94008	Female	Short Circuit	DC - 18.0 GHz	**1130-2101-02**	**59**
			DC - 40.0 GHz	**1130-2102-02**	
		Open Circuit	DC - 18.0 GHz	**1140-2102-02**	
			DC - 40.0 GHz	**1140-2104-02**	
	Male	Short Circuit	DC - 18.0 GHz	**1130-1101-02**	
			DC - 40.0 GHz	**1130-1102-02**	
		Open Circuit	DC - 18.0 GHz	**1140-1102-02**	
			DC - 40.0 GHz	**1140-1104-02**	
SPM As per Spectrum Specifications	Female	Short Circuit	DC - 18.0 GHz	**2530-2101-02**	**60**
		Open Circuit		**2540-2101-02**	
	Male	Short Circuit		**2530-1101-02**	
		Open Circuit		**2540-1101-02**	
TNC As per MIL - C - 87104/2	Female	Short Circuit	DC - 18.0 GHz	**4030-2101-02**	**62**
				4030-2102-02	
		Open Circuit		**4040-2101-02**	
				4040-2102-02	
	Male	Short Circuit		**4030-1101-02**	
				4030-1102-02	
		Open Circuit		**4040-1101-02**	
				4040-1102-02	
TNX As per Spectrum Specifications	Female	Short Circuit	DC - 18.0 GHz	**3930-2101-02**	**63**
		Open Circuit		**3940-2101-02**	
	Male	Short Circuit		**3930-1101-02**	
		Open Circuit		**3940-1101-02**	

Type 2.4mm Coaxial Terminations

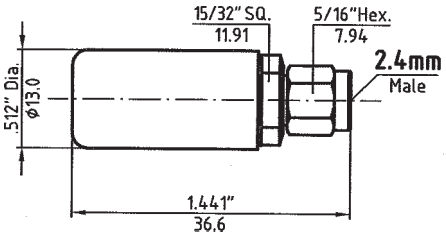
2.4mm Female Termination



Connector Body is stainless steel, Cap is gold plated.

2.4mm Female Termination	
Part No.	**TE-0050-HF00**
Frequency Range	DC - 50.0 GHz
Impedance	50 Ohms
Max. VSWR	1.12 : 1
Max. Average Power	0.5 Watts
Weight in g	25
Temperature Range	-54°C to + 85°C

2.4mm Male Termination



Connector Body is stainless steel, Cap is gold plated.

2.4mm Male Termination	
Part No.	**TE-0050-HM00**
Frequency Range	DC - 50.0 GHz
Impedance	50 Ohms
Max. VSWR	1.12 : 1
Max. Average Power	0.5 Watts
Weight in g	26
Temperature Range	-54°C to + 85°C

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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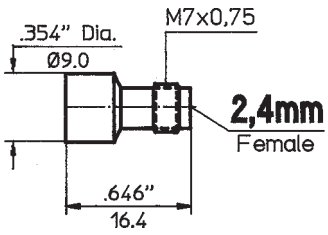
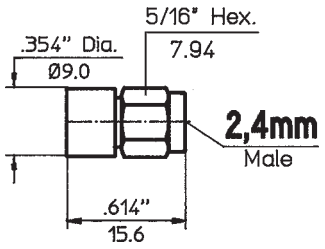
Short/Open Circuit Coaxial Terminations, Type 2.4mm

2.4mm Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
1730-2101-02	Short Circuit	DC - 50.0 GHz	5
1740-2101-02	Open Circuit		5
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



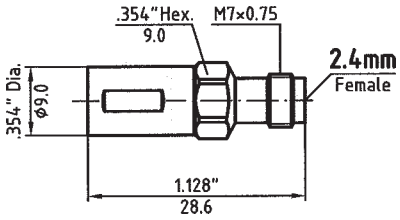
Connector Body is stainless steel passivated.

2.4mm Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
1730-1101-02	Short Circuit	DC - 50.0 GHz	5
1740-1101-02	Open Circuit		5
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



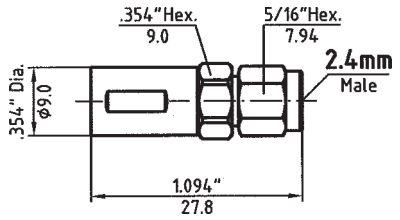
Connector Body is stainless steel passivated.

2.4mm Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
1730-2102-02	Short Circuit	DC - 50.0 GHz	In Development
1740-2102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

2.4mm Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
1730-1102-02	Short Circuit	DC - 50.0 GHz	In Development
1740-1102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

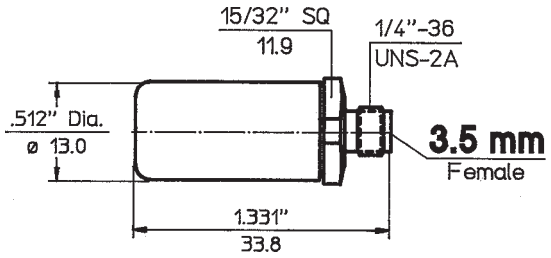


Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type 3.5mm Coaxial Terminations

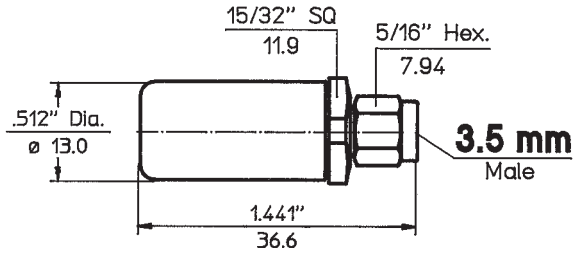
3.5mm Female HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

3.5mm Female HIGH PRECISION TERMINATIONS			
Part No.	**Frequency Range**	**VSWR max.**	**Power (W)**
TE-0035-9200	DC - 35.0 GHz	1.10 : 1	0.5 Watts
TE-0026-92P1	DC - 26.5 GHz	1.07 : 1	1 Watt
TE-0004-92P1	DC - 4.0 GHz	1.01 : 1	1 Watt
Impedance		50 Ohms	
Weight in g		24	
Temperature Range		-54°C to +85°C	

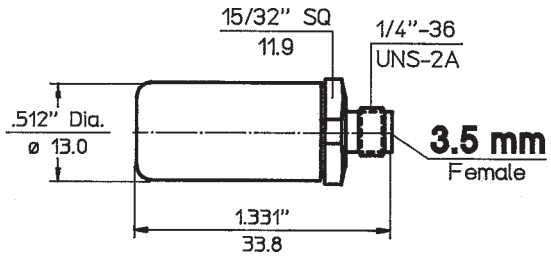
3.5mm Male HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

3.5mm Male HIGH PRECISION TERMINATIONS			
Part No.	**Frequency Range**	**VSWR max.**	**Power (W)**
TE-0035-9100	DC - 35.0 GHz	1.10 : 1	0.5 Watts
TE-0026-91P1	DC - 26.5 GHz	1.07 : 1	1 Watt
TE-0004-91P1	DC - 4.0 GHz	1.01 : 1	1 Watt
Impedance		50 Ohms	
Weight in g		25	
Temperature Range		-54°C to +85°C	

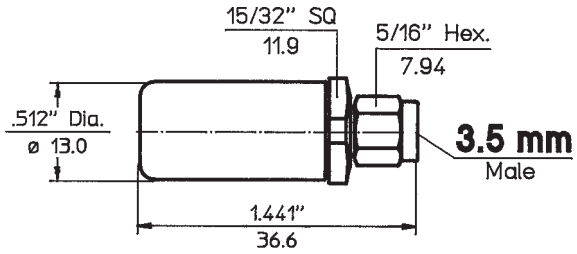
3.5mm Female



Connector Body is stainless steel, Cap is gold plated.

3.5mm Female Termination	
Part No.	**TE-0026-9200**
Frequency Range	DC - 26.5 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	1 Watt
Weight in g	24
Temperature Range	-54°C to + 85°C

3.5mm Male



Connector Body is stainless steel, Cap is gold plated.

3.5mm Male Termination	
Part No.	**TE-0026-9100**
Frequency Range	DC - 26.5 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	1 Watt
Weight in g	25
Temperature Range	-54°C to +85°C

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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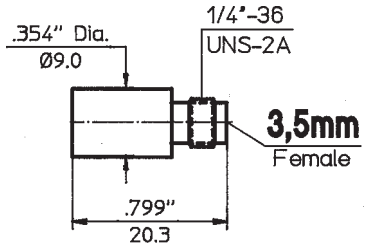
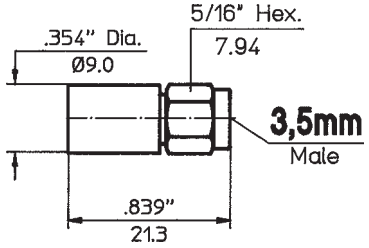
Short/Open Circuit Coaxial Terminations, Type 3.5mm

3.5mm Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2130-2101-02	Short Circuit	DC - 26.5 GHz	6
2140-2101-02	Open Circuit		6
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



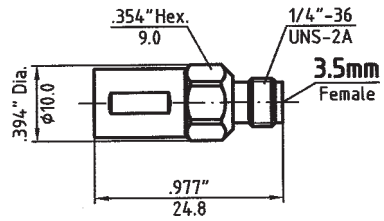
Connector Body and Cap are stainless steel passivated.

3.5mm Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2130-1101-02	Short Circuit	DC - 26.5 GHz	7
2140-1101-02	Open Circuit		7
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



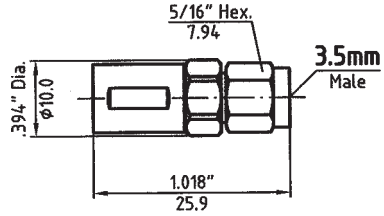
Connector Body and Cap are stainless steel passivated.

3.5mm Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2130-2102-02	Short Circuit	DC - 26.5 GHz	In Development
2140-2102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

3.5mm Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2130-1102-02	Short Circuit	DC - 26.5 GHz	In Development
2140-1102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

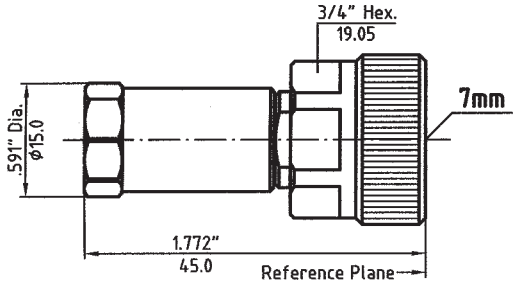


Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type 7mm Coaxial Terminations

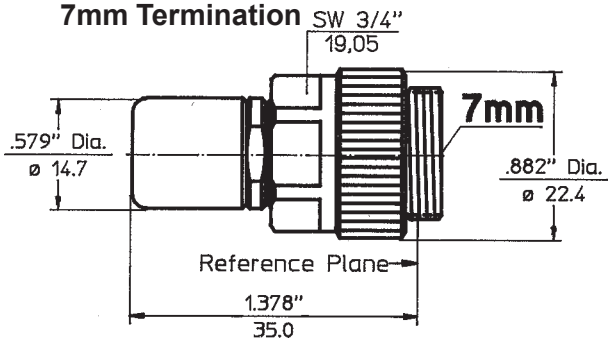
7mm HIGH PRECISION



Connector Body is CuBe2 gold plated, Cap is gold plated as well.

7mm HIGH PRECISION TERMINATION	
Part No.	**TE-0018-90P1**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.05 : 1
Max. Average Power	1 Watt
Weight in g	58
Temperature Range	-54°C to + 85°C

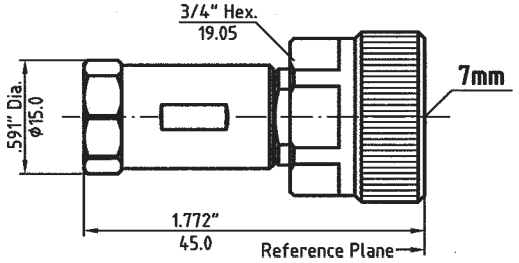
7mm Termination



Connector Body is CuBe2 gold plated, Cap is stainless steel.

7mm Termination	
Part No.	**TE-0018-9000**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	1 Watt
Weight in g	55
Temperature Range	-54°C to + 85°C

7mm Short/Open Circuit Terminations



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is CuBe2 gold plated, Cap is black anodized.

7mm Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
9030-1101-02	Short Circuit	DC - 18.0 GHz	70
9040-1101-02	Open Circuit		47
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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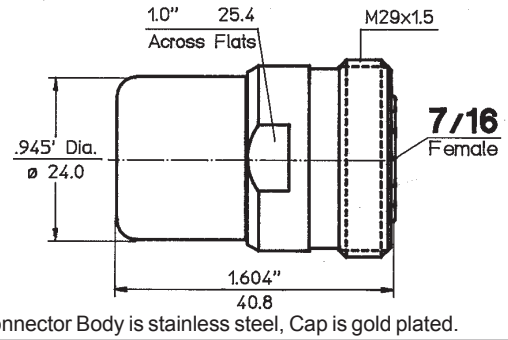
7/16 Female Termination	
Part No.	**TE-0010-7601**
Frequency Range	DC - 7.5 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	1 Watt
Weight in g	118
Temperature Range	-54°C to + 115°C

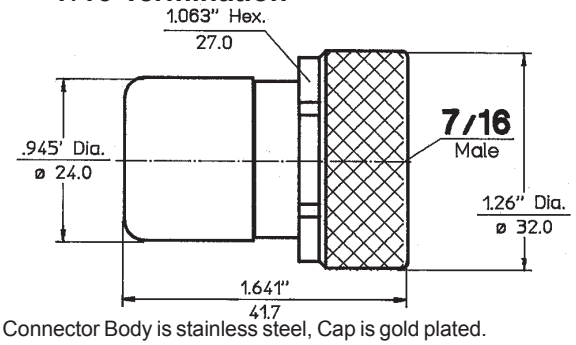
7/16 Termination



Connector Body is stainless steel, Cap is gold plated.

7/16 Male Termination	
Part No.	**TE-0010-7501**
Frequency Range	DC - 7.5 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	1 Watt
Weight in g	123
Temperature Range	-54°C to + 115°C

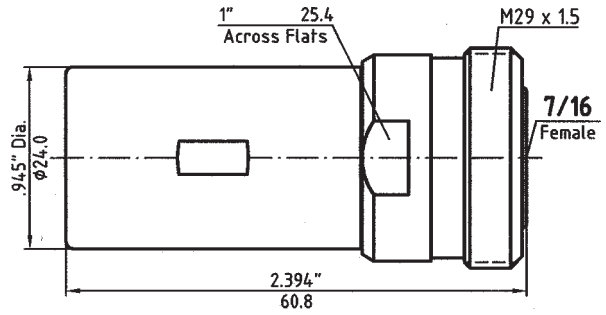
7/16 Termination



Connector Body is stainless steel, Cap is gold plated.

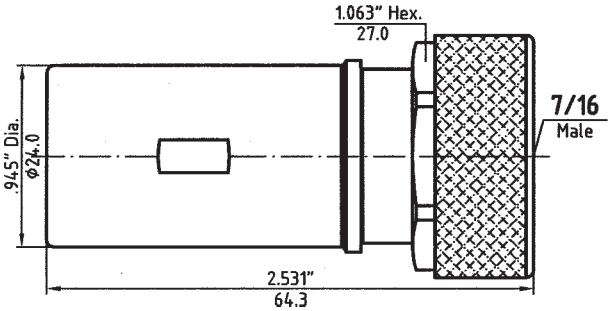
Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type 7/16 Short/Open Circuit Coaxial Terminations



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

7/16 Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
7530-2101-02	Short Circuit	DC - 7.5 GHz	160
7540-2101-02	Open Circuit		75
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

7/16 Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
7530-1101-02	Short Circuit	DC - 7.5 GHz	165
7540-1101-02	Open Circuit		80
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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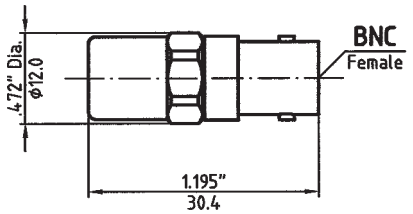
Coaxial Terminations, Type BNC

BNC Female HIGH PRECISION TERMINATION	
Part No.	**TE-0004-81P1**
Frequency Range	DC - 4.0 GHz
Impedance	50 Ohms
Max. VSWR	1.05 : 1
Max. Average Power	1 Watt
Weight in g	14
Temperature Range	-54°C to + 115°C

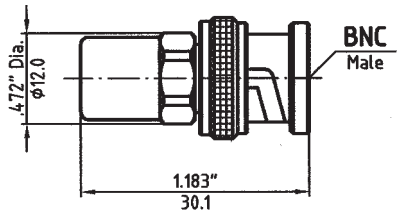
BNC Female HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

BNC Male HIGH PRECISION TERMINATION	
Part No.	**TE-0004-71P1**
Frequency Range	DC - 4.0 GHz
Impedance	50 Ohms
Max. VSWR	1.05 : 1
Max. Average Power	1 Watt
Weight in g	19
Temperature Range	-54°C to + 115°C

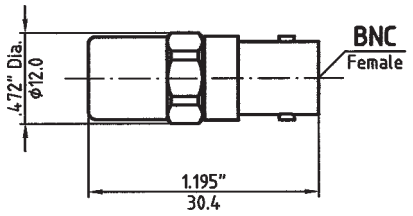
BNC Male HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

BNC Female Termination	
Part No.	**TE-0004-8101**
Frequency Range	DC - 4.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	1 Watt
Weight in g	14
Temperature Range	-54°C to + 115°C

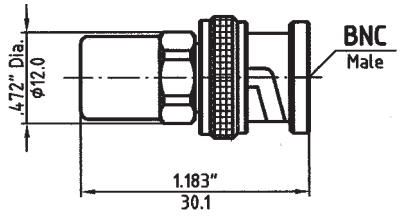
BNC Female Termination



Connector Body is stainless steel, Cap is gold plated.

BNC Male Termination	
Part No.	**TE-0004-7101**
Frequency Range	DC - 4.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	1 Watt
Weight in g	19
Temperature Range	-54°C to + 115°C

BNC Male Termination



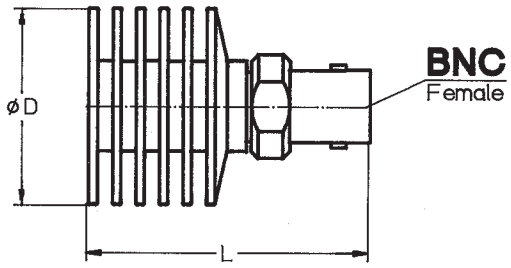
Connector Body is stainless steel, Cap is gold plated.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type BNC Coaxial Terminations

Spectrum Elektrotechnik GmbH

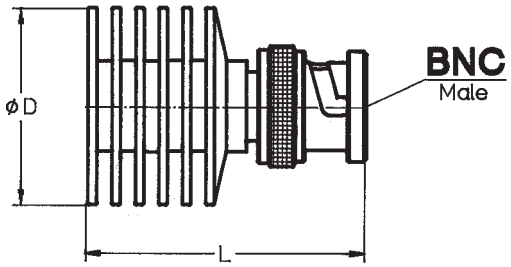
BNC Female



Connector Body is stainless steel, Fins are black anodized.

BNC Female Terminations				
Part No.	Power (W)	Weight (g)	D (mm)	L (mm)
TE-0004-8102	2.0	26	26.0	36.6
TE-0004-8105	5.0	34	30.0	40.1
TE-0004-8120	20.0	89	30.0	105.3
Frequency Range	DC - 4.0 GHz			
Impedance	50 Ohms			
Max. VSWR	1.10 : 1			
Temperature Range	-54°C to +115°C			

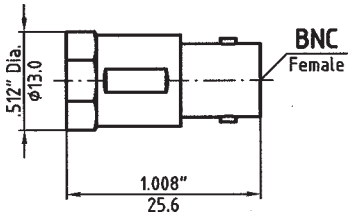
BNC Male



Connector Body is stainless steel, Fins are black anodized.

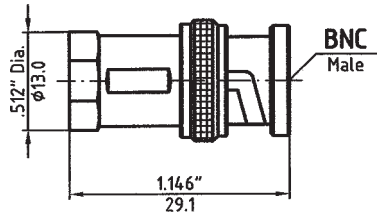
BNC Male Terminations				
Part No.	Power (W)	Weight (g)	D (mm)	L (mm)
TE-0004-7102	2.0	31	26.0	36.3
TE-0004-7105	5.0	39	30.0	39.8
TE-0004-7120	20.0	94	30.0	105.0
Frequency Range	DC - 4.0 GHz			
Impedance	50 Ohms			
Max. VSWR	1.10 : 1			
Temperature Range	-54°C to +115°C			

BNC Short/Open Circuit Terminations



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

BNC Female Open/Short Circuit Terminations			
Part No.	Description	Frequency Range	Weight (g)
4130-2101-02	Short Circuit	DC - 4.0 GHz	10
4140-2101-02	Open Circuit		7
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

BNC Male Open/Short Circuit Terminations			
Part No.	Description	Frequency Range	Weight (g)
4130-1101-02	Short Circuit	DC - 4.0 GHz	13
4140-1101-02	Open Circuit		11
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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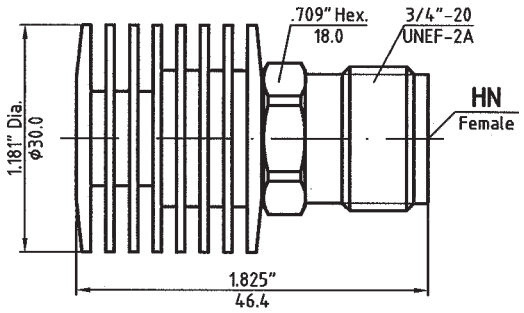
Coaxial Terminations, Type HN

HN Female Termination	
Part No.	**TE-0008-6805**
Frequency Range	DC - 8.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	5 Watts
Weight in g	In Development
Temperature Range	-54°C to + 115°C

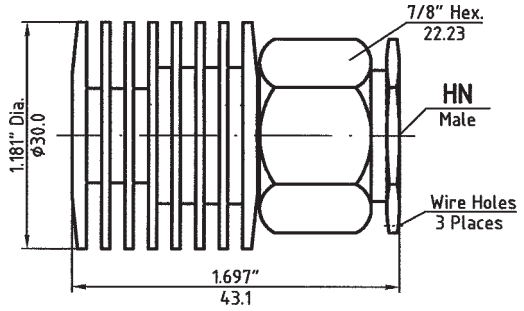
HN Female



Connector Body is stainless steel, Fins are black anodized.

HN Male Termination	
Part No.	**TE-0008-6905**
Frequency Range	DC - 8.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	5 Watts
Weight in g	In Development
Temperature Range	-54°C to + 115°C

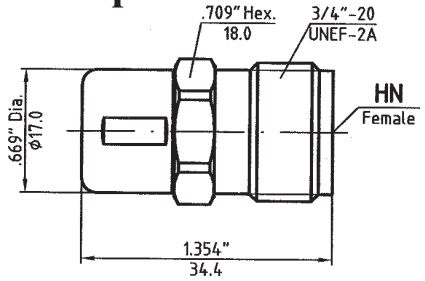
HN Male



Connector Body is stainless steel, Fins are black anodized.

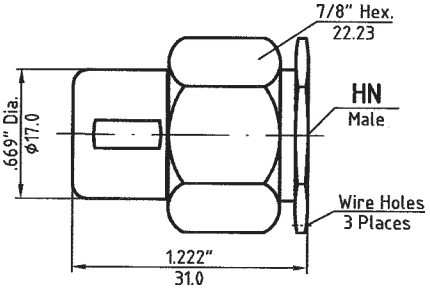
HN Short/Open Circuit Terminations

HN Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
7030-2101-02	Short Circuit	DC - 8.0 GHz	In Development
7040-2101-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

HN Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
7030-1101-02	Short Circuit	DC - 8.0 GHz	In Development
7040-1101-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

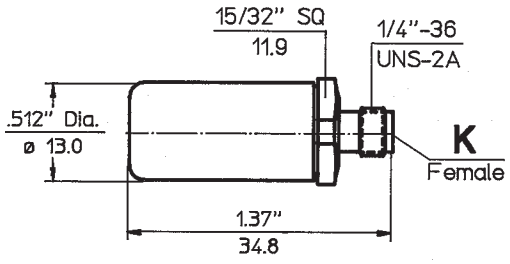


Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type K* Coaxial Terminations

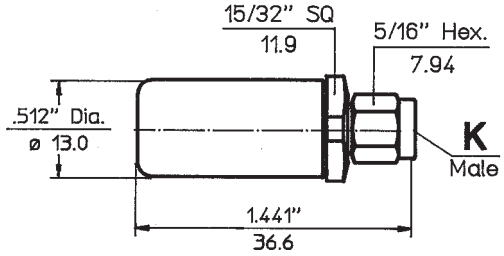
K* Female HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

K* Female HIGH PRECISION TERMINATION	
Part No.	**TE-0040-KF00**
Frequency Range	DC - 40.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	0.5 Watts
Weight in g	24
Temperature Range	-54°C to + 85°C

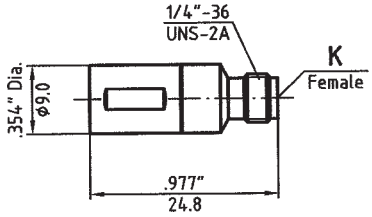
K* Male HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

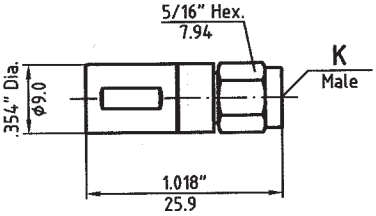
K* Male HIGH PRECISION TERMINATION	
Part No.	**TE-0040-KM00**
Frequency Range	DC - 40.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	0.5 Watts
Weight in g	25
Temperature Range	-54°C to + 85°C

K* Short/Open Circuit Terminations



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

K* Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
1530-2101-02	Short Circuit	DC - 40.0 GHz	9
1540-2101-02	Open Circuit		5
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

K* Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
1530-1101-02	Short Circuit	DC - 40.0 GHz	11
1540-1101-02	Open Circuit		6
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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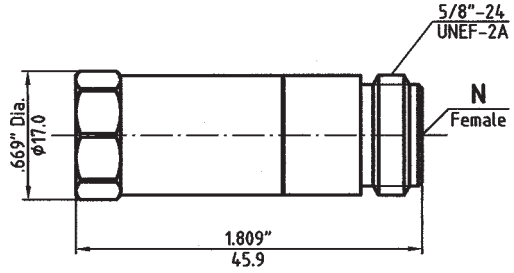
Spectrum Elektrotechnik GmbH P.O. Box 45 05 33, 80905 Munich, Germany **Tel. (89) 354 804-0, Fax (89) 354 804-90** (Country Code: 49)
* 'K' Connector is a trademark of Wiltron Company.

N Female HIGH PRECISION TERMINATION	
Part No.	**TE-0018-61P1**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.07 : 1
Max. Average Power	1 Watt
Weight in g	55
Temperature Range	-54°C to + 85°C

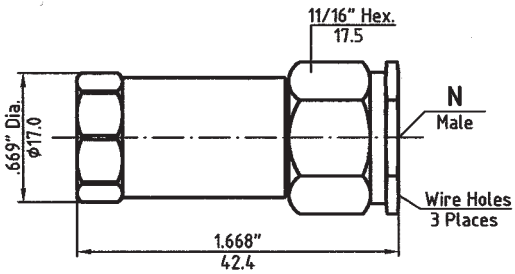
N Female HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

N Male HIGH PRECISION TERMINATION	
Part No.	**TE-0018-51P1**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.07 : 1
Max. Average Power	1 Watt
Weight in g	48
Temperature Range	-54°C to + 85°C

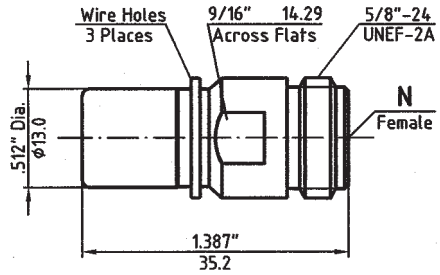
N Male HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

N Female HIGH PRECISION TERMINATION	
Part No.	**TE-0002-61P1**
Frequency Range	DC - 2.0 GHz
Impedance	50 Ohms
Max. VSWR	1.02 : 1
Max. Average Power	1 Watt
Weight in g	31
Temperature Range	-54°C to + 115°C

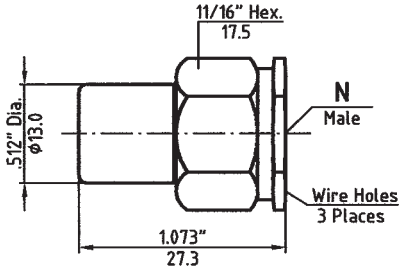
N Female HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

N Male HIGH PRECISION TERMINATION	
Part No.	**TE-0002-51P1**
Frequency Range	DC - 2.0 GHz
Impedance	50 Ohms
Max. VSWR	1.02 : 1
Max. Average Power	1 Watt
Weight in g	24
Temperature Range	-54°C to + 115°C

N Male HIGH PRECISION

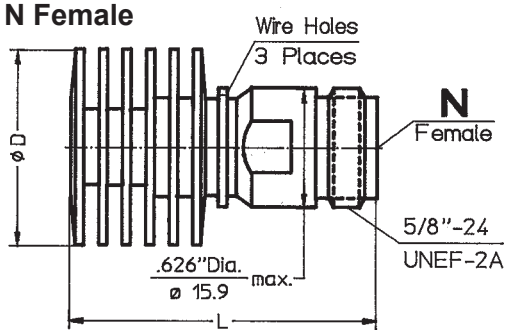


Connector Body is stainless steel, Cap is gold plated.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type N Coaxial Terminations

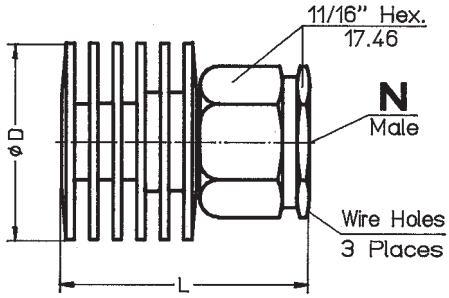
N Female



Connector Body is stainless steel, Fins are black anodized.

N Female Terminations					
Part No.	**VSWR max.**	**Power (W)**	**Weight (g)**	**D (mm)**	**L (mm)**
TE-0018-6101	1.15 : 1	1.0	30	21.0	37.3
TE-0018-6102		2.0	35	26.0	40.5
TE-0018-6105		5.0	43	30.0	44.0
TE-0018-6110		10.0	61	30.0	68.8
TE-0018-6120		20.0	98	30.0	109.2
Frequency Range		DC - 18.0 GHz			
Impedance		50 Ohms			
Temperature Range		-54°C to +115°C			

N Male



Connector Body is stainless steel, Fins are black anodized.

N Male Terminations					
Part No.	**VSWR max.**	**Power (W)**	**Weight (g)**	**D (mm)**	**L (mm)**
TE-0018-5101	1.15 : 1	1.0	23	21.0	29.4
TE-0018-5102		2.0	28	26.0	32.6
TE-0018-5105		5.0	36	30.0	36.1
TE-0018-5110		10.0	54	30.0	60.9
TE-0018-5120		20.0	91	30.0	101.3
Frequency Range		DC - 18.0 GHz			
Impedance		50 Ohms			
Temperature Range		-54°C to +115°C			

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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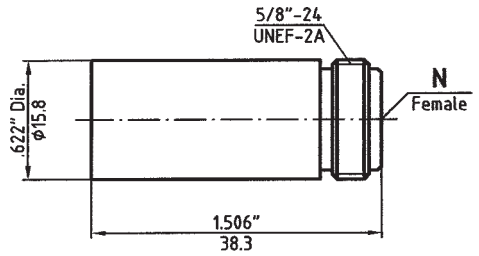
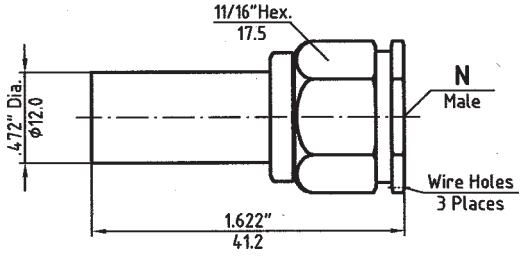
Short/Open Circuit Coaxial Terminations, Type N

N Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
3030-2101-02	Short Circuit	DC - 18.0 GHz	44
3040-2101-02	Open Circuit		44
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



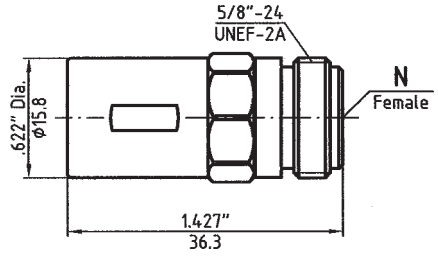
Connector Body and Cap are stainless steel passivated.

N Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range (GHz)**	**Weight (g)**
3030-1101-02	Short Circuit	DC - 18.0 GHz	31
3040-1101-02	Open Circuit		31
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



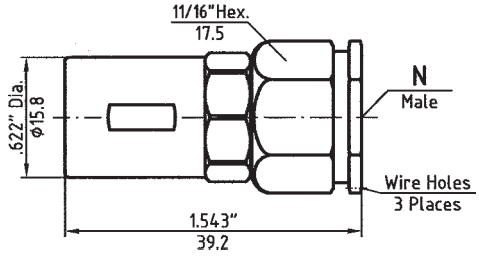
Connector Body and Cap are stainless steel passivated.

N Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
3030-2102-02	Short Circuit	DC - 18.0 GHz	In Development
3040-2102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

N Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
3030-1102-02	Short Circuit	DC - 18.0 GHz	In Development
3040-1102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

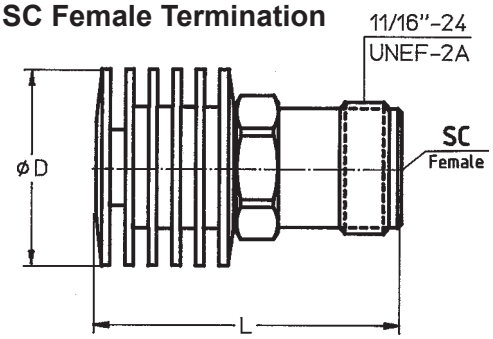


Short : Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type SC Coaxial Terminations

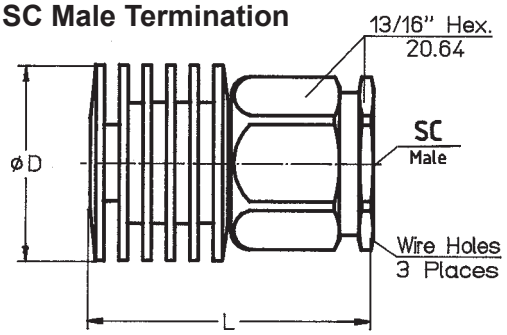
SC Female Termination



Connector Body is stainless steel, Fins are black anodized.

SC Female Terminations					
Part No.	VSWR max.	Power (W)	Weight (g)	D (mm)	L (mm)
TE-0010-7902	1.15 : 1	2.0	34	26.0	42.9
TE-0010-7905		5.0	42	30.0	46.4
TE-0010-7910		10.0	60	30.0	71.2
TE-0010-7920		20.0	97	30.0	111.6
Frequency Range		DC - 10.0 GHz			
Impedance		50 Ohms			
Temperature Range		-54°C to +115°C			

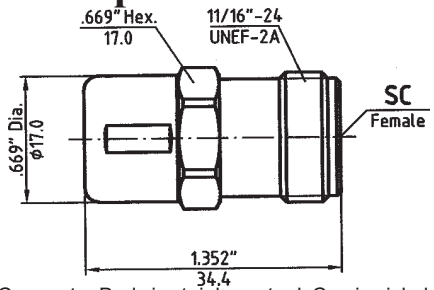
SC Male Termination



Connector Body is stainless steel, Fins are black anodized.

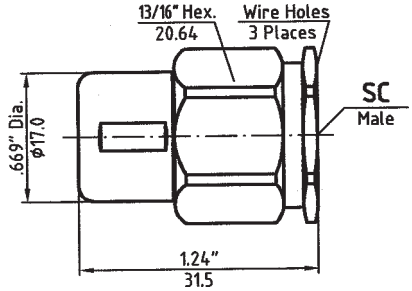
SC Male Terminations					
Part No.	VSWR max.	Power (W)	Weight (g)	D (mm)	L (mm)
TE-0010-8002	1.15 : 1	2.0	38	26.0	40.1
TE-0010-8005		5.0	46	30.0	43.6
TE-0010-8010		10.0	64	30.0	68.4
TE-0010-8020		20.0	100	30.0	108.8
Frequency Range		DC - 10.0 GHz			
Impedance		50 Ohms			
Temperature Range		-54°C to +115°C			

SC Short /Open Circuit Terminations



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

SC Female Open/Short Circuit Terminations			
Part No.	Description	Frequency Range	Weight (g)
6030-2101-02	Short Circuit	DC - 10.0 GHz	34
6040-2101-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

SC Male Open/Short Circuit Terminations			
Part No.	Description	Frequency Range	Weight (g)
6030-1101-02	Short Circuit	DC - 10.0 GHz	30
6040-1101-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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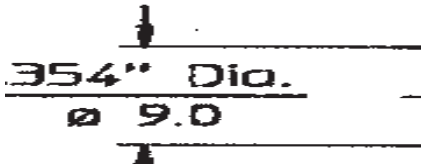
SMA Female HIGH PRECISION TERMINATION	
Part No.	**TE-0020-21P0**
Frequency Range	DC - 20.0 GHz
Impedance	50 Ohms
Max. VSWR	1.05 : 1 DC - 12.4 GHz 1.10 : 1 12.4 - 18.0 GHz 1.15 : 1 18.0 - 20.0 GHz
Max. Average Power	0.5 Watts
Weight in g	4
Temperature Range	-54°C to + 115°C

SMA Female HIGH PRECISION

Connector Body and Cap are stainless steel passivated.

SMA Male Termination	
Part No.	**TE-0020-1100**
Frequency Range	DC - 20.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	0.5 Watts
Weight in g	4
Temperature Range	-54°C to + 85°C

SMA Male



Connector Body and Cap are stainless steel passivated.

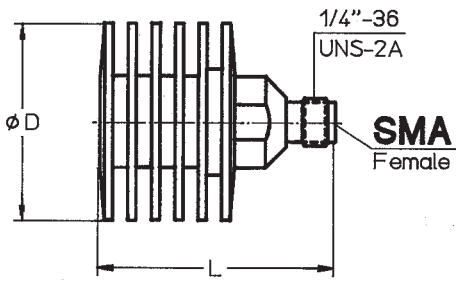
SMA Female Terminations			
Part No.	**Frequency Range**	**VSWR max.**	**Power (W)**
TE-1220-2100	DC - 12.4 GHz	1.05 : 1	0.5 Watts
	12.4 - 20.0 GHz	1.10 : 1	
TE-0020-2100	DC - 20.0 GHz	1.10 : 1	
Impedance		50 Ohms	
Weight in g		4	
Temperature Range		-54°C to +115°C	

SMA Female

Connector Body and Cap are stainless steel passivated.

SMA Female Terminations						
Part No.	**VSWR max.**	**Frequency Range (GHz)**	**Power (W)**	**Weight (g)**	**D (mm)**	**L (mm)**
TE-0020-2101	1.15 : 1	DC-20.0	1.0	19	21.0	28.0
TE-0018-2102	1.20 : 1	DC-18.0	2.0	24	26.0	33.7
TE-0018-2105			5.0	33	30.0	36.6
TE-0018-2110			10.0	51	30.0	58.5
TE-0018-2120			20.0	88	30.0	98.9
Impedance			50 Ohms			
Temperature Range			-54°C to +115°C			

SMA Female

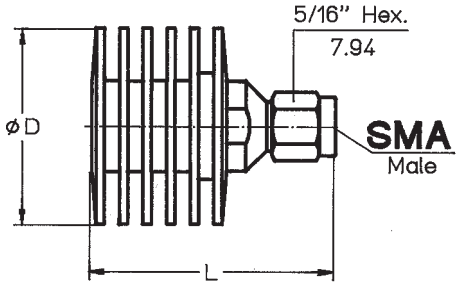


Connector Body is stainless steel, Fins are black anodized.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type SMA Coaxial Terminations

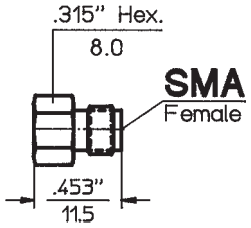
SMA Male



Connector Body is stainless steel, Fins are black anodized.

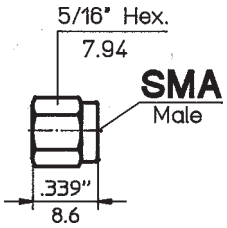
SMA Male Terminations						
Part No.	**VSWR max.**	**Frequency Range (GHz)**	**Power (W)**	**Weight (g)**	**D (mm)**	**L (mm)**
TE-0020-1101	1.15 : 1	DC-20.0	1.0	19	21.0	29.0
TE-0018-1102	1.20 : 1	DC-18.0	2.0	24	26.0	34.7
TE-0018-1105			5.0	33	30.0	37.6
TE-0018-1110			10.0	51	30.0	59.5
TE-0018-1120			20.0	88	30.0	99.9
Impedance			50 Ohms			
Temperature Range			-54°C to +115°C			

SMA Short Circuit-, Open Circuit Terminations



Connector Body and Cap are stainless steel passivated.

SMA Female Short Circuit Termination			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2030-2101-02	Short Circuit	DC - 18.0 GHz	3
Impedance		50 Ohms	
Temperature Range		-54°C to +115°C	



Connector Body and Cap are stainless steel passivated.

SMA Male Short Circuit Termination			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2030-1101-02	Short Circuit	DC - 18.0 GHz	2
Impedance		50 Ohms	
Temperature Range		-54°C to +115°C	

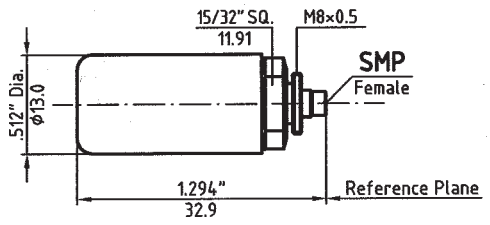
SMA Open Circuit Terminations are not manufactured at this time. It is recommended to use 3.5mm Open Circuit Terminations instead. Please refer to page 45.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Coaxial Terminations, Type SMP

SMP Female Terminations			
Part No.	**Frequency Range**	**VSWR max.**	**Power (W)**
TE-0018-MP01	DC - 18.0 GHz	1.10 : 1	1 Watt
TE-0040-MP01	DC - 40.0 GHz	1.15 : 1	
Impedance		50 Ohms	
Weight in g		23	
Temperature Range		-54°C to +85°C	

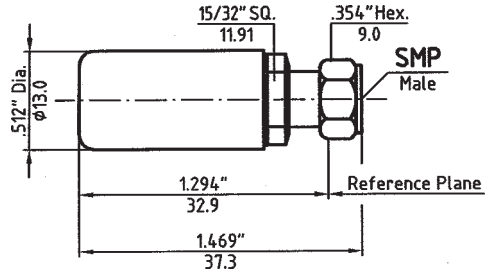
SMP Female



Connector Body is stainless steel, Cap is gold plated.

SMP Male Terminations			
Part No.	**Frequency Range**	**VSWR max.**	**Power (W)**
TE-0018-MJ01	DC - 18.0 GHz	1.10 : 1	1 Watt
TE-0040-MJ01	DC - 40.0 GHz	1.15 : 1	
Impedance		50 Ohms	
Weight in g		25	
Temperature Range		-54°C to +85°C	

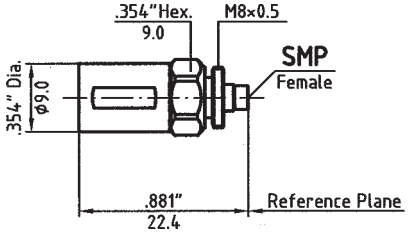
SMP Male



Connector Body is stainless steel, Cap is gold plated.

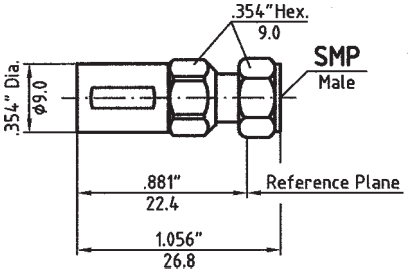
SMP Short/Open Circuit Terminations

SMP Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range (GHz)**	**Weight (g)**
1130-2101-02	Short Circuit	DC - 18.0	10
1130-2102-02		DC - 40.0	
1140-2102-02	Open Circuit	DC - 18.0	4
1140-2104-02		DC - 40.0	
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

SMP Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range (GHz)**	**Weight (g)**
1130-1101-02	Short Circuit	DC - 18.0	12
1130-1102-02		DC - 40.0	
1140-1102-02	Open Circuit	DC - 18.0	7
1140-1104-02		DC - 40.0	
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

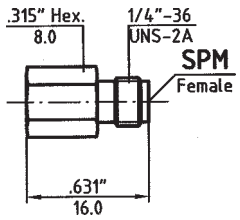


Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type SPM Coaxial Terminations

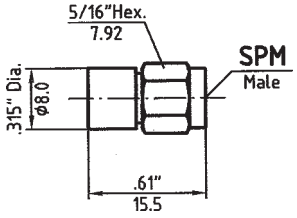
SPM Female



Connector Body and Cap are stainless steel passivated.

SPM Female Termination	
Part No.	**TE-0018-PJ00**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	0.5 Watts
Weight in g	5
Temperature Range	-54°C to + 115°C

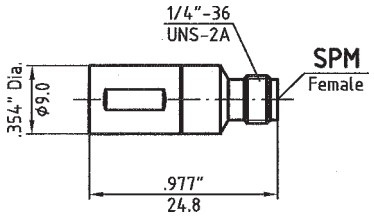
SPM Male



Connector Body is stainless steel, Cap is gold plated.

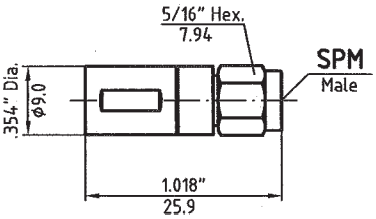
SPM Male Termination	
Part No.	**TE-0018-PM00**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	0.5 Watts
Weight in g	4
Temperature Range	-54°C to + 115°C

SPM Short/Open Circuit Terminations



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

SPM Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2530-2101-02	Short Circuit	DC - 18.0 GHz	In Development
2540-2101-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

SPM Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
2530-1101-02	Short Circuit	DC - 18.0 GHz	In Development
2540-1101-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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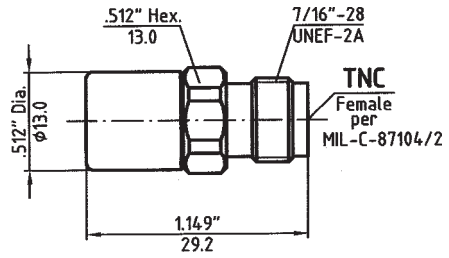
TNC Female HIGH PRECISION TERMINATION	
Part No.	**TE-0018-41P1**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	1 Watt
Weight	16
Temperature Range	-54°C to + 115°C

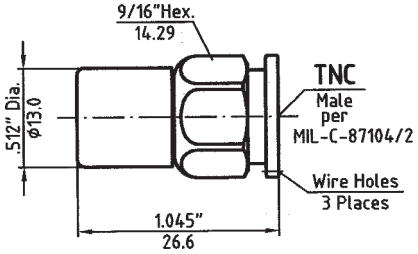
TNC Female HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

TNC Male HIGH PRECISION TERMINATION	
Part No.	**TE-0018-31P1**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.10 : 1
Max. Average Power	1 Watt
Weight	18
Temperature Range	-54°C to + 115°C

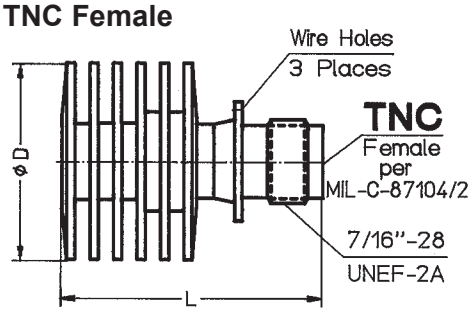
TNC Male HIGH PRECISION



Connector Body is stainless steel, Cap is gold plated.

TNC Female Terminations					
Part No.	**VSWR max.**	**Power (W)**	**Weight (g)**	**D (mm)**	**L (mm)**
TE-0018-4101	1.15 : 1	1.0	18	21.0	31.3
TE-0018-4102		2.0	23	26.0	34.5
TE-0018-4105		5.0	31	30.0	38.0
TE-0018-4110		10.0	49	30.0	62.8
TE-0018-4120		20.0	86	30.0	103.2
Frequency Range		DC - 18.0 GHz			
Impedance		50 Ohms			
Temperature Range		-54°C to +115°C			

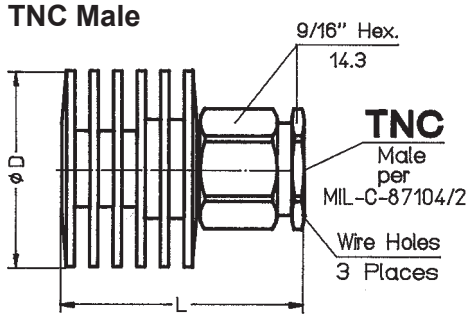
TNC Female



Connector Body is stainless steel, Fins are black anodized.

TNC Male Terminations					
Part No.	**VSWR max.**	**Power (W)**	**Weight (g)**	**D (mm)**	**L (mm)**
TE-0018-3101	1.15 : 1	1.0	20	21.0	28.7
TE-0018-3102		2.0	25	26.0	31.9
TE-0018-3105		5.0	33	30.0	35.4
TE-0018-3110		10.0	51	30.0	60.2
TE-0018-3120		20.0	88	30.0	100.6
Frequency Range		DC - 18.0 GHz			
Impedance		50 Ohms			
Temperature Range		-54°C to +115°C			

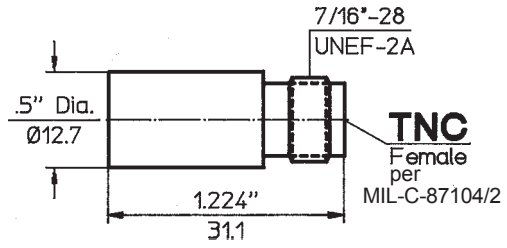
TNC Male



Connector Body is stainless steel, Fins are black anodized.

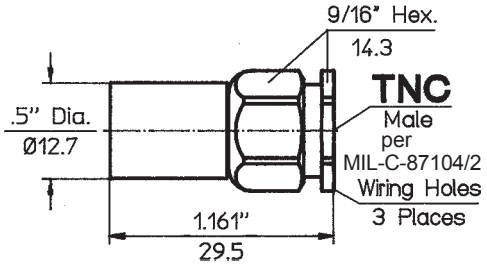
Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Type TNC Short /Open Circuit Coaxial Terminations



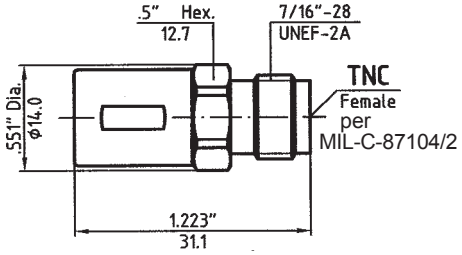
Connector Body and Cap are stainless steel passivated.

TNC Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
4030-2101-02	Short Circuit	DC - 18.0 GHz	21
4040-2101-02	Open Circuit		20
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



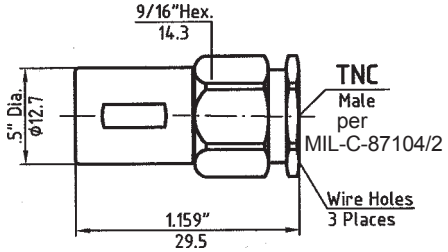
Connector Body and Cap are stainless steel passivated.

TNC Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
4030-1101-02	Short Circuit	DC - 18.0 GHz	24
4040-1101-02	Open Circuit		24
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

TNC Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
4030-2102-02	Short Circuit	DC - 18.0 GHz	In Development
4040-2102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Short: Connector Body is stainless steel, Cap is nickel plated.
Open: Connector Body is stainless steel, Cap is black anodized.

TNC Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
4030-1102-02	Short Circuit	DC - 18.0 GHz	In Development
4040-1102-02	Open Circuit		In Development
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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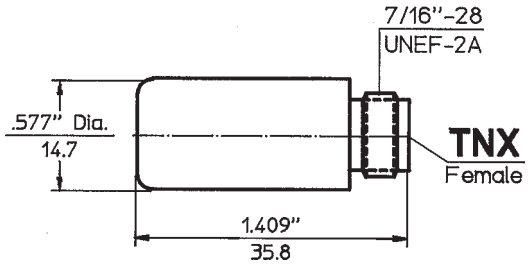
Coaxial Terminations, Type TNX

TNX Female Termination	
Part No.	**TE-0018-4900**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15 : 1
Max. Average Power	1 Watt
Weight in g	33
Temperature Range	-54°C to + 115°C

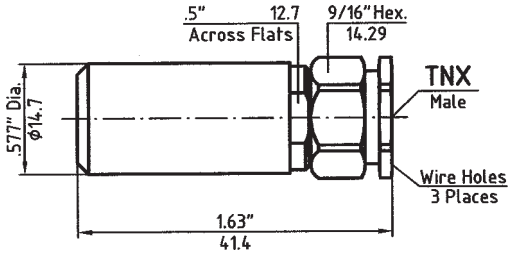
TNX Female



Connector Body and Cap are stainless steel passivated.

TNX Male Termination	
Part No.	**TE-0018-3900**
Frequency Range	DC - 18.0 GHz
Impedance	50 Ohms
Max. VSWR	1.15:1
Max. Average Power	1 Watt
Weight in g	35
Temperature Range	-54°C to + 115°C

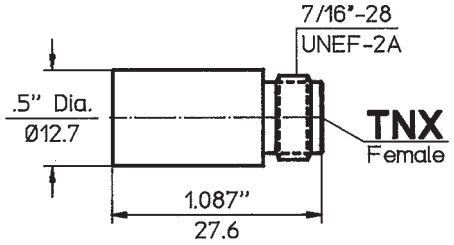
TNX Male



Connector Body and Cap are stainless steel passivated.

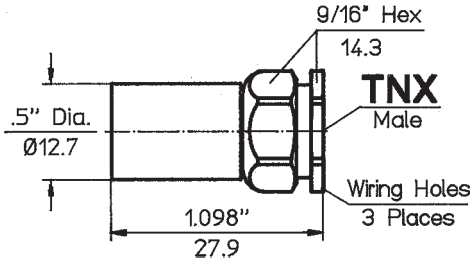
TNX Female Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
3930-2101-02	Short Circuit	DC - 18.0 GHz	20
3940-2101-02	Open Circuit		20
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	

TNX Short /Open Circuit Terminations



Connector Body and Cap are stainless steel passivated.

TNX Male Open/Short Circuit Terminations			
Part No.	**Description**	**Frequency Range**	**Weight (g)**
3930-1101-02	Short Circuit	DC - 18.0 GHz	22
3940-1101-02	Open Circuit		22
Impedance		50 Ohms	
Temperature Range		-54°C to +85°C	



Connector Body and Cap are stainless steel passivated.

Dimensions shown are inches over millimeters. Standard connector parts are made from stainless steel passivated. The housings are made from stainless steel passivated, brass gold plated, brass nickel plated, aluminum anodized, depending on the type of termination or its application. Cooling fins are usually made from aluminum anodized. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

Spectrum Elektrotechnik GmbH P.O. Box 45 05 33, 80905 Munich, Germany **Tel. (89) 354 804-0, Fax (89) 354 804-90** (Country Code: 49)

Section III

Precision Waveguide Terminations

Precision Waveguide Terminations

INTRODUCTION: Waveguide Terminations or loads, are power absorbing devices. They are matched to 50 Ohms, the characteristic impedance of the transmission line. The standard product line of precision low power Waveguide Terminations are using custom machined load elements for optimum electrical performance.

Applications: The waveguide power absorbing devices are needed during test and measurement, can be integrated in components and are used in systems applications.

Average Power Handling: This is the maximum allowable CW power to which the unit can be subjected to without suffering permanent damage. The power handling of absorptive units is a function of temperature. High temperature units are supplied with cooling fins or heat sinks or both for better power dissipation.

Custom Designs: Spectrum Elektrotechnik GmbH has been designing and supplying Waveguide Terminations to suit standard and particular requirements as well, such as unique lightweight and non typical mechanical outline, e.g. very short length, unusual mounting or special flange requirements, high power terminations, constructed of heavy wall aluminum waveguide and extruded heat sink material, load elements shaped for optimum power handling and heat transfer while maintaining excellent VSWR, or devices engineered for applications in rough environment, etc., etc.

Flanges: Waveguide Terminations are available with variety of flanges, meeting the appropriate standard interface specifications.

Frequency and Bandwidth: Waveguide Terminations do operate over their waveguide band. In special applications they may be tuned to certain criteria in narrower bands.

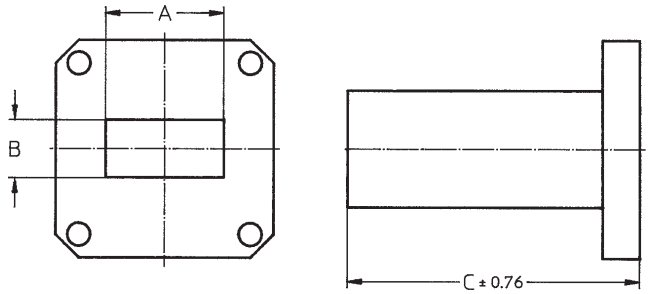
Materials: Aluminum, copper and brass are the materials used for Waveguide Terminations. For the flanges aluminum and brass are offered. The waveguide itself can be either made from aluminum with aluminum flanges, brass or copper, when a brass flange is used.

Operating Temperature Range: The temperature ranges from -54°C to +125°C, or even wider, depending on the application. Precision Waveguide Terminations may have a rather limited temperature range, while the Power Terminations in Systems are usually designed for extreme temperature ranges. The operating temperature however, will reduce the power limit.

Standard Products: A standard product line of Waveguide Terminations is available with short deliveries. But if the product needed is not listed, there is always a possibility that the product required has been designed already or that a design, very close to the requirement exists. Therefore, please check your requirements with our sales force or our engineering staff.

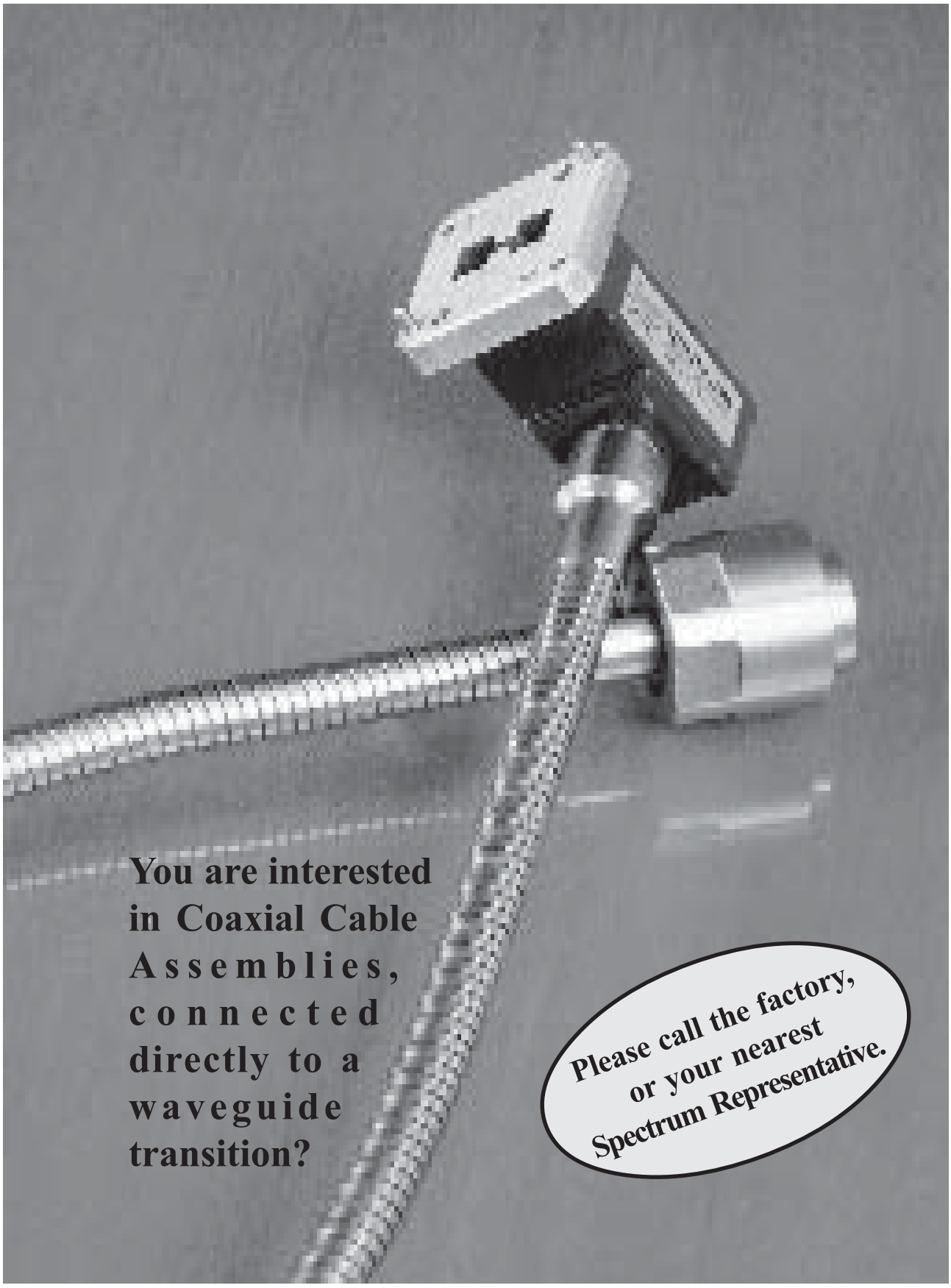
VSWR: VSWR is the ratio of the reflected signal and the incident signal. It is desired that the loads are ideal, absorbing the power completely. In fact, Waveguide Terminations can be designed and manufactured almost ideally. But the units will still show some reflections and discontinuities within the circuit, as no design is perfect, and manufacturing tolerances do not allow perfect designs anyway. The VSWR of Precision Waveguide Terminations is less than 1.02 : 1 over the full waveguide bandwidth.

Precision Waveguide Terminations



Designation			Frequency (GHz)	Radar Band	VSWR max.	Power Rating[1]	Termination Dimensions (mm)			Standard Flange	Standard Flange Material	Part Number[2]
EIA (WR)	DEF (WG)	IEC (R)				CW (W)	A	B	C			
430	8	22	1.70-2.60	R	1.02	5	109.22	54.61	508.0	UG1711/U	Aluminum	**TP-R437-AL01**
										UG1716/U	Brass	**TP-R437-BR01**
340	9A	26	2.20-3.30		1.02		86.36	43.18	457.2	UG1713/U	Aluminum	**TP-R340-AL01**
										UG1712/U	Brass	**TP-R340-BR01**
284	10	32	2.60-3.95	S	1.02		72.136	34.036		UG1725/U	Aluminum	**TP-R284-AL01**
										UG1724/U	Brass	**TP-R284-BR01**
284R/H					1.02			17.018			Aluminum	**TP-H284-AL01**
											Brass	**TP-H284-BR01**
229	11A	40	3.30-4.90		1.02		58.166	29.083	355.6	UG1727/U	Aluminum	**TP-R229-AL01**
										UG1726/U	Brass	**TP-R229-BR01**
187	12	48	3.95-5.85	H	1.02		47.549	22.149	304.8	UG1729/U	Aluminum	**TP-R187-AL01**
										UG1728/U	Brass	**TP-R187-BR01**
159	13	58	4.90-7.05		1.02	4	40.386	20.193		UG1731/U	Aluminum	**TP-R159-AL01**
										UG1730/U	Brass	**TP-R159-BR01**
137	14	70	5.85-8.20	C	1.02	3	34.849	15.799		UG1733/U	Aluminum	**TP-R137-AL01**
										UG1732/U	Brass	**TP-R137-BR01**
112	15	84	7.05-10.0	B	1.02	2	28.499	12.624	254.0	UG138/U	Aluminum	**TP-R112-AL01**
										UG51/U	Brass	**TP-R112-BR01**
102			7.00-11.0		1.02	2	25.908	12.954			Aluminum	**TP-R102-AL01**
										UG1493/U	Brass	**TP-R102-BR01**
96			7.00-17.0		1.02	2	24.511	8.128			Aluminum	**TP-R096-AL01**
											Brass	**TP-R096-BR01**
90	16	100	8.20-12.4	X	1.02	2	22.860	10.160		UG135/U	Aluminum	**TP-R090-AL01**
										UG39/U	Brass	**TP-R090-BR01**
90R/H					1.02	2		5.080			Aluminum	**TP-H090-AL01**
											Brass	**TP-H090-BR01**
75	17	120	10.0-15.0		1.02	2	19.050	9.525	203.2	UBR120	Aluminum	**TP-R075-AL01**
											Brass	**TP-R075-BR01**
75R/H			10.0-15.0		1.02	2		5.080			Aluminum	**TP-H075-AL01**
											Brass	**TP-H075-BR01**
67			11.0-17.0		1.02	2	16.967	8.636			Aluminum	**TP-R067-AL01**
											Brass	**TP-R067-BR01**
62	18	140	12.4-18.0	KU	1.02	2	15.799	7.899		UG1665/U	Aluminum	**TP-R062-AL01**
										UG419/U	Brass	**TP-R062-BR01**
51	19	180	15.0-22.0		1.02	2	12.954	6.477	152.4	UBR180	Aluminum	**TP-R051-AL01**
											Brass	**TP-R051-BR01**
42	20	220	18.0-26.5	K	1.02	2	10.668	4.318		UG597/U	Aluminum	**TP-R042-AL01**
										UG595/U	Brass	**TP-R042-BR01**
34	21	260	22.0-33.0		1.02	2	8.636	4.318		UBR260	Aluminum	**TP-R034-AL01**
											Brass	**TP-R034-BR01**
28	22	320	26.5-40.0	KA	1.02	2	7.112	3.556		UBR320	Aluminum	**TP-R028-AL01**
										UG-599/U	Brass	**TP-R028-BR01**
22	23	400	33.0-50.0		1.02	2	5.690	2.845			Aluminum	**TP-R022-AL01**
										U383/U	Brass	**TP-R022-BR01**

1) At a pressure of one atmosphere.
2) For non Standard Flanges and/or Specifications, a special Part Number will be assigned.


You are interested in Coaxial Cable Assemblies, connected directly to a waveguide transition?
Please call the factory, or your nearest Spectrum Representative.