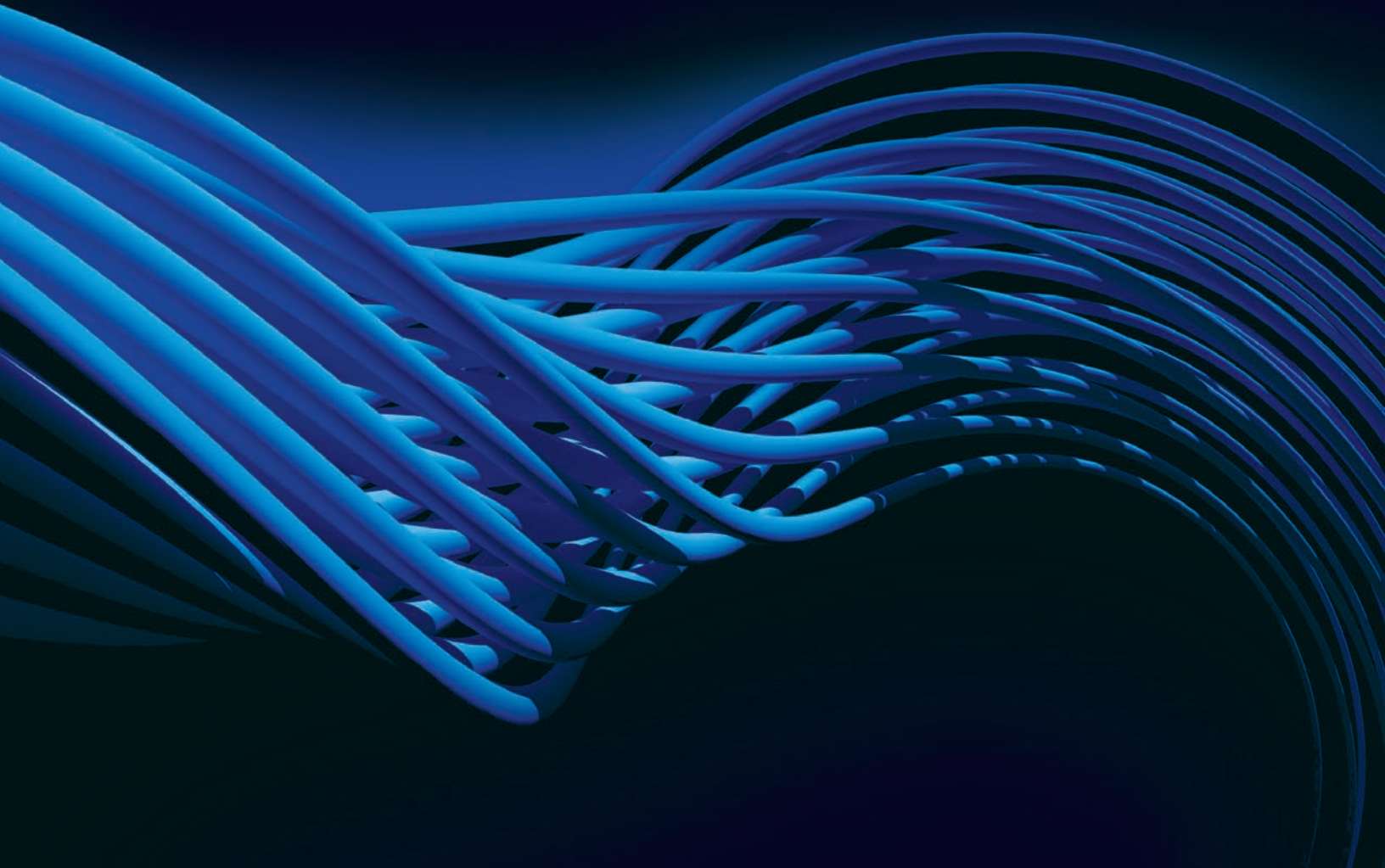


**Rosenberger®**

**Microwave**

**High Performance Cables to 70GHz**



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## Introduction

Rosenberger® RTK-FLEX is a complete range of high performance flexible microwave cables built by Rosenberger. The entire RTK-FLEX product line is constructed using a low or ultra low density PTFE dielectric offering excellent loss characteristics, outstanding phase stability, and unsurpassed flexibility compared to standard flexible cables – all without sacrificing mechanical integrity.

### ***Microwave cable for almost any application:***

- Versatile Low Loss cables offer outstanding performance in almost any environment
- Ultra Low Loss cables have the lowest insertion loss available to 18, 26.5, 40, 50, 65 and 70 GHz
- Miniature cables are a superior alternative to traditional RG or semi-rigid cables
- Ultralight cables provide up to 25% weight savings for spaceflight applications

### ***Key features:***

- Low SWR (1.25:1 to 40 GHz typical)
- Excellent shielding effectiveness
- Precision phase matching

RTK-FLEX high performance cable assemblies are manufactured by Rosenberger under the guidance of our Engineering staff. Every cable assembly is tested and supplied with a Return Loss and Insertion Loss plot.

RTK-FLEX is designed to minimize both reflective and transmission losses while maximizing phase and amplitude stability. This is accomplished by carefully controlling all materials and processes used to manufacture the cable. Following is a description of the typical cable construction. Many other designs are available to meet your unique requirements.



### Center CONDUCTOR

Solid or stranded silver-plated copper wire per ASTM B-298. In comparison to equal size center conductors, the solid center conductor has less RF resistance, lower attenuation, and is more amplitude stable with flexure. The stranded center conductor is more flexible and more phase stable with flexure.

### DIELECTRIC

Low density PTFE per MIL-C-17, with a dielectric constant ranging from 1.4 to 1.7 depending on the cable type. Most transmission losses are caused either directly or indirectly by the dielectric. In addition, the dielectric determines the velocity of propagation, temperature range, power rating, phase and amplitude stability, and contributes to cable flexibility. The RTK-FLEX PTFE dielectric is ideal for these critical parameters due to its low density and low thermal coefficient of expansion.

### INNER SHIELD

Silver-plated copper tape per ASTM B-298, helically wrapped with 40% minimum overlap between layers. This shield allows for outstanding flexibility while providing 100% coverage. By closely monitoring the precision wrapping process and carefully matching the elasticity of the dielectric to the properties of the silver-plated copper tape, uniform impedance and ideal contact between individual layers of the shield are maintained.

### OUTER SHIELD

Silver-plated copper wire per ASTM B-298, tightly braided over the inner shield. The braids are primarily for strength but also add additional RF shielding. For applications where weight is critical such as spaceflight, Rosenberger offers DuPont Aracon® as the braiding material.

### JACKET

Fluorinated Ethylene Propylene (FEP), colored light aqua blue. The FEP is excellent because of its high temperature resistance and chemical inertness. Other materials are available such as Polyurethane (PUR) for Low Halogen and flexible applications and Tefzel® for spaceflight and low static applications.

Tefzel® is a DuPont registered trademark.

## Cable Selection Guide

In order to simplify the cable selection process, individual cables have been grouped into product families. Most flexible cable users want minimal insertion loss consistent with smallest size and weight without sacrificing flexibility. Other parameters will influence price and performance. Use the table and information below to select the cable that best suits your needs.

- Cables with stranded center conductors tend to be more phase stable with flexure.
- Cables with solid center conductors tend to be more amplitude stable with flexure.
- In comparison to other product families, the Low Loss cables are the most durable and robust.
- For applications up to 26.5 GHz, start with the Low Loss L4 cable.
- If the cable will be used in a test lab environment, consider the Low Loss L5 due to its longer flex life and better phase stability with flexure.
- If lower insertion loss is required up to 26.5 GHz, Ultra Low Loss U4 or U3 should be chosen. If the application is less than 18 GHz, choose the Ultra Low Loss U6 or U5 RFlex®.

		R-Flex		Miniature Low Loss			Low Loss						
Part Number		R1	R2	M1	M2	M3	L1	L2	L3	L4	L5	L6	L7
Impedance	Ohms	50											
Max. Frequency	GHz	18					50	40	26.5				
Outer Diameter	mm	2.54	4.12	1.78	2.34	2.34	3.18	3.73	3.73	5.33	5.33	7.9	7.9
Center Conductor	solid	x	x	x	x		x	x		x		x	
	stranded					x			x		x		x
Max. Insertion Loss dB/m	1 GHz	0.70	0.40	1.12	0.69	0.76	0.49	0.39	0.53	0.26	0.36	0.26	0.36
	10 GHz	2.60	1.75	3.54	2.20	2.49	1.61	1.31	1.71	0.92	1.18	0.92	1.18
	18 GHz	3.40	2.20	4.82	3.02	3.38	2.23	1.81	2.36	1.28	1.64	1.28	1.64
	26.5 GHz	-	-	-	-	-	2.76	2.23	2.92	1.61	2.03	1.61	2.03
	40 GHz	-	-	-	-	-	3.48	2.85	-	-	-	-	-
	50 GHz	-	-	-	-	-	3.97	-	-	-	-	-	-
Power Handling	Watts (CW) at 10 GHz	58	120	30	59	55	105	150	129	286	248	286	248
Nominal Weight	grams/meter	19.4	43.3	9.8	16.4	16.4	26.2	36.1	36.1	65.6	65.6	65.6	65.6
Static Bend Radius	mm	6.4	12.7	2.6	3.2	3.2	5.1	6.4	6.4	10	10	10	10
Detailed Information	page	8-9		10-11			12-13						

\* Includes integral armor (see page 12)

- For applications greater than 26.5 GHz but less than 40 GHz, start with the Low Loss L2 cable. If lower loss is required, choose the Ultra Low Loss U2 cable.
- For applications up to 50 GHz, use the Low Loss L1 cable.
- If size and flexibility are critical, consider the Low Loss L3 or Ultra Low Loss U1 cables.
- If the application is for a fixed installation, consider the Miniature cables due to their cost/size/performance ratio.
- The Low Halogen polyurethane jacketed cables are also good choices for applications requiring high abrasion resistance. We recommend these cables as Standard Test Cables.
- Use W1 for 70 GHz for optimum phase stability.

If you need assistance, please contact one of our application engineers.

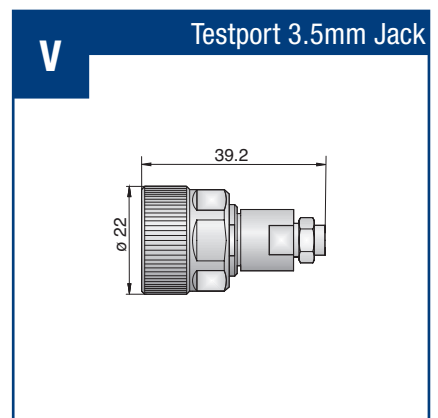
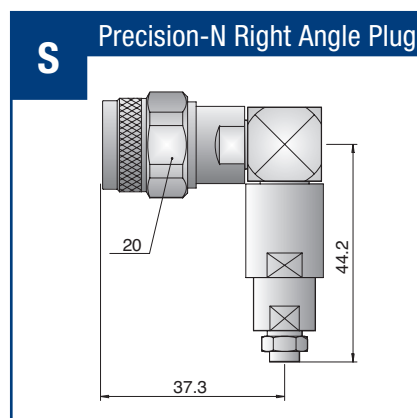
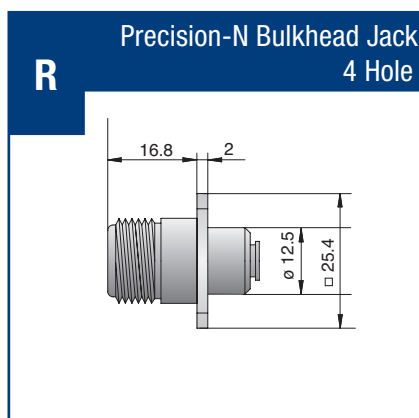
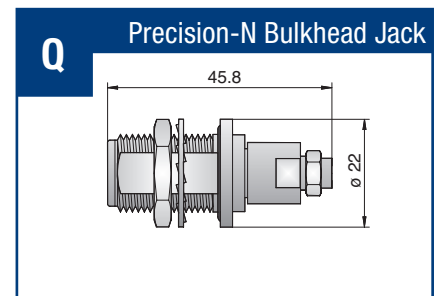
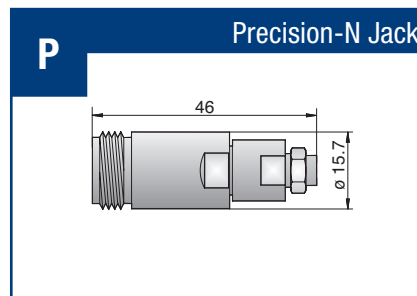
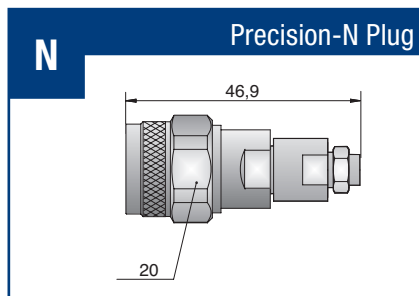
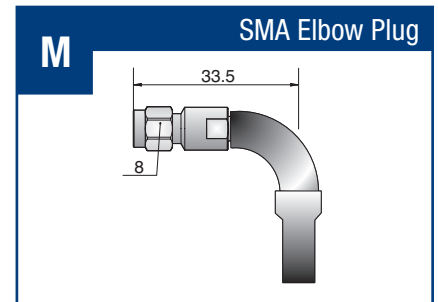
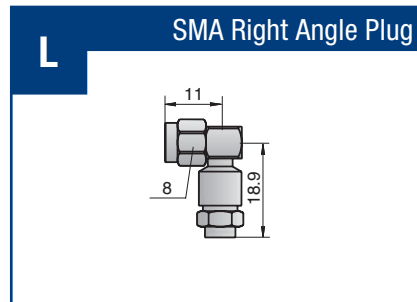
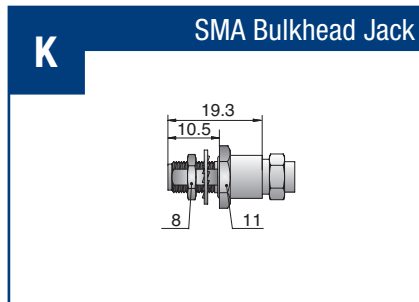
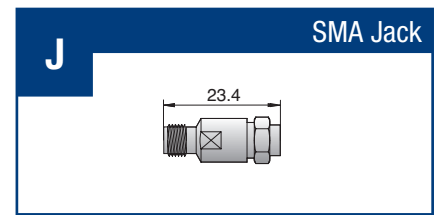
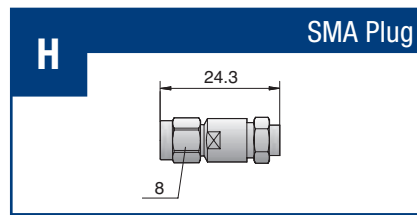
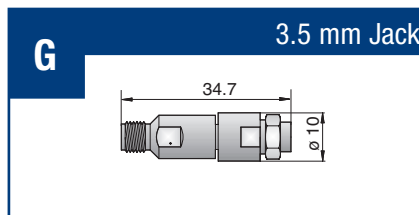
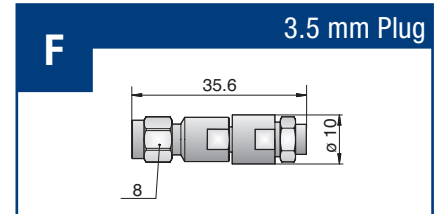
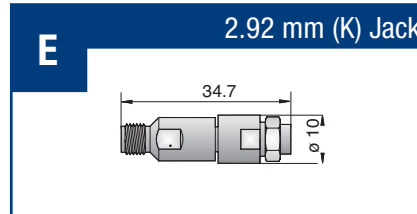
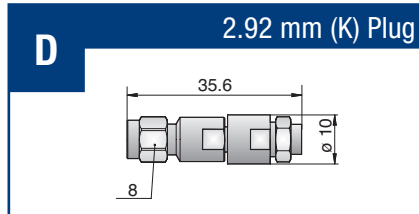
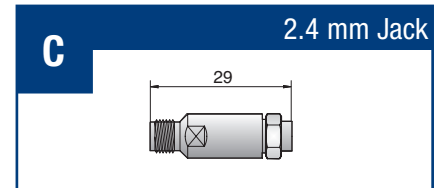
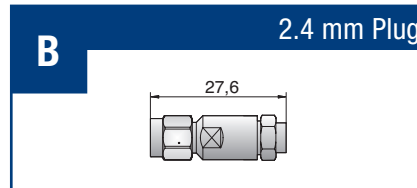
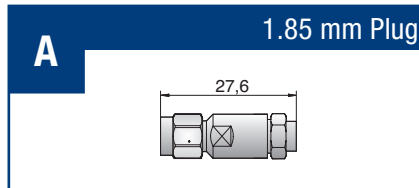
		Low Halogen		Ultra Low Loss							Ultralight	
Part Number		H1	H2	U1	U2	U3	U4	U5	U6	W1	T1	T2
Impedance	Ohms	50										
Max. Frequency	GHz	26.5	26.5	18	40	26.5	26.5	18	18	70	18	26.5
Outer Diameter	mm	5.59	5.59	3.61	3.61	5.00	5.21	7.44	7.90	2.35	2.24	5.21
Center Conductor	solid	x			x		x		x	x	x	x
	stranded		x	x		x		x				
Max. Insertion Loss dB/m	1 GHz	0.26	0.36	0.39	0.36	0.30	0.26	0.20	0.16	0.66	0.69	0.26
	10 GHz	0.92	1.18	1.25	1.08	0.92	0.92	0.62	0.49	2.13	2.20	0.92
	18 GHz	1.28	1.64	1.67	1.48	1.25	1.05	0.85	0.66	2.92	2.95	1.05
	26.5 GHz	1.61	2.03	-	1.81	1.54	1.28	-	-	3.51	-	1.28
	40 GHz	-	-	-	2.23	-	-	-	-	4.33	-	-
	50 GHz	-	-	-	-	-	-	-	-	5.23	-	-
	65 GHz	-	-	-	-	-	-	-	-	5.75	-	-
	70 GHz	-	-	-	-	-	-	-	-	6.44	-	-
Power Handling	Watts (CW) at 10 GHz	286	248	161	172	281	328	540	643	58	60	328
Nominal Weight	grams/meter	65.6	65.6	29.5	32.8	59.1	65.6	121.4	137.8	16.14	10.8	49.2
Static Bend Radius	mm	10	10	10	10	13	13	20	32	6.40	6.4	13
Detailed Information	page	14-15		16-17							18-19	

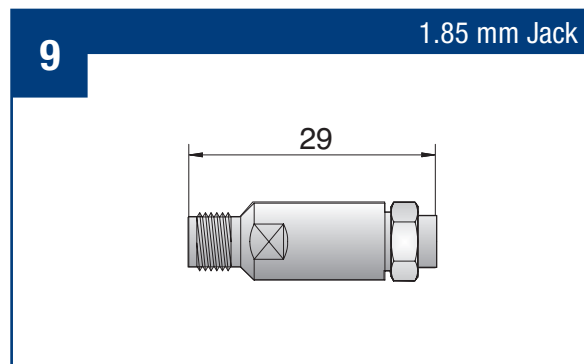
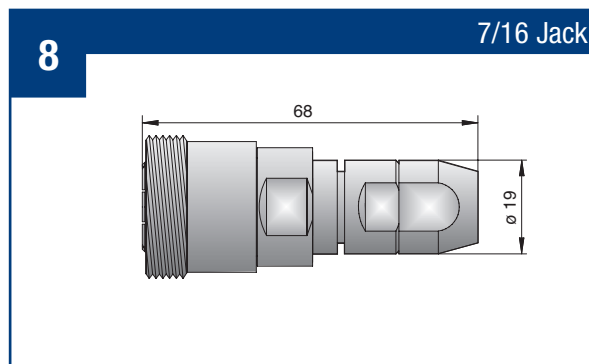
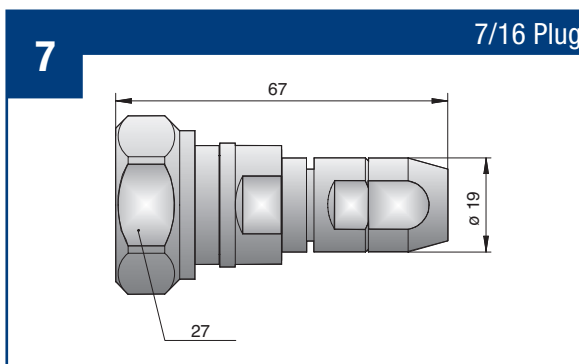
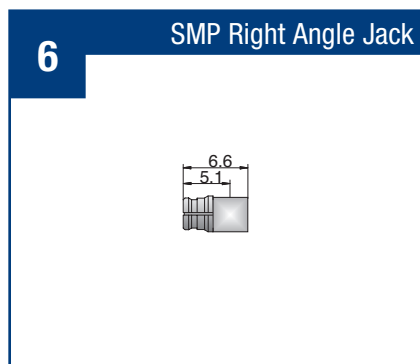
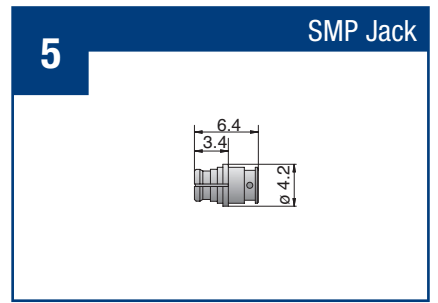
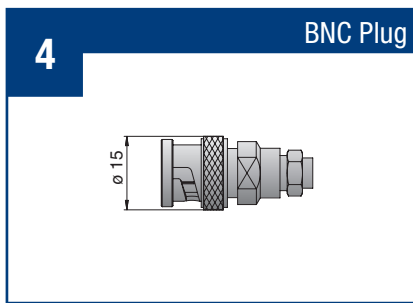
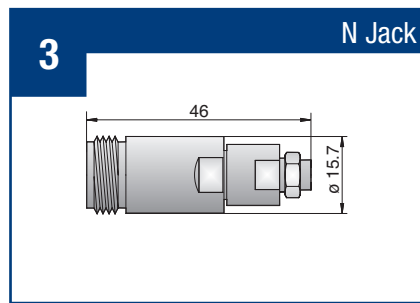
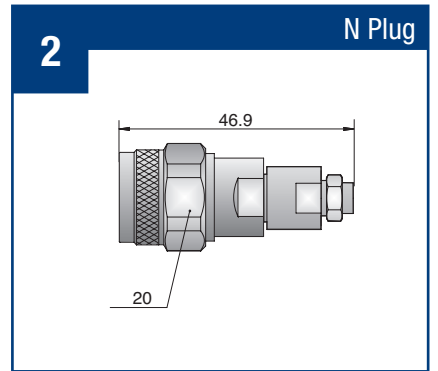
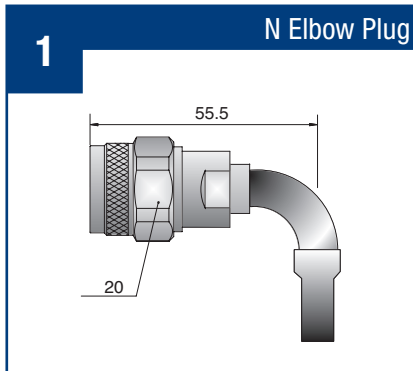
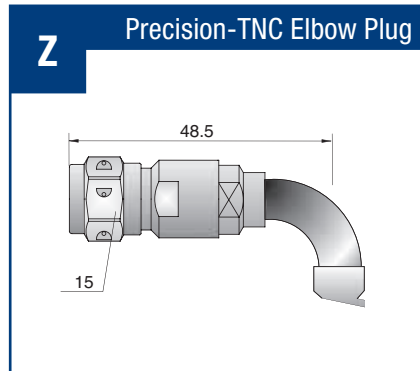
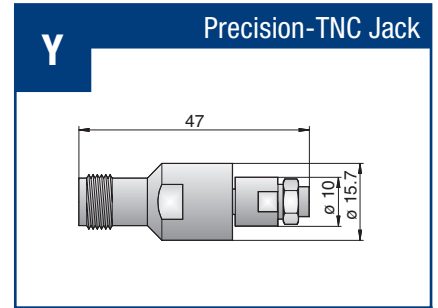
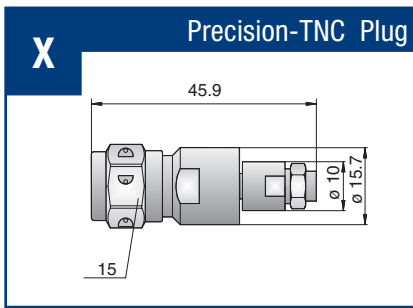
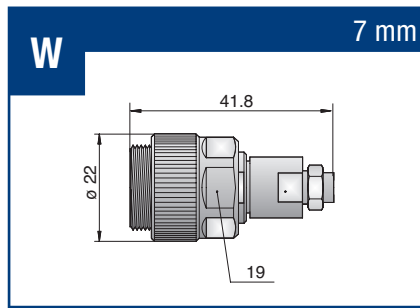
# Connector Selection Guide

Design and materials of all connectors and connector parts conform to MIL-C-39012. The RTK-FLEX connectors have been optimized to achieve the lowest possible SWR across the bandwidth. In addition, the patented connector attachment has been designed to provide high reliability and withstand heavy stress. The connector body, dielectric, and center contact are completely captivated guaranteeing the cable assembly will keep its excellent properties even after hard use.

	Part Number	Max. Frequency	M1	M2 M3	L1	L2	L3	L4 L5 L6 L7 H1 H2	U1	U2	U3 U4	U5 U6	W1
1.85 mm Plug	A	65				x							x
2.4 mm Plug	B	50			x	x				x			x
2.4 mm Jack	C	50			x	x				x			x
2.92 mm (K) Plug	D	40				x				x			x
2.92 mm (K) Jack	E	40				x				x			x
3.5 mm Plug	F	26.5		x		x	x	x		x	x		x
3.5mm Jack	G	26.5		x				x			x		x
SMA Plug	H	18		x		x	x	x	x	x	x	x	x
SMA Jack	J	18		x		x	x	x	x	x		x	x
SMA Right Angle Plug	L	18	x			x	x	x	x	x		x	x
SMA Elbow Plug	M	18	x					x					
SMA Bulkhead Jack	K	18						x	x	x	x		
Precision N Plug	N	18				x	x	x	x	x	x	x	x
Precision N Jack	P	18						x			x	x	x
Precision N Bulkhead Jack	Q	18						x	x	x		x	
Precision N Bulkhead Jack 4 Hole	R	18						x					
Precision N Right Angle Plug	S	18						x				x	
Precision N Elbow Plug	T	18										x	
Testport 3.5 mm Jack	V	26.5						x					
7 mm	W	18				x	x	x	x	x	x		x
Precision TNC Plug	X	18				x	x	x	x	x		x	
Precision TNC Jack	Y	18						x				x	
Precision TNC Elbow Plug	Z	18				x	x	x					
N Plug	2	12.4						x			x	x	
N Jack	3	12.4						x					
BNC Plug	4	4						x					
SMP Jack	5	18	x	x									
SMP Right Angle Jack	6	18	x	x									
7/16 Plug	7	12.4						x				x	
7/16 Jack	8	12.4						x				x	
1.85 mm Jack	9	65						x					x

Coupling Nut Dimensions (where shown) are Across Flats







Most RTK-FLEX cable assemblies are available with armor. The armor extends life and adds additional physical protection. The standard armors are detailed below. Additional armor types are also available. Please contact Rosenberger with any special requirements.

Cables are grouped according to cable and armor size	L1	L4	U5 U6
	L2	L5	
	L3	U3	
	U1	U4	
	U2		

## Type B Stainless Steel Interlock Spiral



**Features:** Prevents over bending. Excellent abrasion and cut through resistance. Very cost effective.

**Typical Application:** Test Lab, Harsh Manufacturing Environment and Military Hardware.

Diameter (mm)	7.1	9.7	12.5
Min. Bend Radius (mm)	38	51	51
Max. Temperature	165°C	165°C	165°C
Crush Resistance (N/mm)	74	74	74

## Type C Stainless Steel Interlock Spiral Coil with Polyurethane Jacket



**Features:** Waterproof, Prevents over bending. Excellent abrasion cut through resistance. Cost effective.

**Typical Application:** Military Hardware, Test Lab and Outdoor.

Diameter (mm)	10	10	14
Min. Bend Radius (mm)	44	44	50
Max. Temperature	100°C	100°C	100°C
Crush Resistance (N/mm)	74	74	74

## Type D\* Stainless Steel Spiral Coil with Polyurethane Jacket

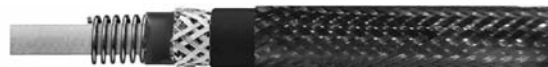


**Features:** Stainless Steel Spiral Coil with a .8mm (min.) extruded (black or blue) Polyurethane Jacket. Excellent abrasion resistance. Very flexible. Waterproof and UV resistant.

**Typical Application:** Test Lab, Harsh Manufacturing Requirements, Outdoor and Demanding Environments.

Diameter (mm)	8.9	10.5	13.5
Min. Bend Radius (mm)	20	25	38
Max. Temperature	80° C	80° C	80° C
Crush Resistance (N/mm)	80	80	80

## Type E\* Stainless Steel Spiral Coil with Stainless Steel Braid & Nylon Braid Outer Jacket



**Features:** Very Durable Cable with Polyurethane layer over the Stainless Steel Spiral Coil and over the Stainless Steel Braid.

Very flexible waterproof and UV resistant. Excellent abrasion and cut through resistance. High tensile strength.

**Typical Application:** Test Lab and manufacturing environment.

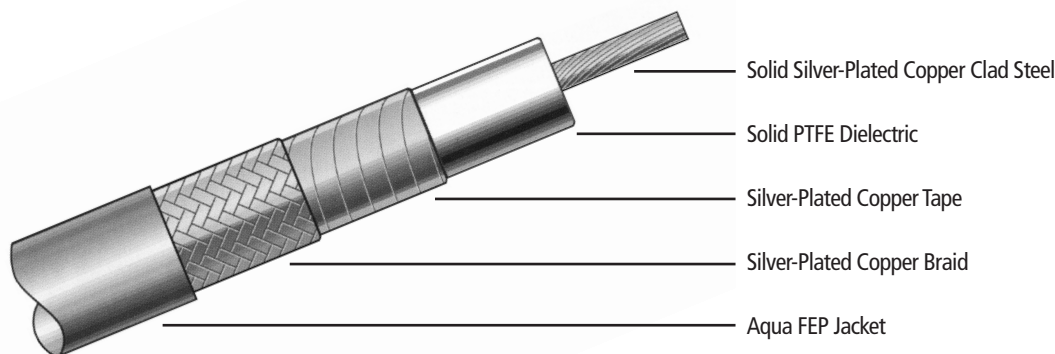
Diameter (mm)	10.5	12.3	
Min. Bend Radius (mm)	25.5	25.5	
Max. Temperature	80° C	80° C	
Crush Resistance (N/mm)	80	80	

\*Cable Armors are designed for flexibility and cable protection. Each armor uses a proprietary flexible SPIRAL-wound 304 Stainless Steel coil.

Connector ends are sealed and encapsulated with a pressure injection-molded polymer for additional strain relief. This combination of materials and technology provides superior ruggedization, environmental resistance, RF shielding effectiveness and stability under flexure and vibration. Other armors and sizes are available.

RFlex® assemblies from Rosenberger offers an excellent choice for microwave signal transmission. Employing our high-frequency microwave cable technology, Rosenberger has designed RFlex from “the GHz down” rather than “the MHz up”. This precision approach results in unsurpassed improvements in shielding, stability, durability and lower cost compared to similar products. RFlex is constructed from an improved solid PTFE dielectric core underneath a precision wound layer of metalized tape for nearly ideal microwave shielding. Strength and protection are then added via a round wire braid and FEP outer jacket. The result is a cable with true microwave performance and excellent mechanical characteristics. RFlex is easy to use because it can be easily stripped and physical sized so that it can be terminated with standard semi-rigid cable connectors.

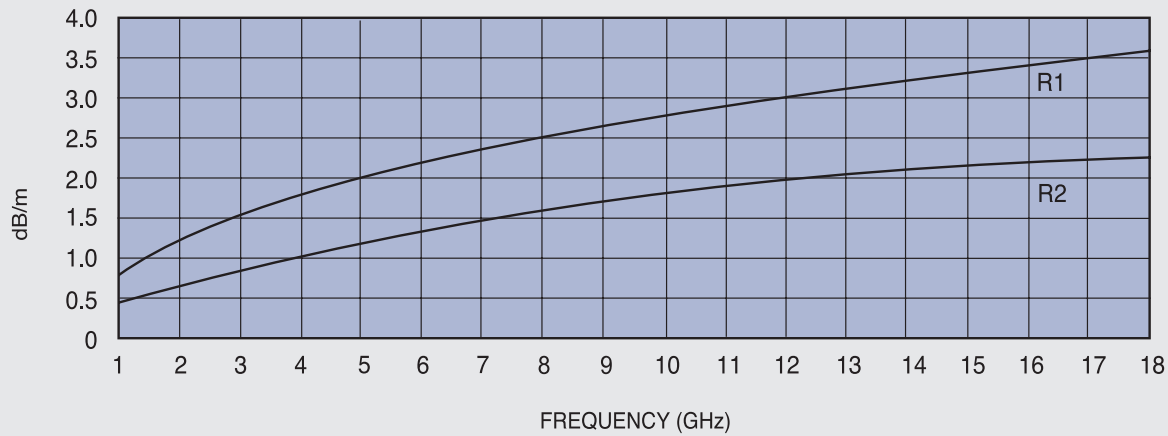
		R1	R2
MECHANICAL CHARACTERISTICS			
Jacket Diameter	mm	2.54	4.06
Outer Shield Diameter	mm	2.13	3.56
Dielectric Diameter	mm	1.68	3.05
Center Conductor Diameter	mm	0.51	0.91
Weight	grams/meter	19.39	43.25
Minimum Bend Radius	mm	6.35	12.70
ELECTRICAL CHARACTERISTICS			
Impedance	Ohms	50	50
Max. Frequency	GHz	18	18
Velocity of Propagation		70%	70%
Capacitance	pF/m	96.1	96.1
Shielding Effectiveness	dB@1GHz	>90	>90
Max. Insertion Loss [dB/m] at	1 GHz	0.70	0.40
	10 GHz	2.66	1.74
	18 GHz	3.40	2.20
Maximum Voltage	VMRS	2000	2000
Signal Delay	nsec/m	4.76	4.76
Power Handling		see figure on next page	
ENVIRONMENTAL CHARACTERISTICS			
Temperature Range	°C	-65/+125	-65/+125
AVAILABLE CONNECTORS			
		All Connectors For Semi-Rigid Cables UT85 and UT141	



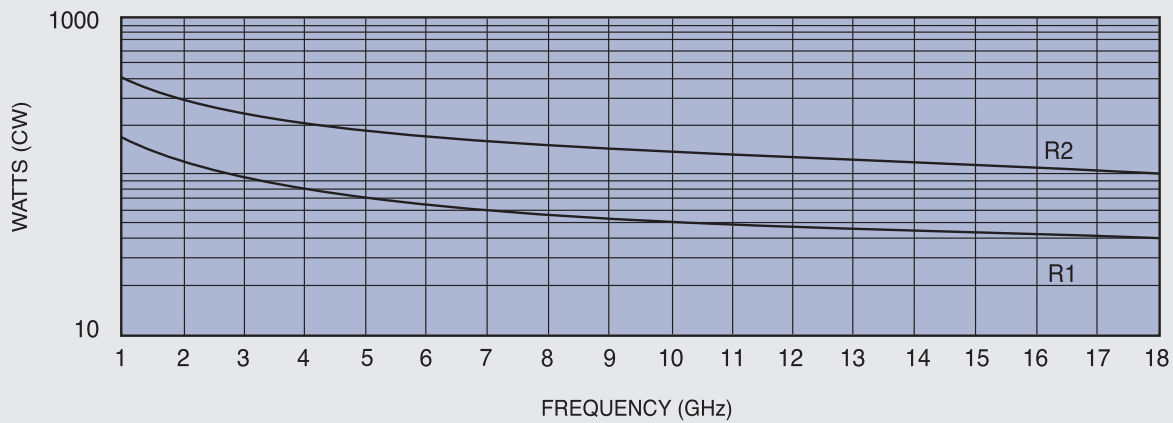
## RFlex® Features and Benefits

- High Performance.  
Helical shield for improved loss and phase stability.  
Same size as semi-rigid to optimize assembly loss and VSWR.  
Isolation greater than 90 dB to minimize cross talk and maximize system performance.

MAXIMUM INSERTION LOSS



POWER HANDLING

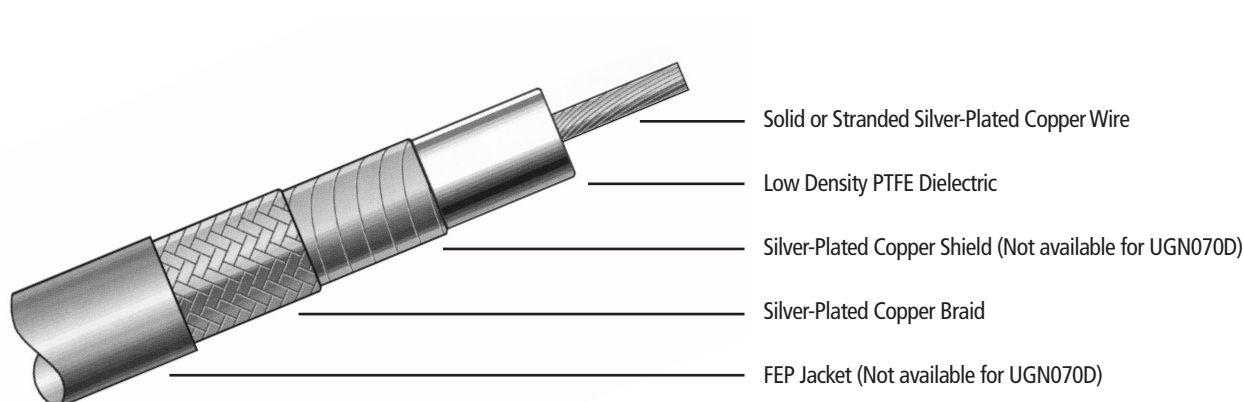


# RTK-FLEX Miniature Low Loss Cable Assemblies

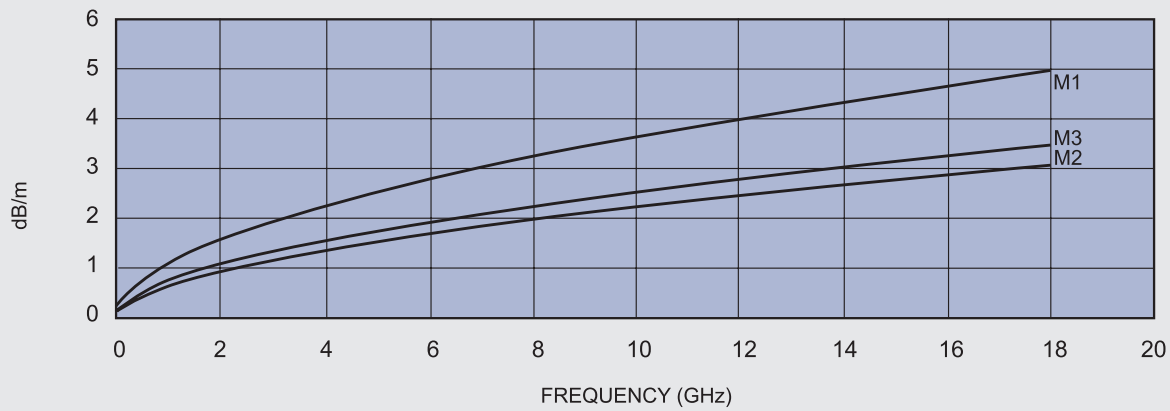
These general purpose microwave miniature cables have been designed to offer superior electrical performance in the smallest possible package. They are a cost-effective alternative when an RG cable cannot perform to your system needs or when a semi-rigid cable is too cumbersome. The RTK-FLEX Miniature assemblies are available with a large selection of connectors and can be easily customized to meet your exact requirements.

		M1	M2	M3
MECHANICAL CHARACTERISTICS				
Jacket Diameter	mm	1.78	2.34	2.34
Center Conductor	type	solid	solid	stranded
Weight	grams/meter	9.8	16.4	16.4
Minimum Bend Radius	mm	2.6	3.2	3.2
ELECTRICAL CHARACTERISTICS				
Impedance	Ohms	50	50	50
Max. Frequency	GHz	18	18	18
Velocity of Propagation		77%	77%	77%
Capacitance	pF/m	86	86	86
Shielding Effectiveness	dB@1GHz	>-100	>-100	>-100
Max. Insertion Loss [dB/m] at	1 GHz	1.12	0.69	0.76
	10 GHz	3.54	2.20	2.49
	18 GHz	4.82	3.02	3.38
Phase Stability vs. Flexure *	10 GHz	2°	3°	2°
	18 GHz	4°	5°	2°
Phase Stability vs. Temperature		see figure on next page		
Power Handling		see figure on next page		
ENVIRONMENTAL CHARACTERISTICS				
Temperature Range	°C	-65/+165	-65/+165	-65/+165
AVAILABLE CONNECTORS				
Additional Information on Page 4		SMA	3.5 mm SMA SMP	

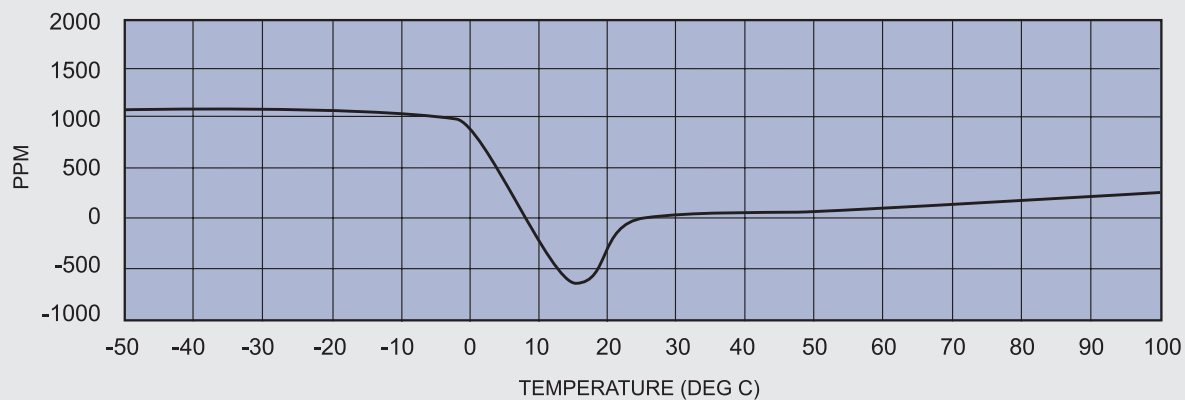
\* Cable wrapped around a 5cm diameter mandrel



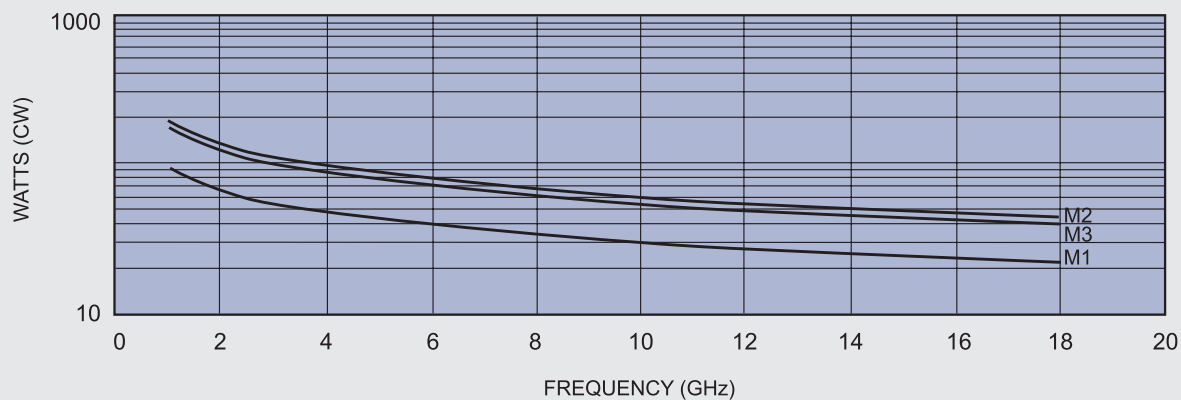
MAXIMUM INSERTION LOSS



PHASE STABILITY VS. TEMPERATURE



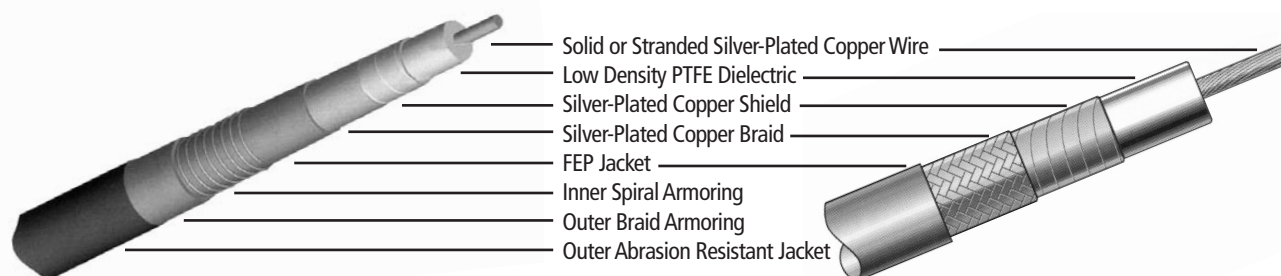
POWER HANDLING



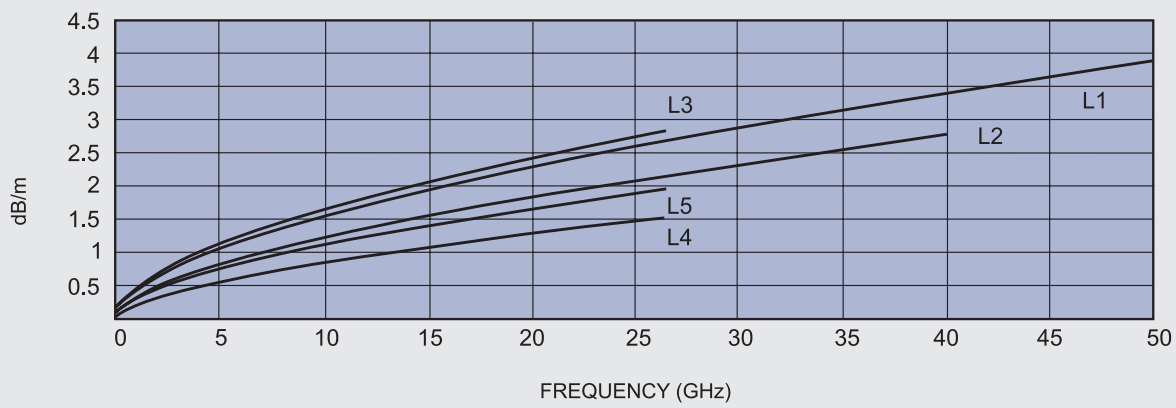
RTK-FLEX Low Loss cable assemblies provide you with the complete high performance microwave cable. They have outstanding mechanical integrity without sacrificing insertion loss, phase stability, or SWR. RTK-FLEX Low Loss cable assemblies are extremely versatile, moderately priced, and fit a large variety of applications.

		L1	L2	L3	L4	L5	L6	L7
MECHANICAL CHAR ACTERISTICS								
Jacket Diameter	mm	3.18	3.73	3.73	5.33	5.33	7.9	7.9
Center Conductor	type	solid	solid	stranded	solid	stranded	solid	stranded
Weight	grams/ meter	26.2	36.1	36.1	65.6	65.6	155	155
Minimum Bend Radius	mm	5.1	6.4	6.4	9.7	9.7	38	38
Flexures		10,000	10,000	100,000	10,000	100,000	10,000	100,000
ELECTRICAL CHARACTERISTICS								
Impedance	Ohms	50	50	50	50	50	50	50
Max. Frequency	GHz	50	40	26.5	26.5	26.5	26.5	26.5
Velocity of Propagation		77%	77%	77%	77%	77%	77%	77%
Capacitance	pF/m	86	86	86	86	86	86	86
Shielding Effectiveness	dB@1GHz	>100	>100	>100	>100	>100	>100	>100
Max. Insertion Loss [dB/m] at	1 GHz	0.49	0.39	0.53	0.26	0.36	0.26	0.36
	10 GHz	1.61	1.31	1.71	0.92	1.18	0.92	1.18
	18 GHz	2.23	1.81	2.36	1.28	1.64	1.28	1.64
	26.5 GHz	2.76	2.23	2.92	1.61	2.03	1.61	2.03
	40 GHz	3.48	2.85	-	-	-	-	-
	50 GHz	3.97	-	-	-	-	-	-
Phase Stability vs.Flexure *	10 GHz	3°	3°	2°	3°	2°	3°	2°
	18 GHz	5°	5°	2°	5°	2°	5°	2°
Phase Stability vs. Temperature		see figure on next page						
Power Handling		see figure on next page						
ENVIRONMENTAL CHAR ACTERISTICS								
Temperature Range	°C	-65/+165	-65/+165	-65/+165	-65/+165	-65/+165	-55/ +165	-55/+165
AVAILABLE CONNECTORS								
Additional Information on Page 6		2.4 mm	1.85 mm 2.4 mm 2.92 mm 3.5 mm SMA Prec. N Testport	3.5 mm SMA Prec. N	3.5 mm SMA Precision N 7 mm Precision TNC Standard N BNC 7/16			

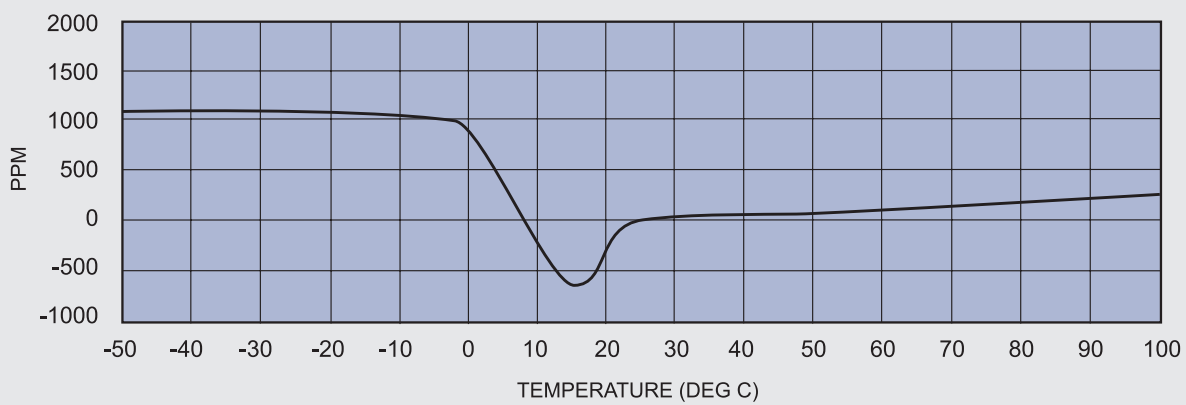
\* Cable wrapped around a 5cm diameter mandrel



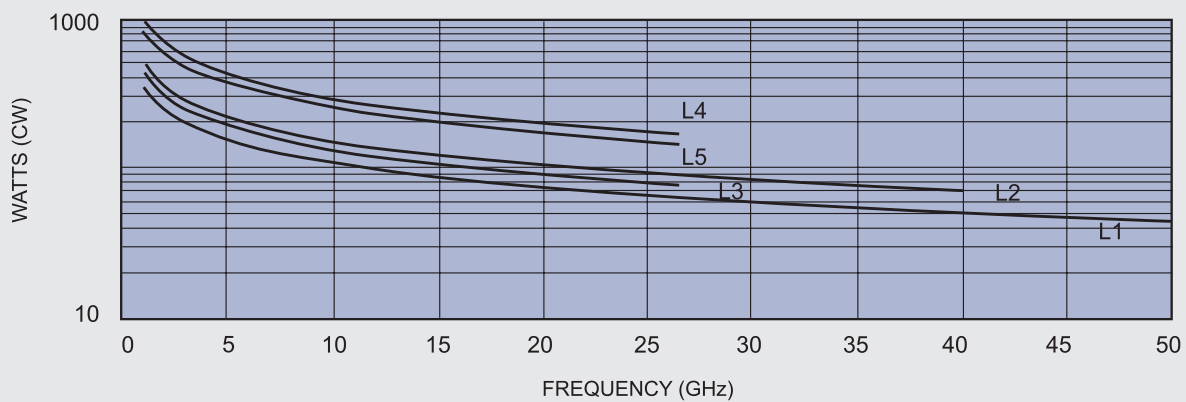
## MAXIMUM INSERTION LOSS



## PHASE STABILITY VS. TEMPERATURE



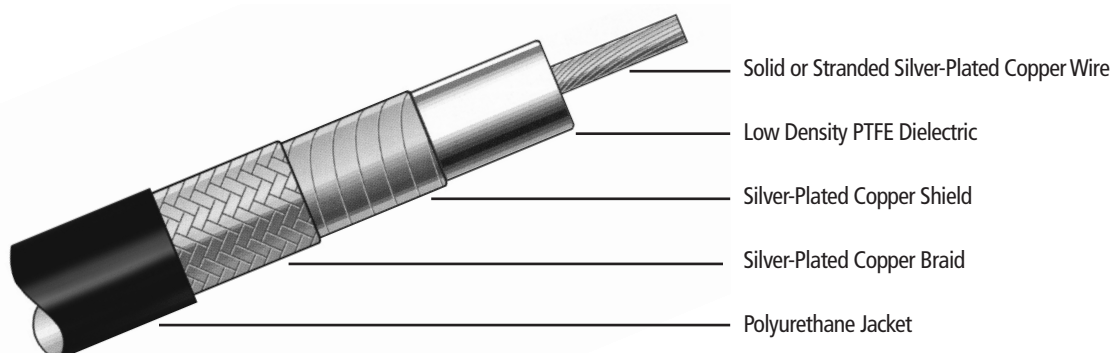
## POWER HANDLING



RTK-FLEX Low Halogen Assemblies are the ideal choice for a standard test cable. The polyurethane (PUR) jacket is very flexible irrespective of temperature and well able to handle the extremes of temperature experienced in a laboratory. The cables have the same electrical performance as "Low Loss cable assemblies" with good insertion loss, phase stability and SWR.

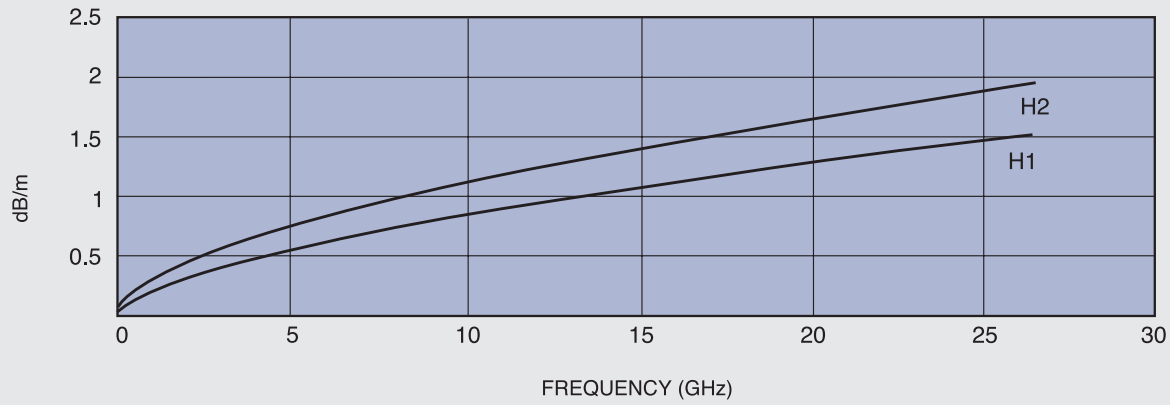
		H1	H2
MECHANICAL CHARACTERISTICS			
Jacket Diameter	mm	5.6	5.6
Center Conductor	type	solid	stranded
Weight	grams/meter	66	66
Minimum Bend Radius	mm	9.7	9.7
Flexures		10,000	100,000
ELECTRICAL CHARACTERISTICS			
Impedance	Ohms	50	50
Max. Frequency	GHz	26.5	26.5
Velocity of Propagation		77%	77%
Capacitance	pF/m	86	86
Shielding Effectiveness	dB@1GHz	>-100	>-100
Max. Insertion Loss [dB/m] at	1 GHz	0.26	0.36
	10 GHz	0.92	1.18
	18 GHz	1.28	1.64
	26.5 GHz	1.61	2.03
Phase Stability vs. Flexure *	10 GHz	3°	2°
	18 GHz	5°	2°
Phase Stability vs. Temperature		see figure on next page	
Power Handling		see figure on next page	
ENVIRONMENTAL CHARACTERISTICS			
Temperature Range	°C	-65/+80	-65/+80
AVAILABLE CONNECTORS			
Additional Information on Page 4		3.5 mm SMA Precision N Testport 7 mm Precision TNC Standard N BNC 7/16	

\* Cable wrapped around a 5cm diameter mandrel

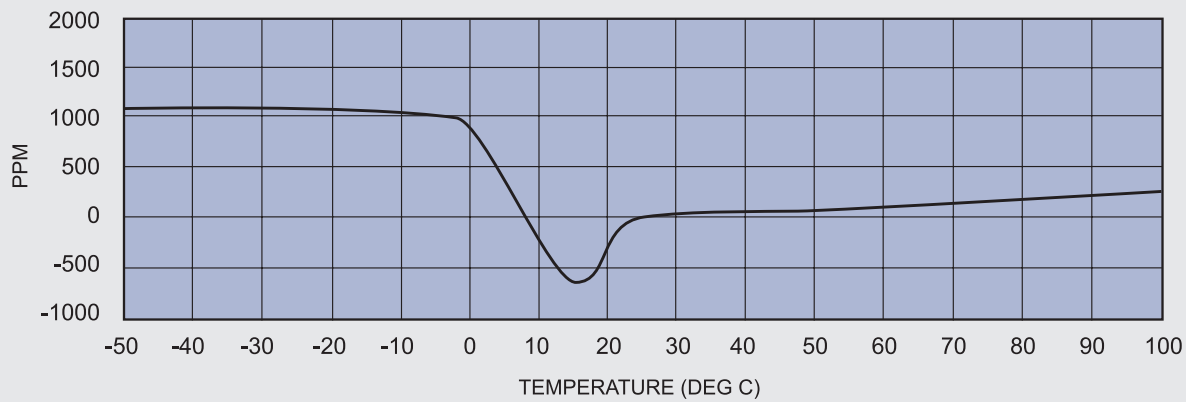




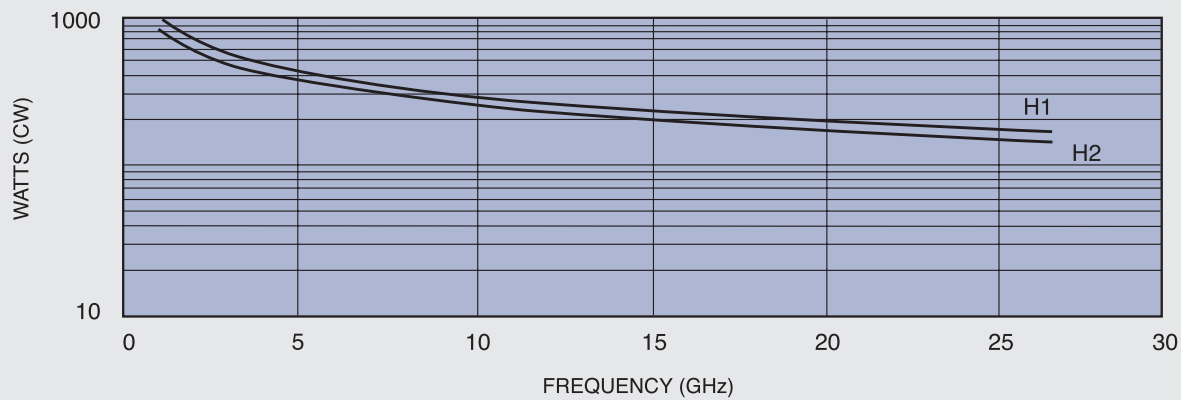
MAXIMUM INSERTION LOSS



PHASE STABILITY VS. TEMPERATURE



POWER HANDLING

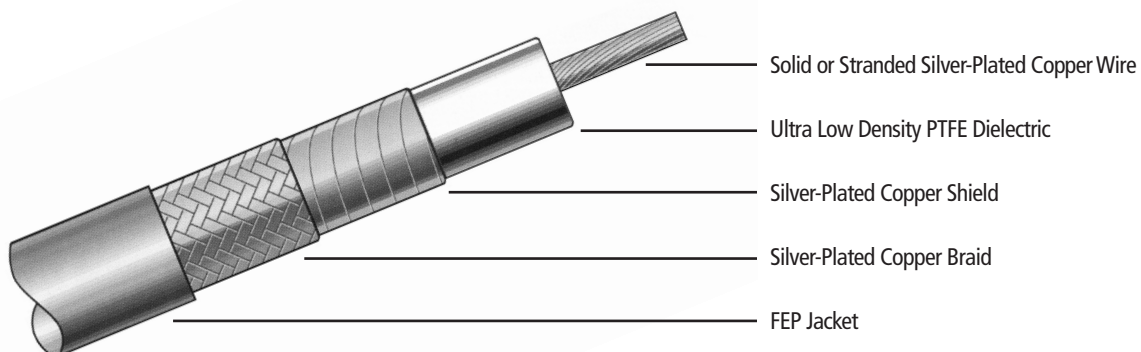


RTK-FLEX Ultra Low Loss cable assemblies are optimized to provide the lowest insertion loss available in a flexible cable construction up to 18, 26.5, 40, 50 and 70 GHz. The cables utilize an ultra low density PTFE dielectric that lowers weight and insertion loss, improves electrical stability, and provides greater resilience and flexibility when compared to standard microwave cables.

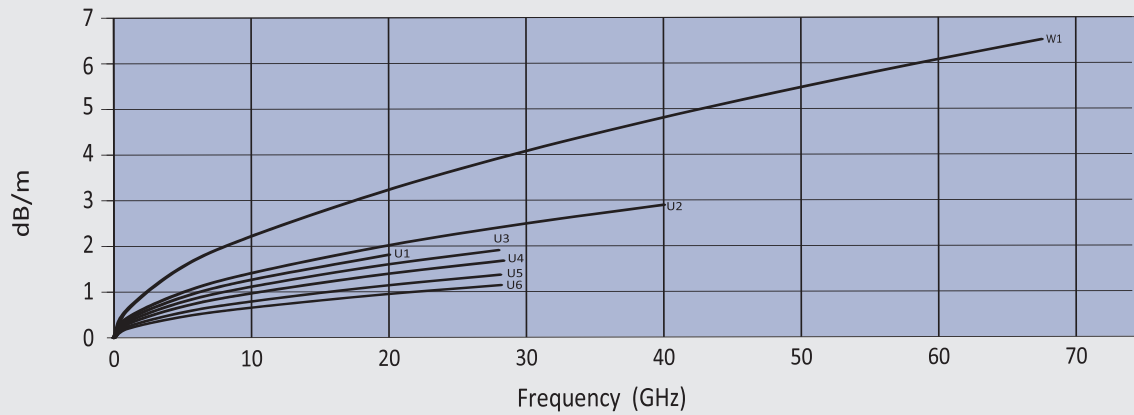
		U1	U2	U3	U4	U5	U6	W1
MECHANICAL CHARACTERISTICS								
Jacket Diameter	mm	3.61	3.61	5.00	5.21	7.44	7.90	2.35
Center Conductor	type	stranded	solid	stranded	solid	stranded	solid	solid
Weight	grams/meter	29.5	32.8	59.1	65.6	121.4	137.8	16.14
Minimum Bend Radius	mm	9.7	9.7	12.7	12.7	19	32	6.4
Flexures		35,000	5,000	35,000	5,000	35,000	5,000	5,000
ELECTRICAL CHARACTERISTICS								
Impedance	Ohms	50	50	50	50	50	50	50
Max. Frequency	GHz	18	40	26.5	26.5	18	18	70
Velocity of Propagation		83%	83%	83%	83%	83%	83%	77%
Capacitance	pF/m	80.4	80.4	80.4	80.4	80.4	80.4	80.4
Shielding Effectiveness	dB@1GHz	>-100	>-100	>-100	>-100	>-100	>-100	>-100
Max. Insertion Loss [dB/m] at	1 GHz	0.39	0.36	0.30	0.26	0.20	0.16	0.63
	10 GHz	1.25	1.08	0.92	0.76	0.62	0.49	2.25
	18 GHz	1.67	1.48	1.25	1.05	0.85	0.66	3.25
	26.5 GHz	-	1.81	1.54	1.28	-	-	4.10
	40 GHz	-	2.23	-	-	-	-	4.80
	50 GHz	-	-	-	-	-	-	5.47
	65 GHz	-	-	-	-	-	-	6.25
	70 GHz	-	-	-	-	-	-	6.65
Phase Stability vs. Flexure *	10 GHz	1°	2°	1°	1°	2°**	3°**	2°
	18 GHz	1°	3°	1°	2°	10°**	15°**	2°
Phase Stability vs. Temperature		see figure on next page						
Power Handling		see figure on next page						
ENVIRONMENTAL CHARACTERISTICS								
Temperature Range	°C	-65/+165	-65/+165	-65/+165	-65/+165	-65/+165	-65/+165	-65 +165
AVAILABLE CONNECTORS								
Additional Information on Page 4		SMA Precision N 7 mm Prec. TNC	2.4 mm 2.92 mm 3.5 mm SMA Precision N 7 mm Prec. TNC	3.5 mm SMA Precision N 7 mm Standard N		SMA Precision N Precision TNC Standard N 7/16		1.85 mm 2.4 mm 2.92 mm 3.5 mm SMA Precision N 7 mm Prec. TNC

\* Cable wrapped around a 5cm diameter mandrel

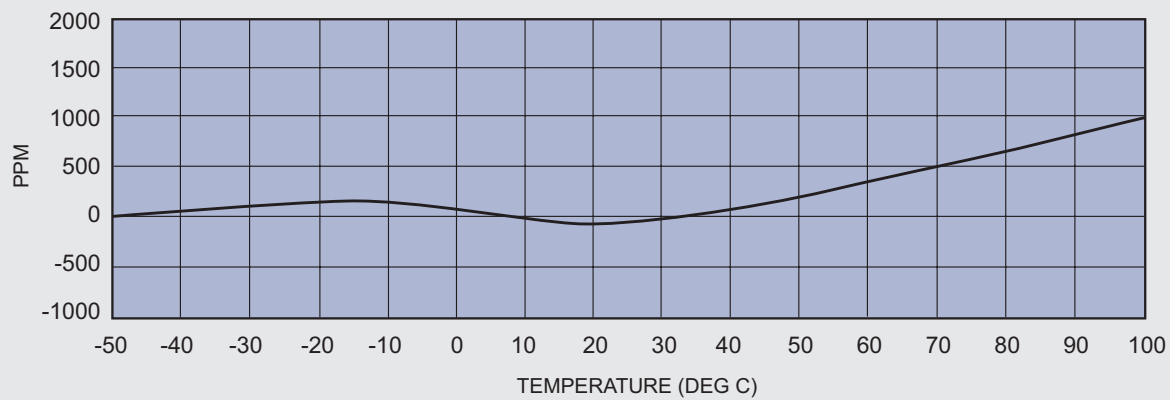
\*\* Cable wrapped around a 7.5cm diameter mandrel



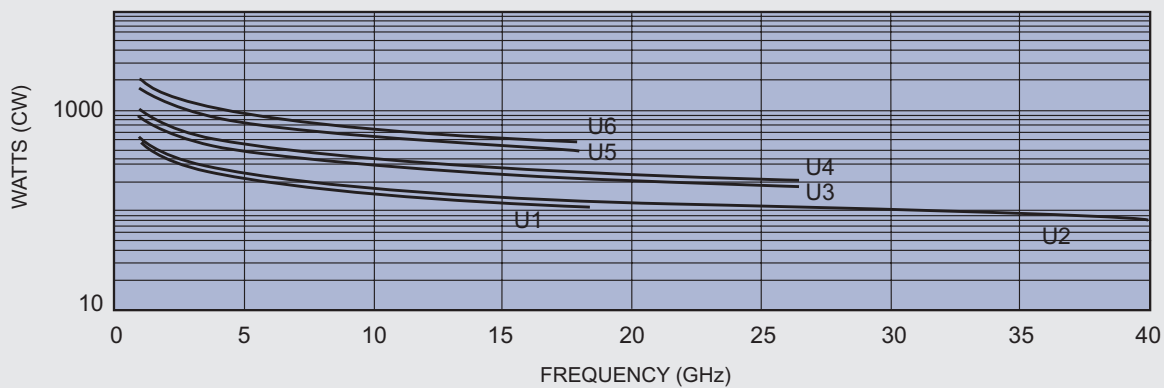
MAXIMUM INSERTION LOSS



PHASE STABILITY VS. TEMPERATURE



POWER HANDLING

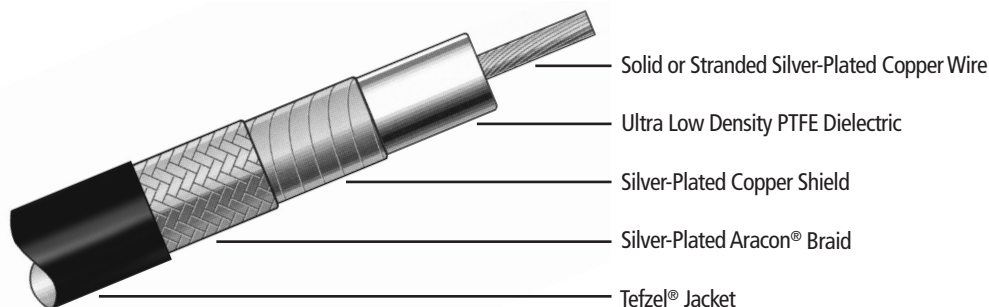


RTK-FLEX Ultralight cable assemblies are optimized for spaceflight applications. They provide the lightest weight, lowest insertion loss, and best radiation resistance in a flexible cable construction. The cables utilize DuPont Aracon® for the outer shield, an ultra low density PTFE for the dielectric, and a Tefzel® jacket. RTK-FLEX Ultralight cable assemblies are typically 25% lighter and 10 times stronger than their nearest comparable competitor.

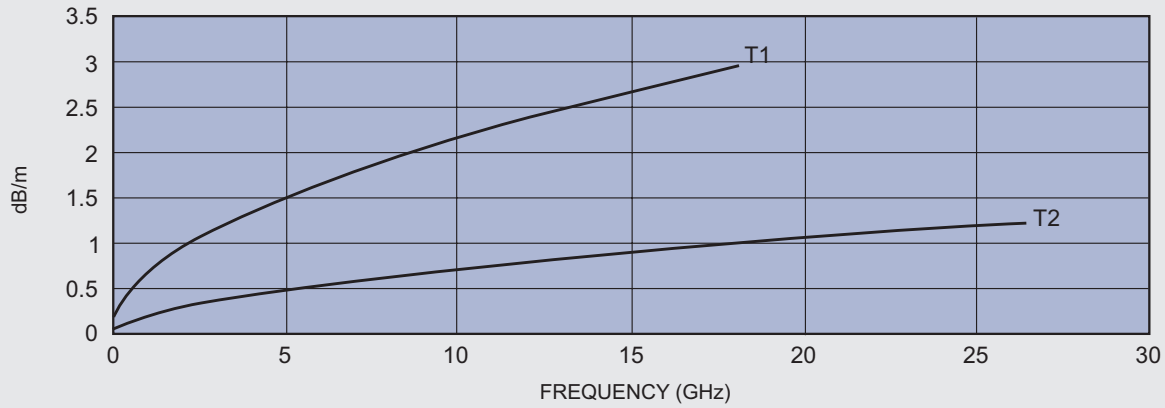
		T1	T2
MECHANICAL CHARACTERISTICS			
Jacket Diameter	mm	2.24	5.21
Center Conductor	type	solid	solid
Weight	grams/meter	10.8	49.2
Minimum Bend Radius	mm	6.4	12.7
Flexures		5,000	5,000
ELECTRICAL CHARACTERISTICS			
Impedance	Ohms	50	50
Max. Frequency	GHz	18	26.5
Velocity of Propagation		78%	83%
Capacitance	pF/m	84	80.4
Shielding Effectiveness	dB@1GHz	>-100	>-100
Max. Insertion Loss [dB/m] at	1 GHz	0.69	0.26
	10 GHz	2.20	0.76
	18 GHz	2.95	1.05
	26.5 GHz	-	1.28
Phase Stability vs. Flexure *	10 GHz	1°	1°
	18 GHz	2°	2°
Phase Stability vs. Temperature		see figure on next page	
Power Handling		see figure on next page	
ENVIRONMENTAL CHARACTERISTICS			
Temperature Range	°C	-65/+165	-65/+165
Radiation	Mrads	30	30
Outgassing (ASTME-595)		<1% TML and <0.1% CVCm	
AVAILABLE CONNECTORS			
		SMP SMA	SMA 2.92 mm

\* Cable wrapped around a 5cm diameter mandrel

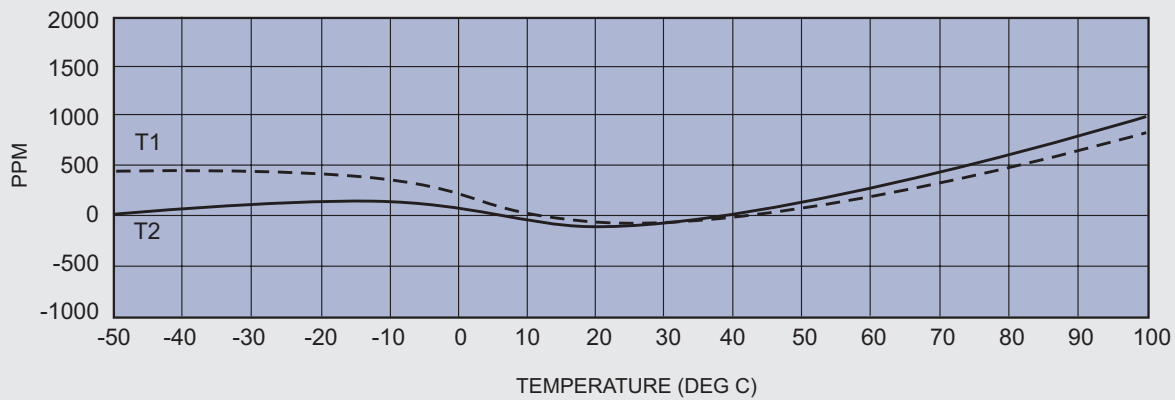
\*\* Cable wrapped around a 7.5cm diameter mandrel



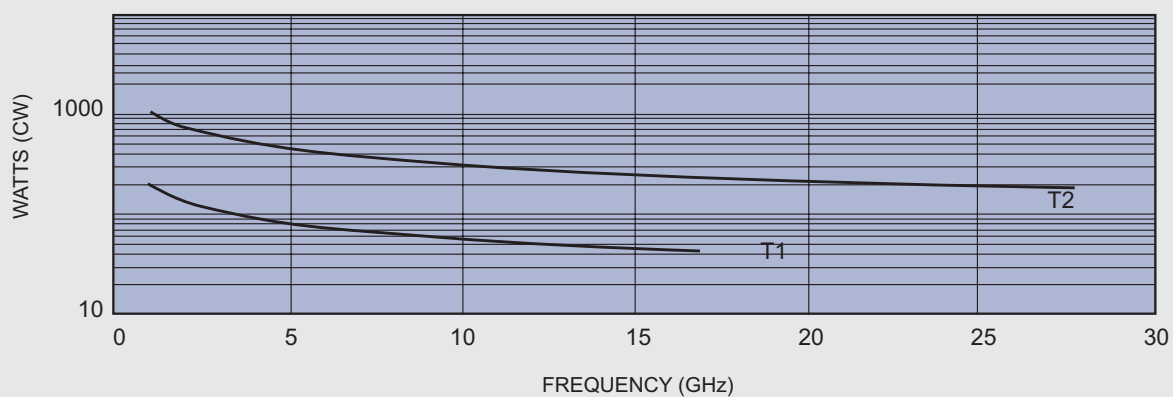
## MAXIMUM INSERTION LOSS



## PHASE STABILITY VS. TEMPERATURE



## POWER HANDLING





Ordering Number	Return Loss	Frequency	Length	Cable	Cable Assemblies	Connector 1	Connector 2
VA26-3.50m-3.50f-60	≥ 26 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 26.5 GHz	DC to 26.5 GHz	600 mm	RTK 162	2x LU7-055-600	RPC-3.50 male 03 S 123-2U7S3	RPC-3.50 female 03 K 123-2U7S3
VA26-Nm-Nm-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18 GHz	600 mm	RTK 162	2x LU7-042-600	RPC-N 50 Ω male 05 S 123-2U7S3	RPC-N 50 Ω male 05 S 123-2U7S3
VA26-PC7-PC7-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18 GHz	600 mm	RTK 162	2x LU7-070-600	RPC-7 07 P 123-2U7S3	RPC-7 07 P 123-2U7S3
VA26-TP-3.50-60	≥ 26 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 26.5 GHz	DC to 26.5 GHz	600 mm	RTK 162	1x LU7-039-600 1x LU7-043-600	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-3.50 male and female 03 S 123-2U7S3 03 K 123-2U7S3
VA26-TP-N-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18 GHz	600 mm	RTK 162	1x LU7-069-600 1x LU7-059-600	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-N 50 Ω male and female 05 S 123-2U7S3 05 K 123-2U7S3
VA26-TP-PC7-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18 GHz	600 mm	RTK 162	2x LU7-031-600	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-7 07 P 123-2U7S3
VA26-TP-W-60	≥ 26 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 26.5 GHz	DC to 26.5 GHz	600 mm	RTK 162	2x LU7-035-600	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-SL 26.5 GHz female 04 K 123-2U7S3
VA40-TP-2.92-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40 GHz	600 mm	RTK 106	1x LU1-005-600 1x LU1-006-600	RPC-2.92 ruggedized female 02 KR 123-2U1S3	RPC-2.92 male and female 02 S 123-2U1S3 02 K 123-2U1S3
VA40-TP-W-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40 GHz	600 mm	RTK 106	2x LU1-022-600	RPC-2.92 ruggedized female 02 KR 123-2U1S3	RPC-SL 40 GHz female P 4 K 123-2U1S3
VA41-TP-2.40-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40 GHz	600 mm	RTK 106	1x LU1-003-600 1x LU1-025-600	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-2.40 male and female 09 S 123-2U1S3 09 K 123-2U1S3
VA41-TP-2.92-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40 GHz	600 mm	RTK 106	1x LU1-034-600 1x LU1-045-600	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-2.92 male and female 02 S 123-2U1S3 02 K 123-2U1S3
VA41-TP-W-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40 GHz	600 mm	RTK 106	2x LU1-004-600	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-SL 40 GHz P 4 K 123-2U1S3
VA50-TP-2.40-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 50 GHz	DC to 50 GHz	600 mm	RTK 125	1x LU8-005-600 1x LU8-006-600	RPC-2.40 ruggedized female 09 KR 123-2U8S3	RPC-2.40 male and female 09 S 123-2U8S3 09 K 123-2U8S3
VA75-Nm-Nm-60	≥ 28 dB @ DC to 3 GHz ≥ 23 dB @ 3 GHz to 4 GHz	DC to 4 GHz	600 mm	RG 216/U	2x L20-001-600	RPC-N 75 Ω male P5 S 123-320CS	RPC-N 75 Ω male P5 S 123-320CS
LU5-106-600	≥ 26 dB @ DC to 4 GHz ≥ 16 dB @ 4 to 50 GHz ≥ 14 dB @ 50 to 70 GHz	DC to 70 GHz	600 mm	RTK 92	1x LU5-106-600	RPC-1.85 ruggedized female 08 KR 123-2U5S3	RPC-1.85 female 08 K 123-2U9S3
LU5-107-600	≥ 26 dB @ DC to 4 GHz ≥ 16 dB @ 4 to 50 GHz ≥ 14 dB @ 50 to 70 GHz	DC to 70 GHz	600 mm	RTK 92	1x LU5-107-600	RPC-1.85 ruggedized female 08 KR 123-2U5S3	RPC-1.85 male 08 S 123-2U5S3

Standard part description with standard catalog specification:

Cable Type	Armor type (Z=None) (see page 9)	Length in mm (always 5 digits)	Part Number for Connector A (see page 6)	Part Number for Connector B (see page 6)
<b>U6</b>	<b>C</b>	<b>12000</b>	<b>N</b>	<b>N</b>

Examples:

U6C-12000-NN means:

U6 cable, Type C armor, length 12m, Precision Nm connectors on both ends

L2Z-00500-DE means:

L2 cable, no armor, length 500mm, 2.92m and 2.92f connector

### Technical Engineering

Our Technical Engineering staff is available for technical support in the design, utilization, testing, and production of any RTK-FLEX cable assembly.

### Prototype Capability

Samples can be manufactured for specific applications and supplied to you promptly. If new connector or cable designs are required, our experienced staff can offer a quick turnaround.

### Qualification Testing

Rosenberger can economically perform all qualification testing including writing of required test procedures.

### Program Management

Rosenberger has participated in many large military and commercial programs. We maintain complete program management capability necessary to successfully complete development and production of any size project.

### Warranty

All RTK-FLEX cable assemblies have a limited one year warranty subject to Rosenberger review. Please observe the cable assembly care and handling instructions.

### How to Order

Please order by RTK-FLEX part number (above) and/or drawing number, adding any special requirements. Your order should include the length required, connector type, frequency range and armor type.

### Terms

Formal price quotations remain in effect for 30 days unless otherwise specified on quotation. Terms of payment are Net 30 days, subject to credit approval.

### Shipments

Unless specific instructions accompany the order, shipment is made FOB Akron, PA. Rosenberger North America will use its judgment as to the best method of shipment. Rosenberger reserves the right to ship COD or upon receipt of advance payment. All claims of shortages must be made within 10 days of receipt of material.

### Return Policy

Please contact Rosenberger for an RMA number before returning product. The RMA should be referenced on the packing container and all associated paperwork.

### Additional Information

Please visit our web site at [www.rosenbergerna.com](http://www.rosenbergerna.com).

### Cable Assembly Care and Handling

Microwave cable assemblies are precision components that can be extremely fragile. Proper use, routine inspection, and cleaning of the connectors are required to maintain reliable performance.

Observe the minimum bend radius specified for the cable. Avoid pinching, crushing, twisting, or dropping the cable assemblies. Never pull equipment using the cable assemblies. The assemblies are shipped in coils and must be carefully unrolled when ready for use. Failure to follow these guidelines can damage the cable assembly.

Even the smallest dent in the cable or lightest scratch on the connector interface can adversely affect the cable's performance.

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# Rosenberger®

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