

Semi-Rigid Coaxial Cables



Standard, Low Loss, Precision Bend Cables & Assemblies

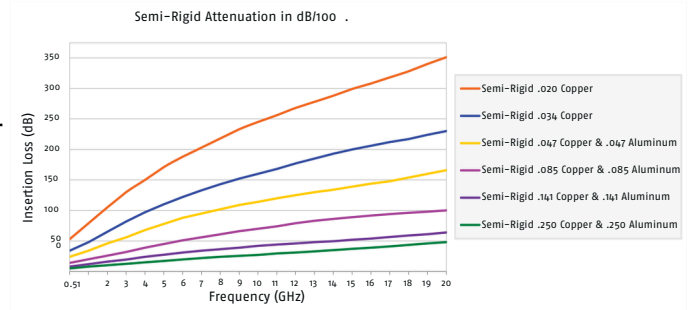
Winchester Interconnect's semi-rigid cables offer a broad range of cables and assemblies designed for in the box applications as well as interconnect solutions between systems. These semi-rigid cables can be supplied in precision bend configurations for applications where space is limited phase stability is crucial.

The multiple options of conductor, jacket and dielectric constructions are well suited for standard electrical mechanical requirements of low attenuation and durability requirements. In addition, an aluminum jacket option yields up to a 30% reduction in weight without sacrificing performance, providing an ideal solution for demanding environments where both durability and efficiency are essential. Due to the solid outer conductor design, they also have excellent shielding effectiveness to prevent signal interference.

Winchester Interconnect semi-rigid cables are an excellent choice for applications requiring broadband frequency performance, precision, and durability in demanding electrical mechanical environments, such as aerospace and defense, high power systems, telecommunications, test and measurement, and medical electronics.

Semi-Rigid Cable and Assemblies

- Broadband and balanced frequency and power performance to >100 GHz
- Excellent shielding effectiveness
- Precision trimmed and precise CNC bent configurations ideal for phase matched requirements
- Aluminum jacket provides excellent option for tight in the box applications where space and weight are critical.
- Offering both bulk cable and assembly options
- Standard and custom connectors available for each cable



Cable Series

Electrical

	.020	.034	.047	.085	.141	.250	.047	.085	.141
Impedance Ohm	50	50	50	50	50	50	50	50	50
Capacitance pF/ft @ 1 GHz	29	29	29	29	29	29	29	29	29
Max Voltage VRMS	750	2000	2000	5000	5000	7500	2000	5000	5000
Cutoff Frequency	270 GHz	155 GHz	110 GHz	61 GHz	34 GHz	20 GHz	110 GHz	61 GHz	34 GHz

Mechanical

Shield	Bare Copper	Bare Copper	Bare Copper	Bare Copper	Bare Copper	Bare Copper	SnPlateAl	SnPlateAl	SnPlateAl
Center Conductor	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel	Silver Plated Copper Clad Steel
Dimension-inches (mm)	.0044 (.112)	.008 (.203)	.011 (.288)	.020 (.51)	.026 (.91)	.064 (1.62)	.011 (.288)	.020 (.51)	.026 (.91)
Dielectric	PTFE .015	PTFE .026	PTFE .037	PTFE .066	PTFE .116	PTFE .209	PTFE .037	PTFE .066	PTFE .116
Bend Radius-inches	.05	.05	.05	.1	.15	.375	.05	.1	.15
Cable Outer Diameter-inches (mm)	.020 (.508)	.034 (.864)	.047(1.19)	.085 (2.16)	.141 (3.58)	.250 (6.35)	.047 (1.19)	.085 (2.16)	.141 (3.58)

Environmental

Temperature Range °C	-55/+85	-55/+100	-55/+100	-55/+125	-55/+125	-40/+90	-55/+100	-55/+125	-55/+125
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Attenuation

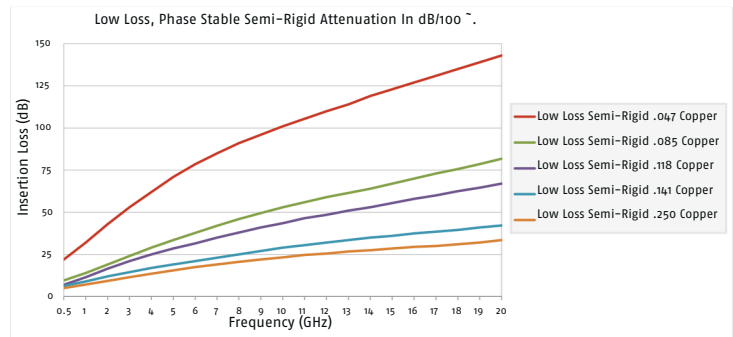
Frequency	Insertion Loss (Db/100 ft)								
.5 GHz	53	34	24	14	8	5	26	15	8.3
1 GHz	76	48	34	20	11	7.5	37	21	12.1
5 GHz	171	110	79	46	28	21	85	49	30.1
10 GHz	245	159	114	68	42	33	122	72	45.4
20 GHz	351	230	166	100	64	48	177	107	70

Average Power

Frequency	Average Power (Watts) @ 20° C @ Sea Level								
.5 GHz	20	36	81	232	601	2100	85	241	600
1 GHz	14	25	57	162	418	1400	60	169	450
5 GHz	6	11	25	70	174	875	27	73	180
10 GHz	5	8	17	48	118	350	18	50	120
20 GHz	3	5	12	33	78	200	13	34	70

Low-Loss and Semi-Rigid Cable and Assemblies

- Low density PTFE dielectric achieves superior low insertion loss performance
- Higher temperature range, better power handling, and improved phase stability when compared to standard semi-rigid coaxial cables
- Available assemblies with precision connectors
- Offering various plating options for copper tubing



Cable Series

Electrical

	.047	.085	.118	.141	.250
Impedance Ohm	50	50	50	50	50
Velocity of Propagation	83%	83%	83%	83%	83%
Capacitance pF/ft @ 1 GHz	24.5	24.5	24.5	24.5	24.5
Max Voltage VRMS	2000	2500	3000	5000	7500

Mechanical

Cutoff Frequency	118 GHz	60 GHz	46 GHz	36 GHz	20 GHz
Shield	Bare Copper	Bare Copper	Bare Copper	Bare Copper	Bare Copper
Center Conductor	Silver Plated Copper	Silver Plated Copper	Silver Plated Copper	Silver Plated Copper	Silver Plated Copper
Dimension-inches (mm)	.013 (.323)	.023 (.571)	.032 (.813)	.046 (1.156)	.074 (1.88)
Dielectric	LD PTFE Tape .0375	LD PTFE Tape .066	LD PTFE Tape .097	LD PTFE Tape .120	LD PTFE Tape .209
Bend Radius-inches	.125	.250	.400	.500	1.000
Cable Outer Diameter-inches (mm)	.047 (1.24)	.085 (2.18)	.118 (2.30)	.141 (3.58)	.250 (6.35)

Environmental

Temperature Range °C	-55/+200	-55/+200	-55/+200	-55/+200	-55/+200
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Attenuation

Frequency	Insertion Loss (dB/100 ft)				
.5 GHz	22	9.57	7	6.3	5
1 GHz	31	13.9	12	9	7.1
5 GHz	71	34.6	28	20.5	16.2
10 GHz	100	52.6	41	29.3	23.2
20 GHz	143	81.8	67	42.2	33.5

Average Power

Frequency	Average Power (Watts) @ 20° C @ Sea Level				
.5 GHz	124	341	634	900	2716
1 GHz	88	242	446	622	1902
5 GHz	39	108	200	269	818
10 GHz	27	77	144	186	562
20 GHz	19	58	96	126	348

Part Numbering System

H C 9 0 0 0 0 - 1 - **

Outer Conductor Finish (Table 3)

Inner Conductor & Dielectric Material (Table 2)

Outer Conductor Diameter & Material (Table 1)

**** Package Options: -C (coiled) -S (5 ft straight lengths)**

Table 1 Outer Conductor Code.

Number	Material	Diameter
1000	Copper	0.047
2000	Copper	0.034
3000	Copper	0.215
4000	Copper	0.250
5000	Copper	0.070
6000	Aluminum	0.086
7000	Copper	0.086
8000	Aluminum	0.141
9000	Copper	0.141
1100	Copper	0.020
1200	Aluminum	0.250
1300	Aluminum	0.047
1400	Copper	0.023
1500	Copper	0.031

Table 2 Inner Conductor Code.

Number	Conductor	Dielectric	Impedance
0	SPCW	PTFE	50 ± 0.5 ohms
1	SPC	PTFE	50 ± 0.5 ohms
2	SPBC	PTFE	50 ± 0.5 ohms
3	SPCW	T-PTFE	50 ± 0.5 ohms
4	SPC	T-PTFE	50 ± 0.5 ohms
5	SPBC	T-PTFE	50 ± 0.5 ohms
6	SPCW	PTFE	100 ± 2.0 ohms
7	POF	PTFE	50 ± 0.5 ohms
8	SPCW	E-PTFE	50 ± 0.5 ohms
9	SPC	E-PTFE	50 ± 0.5 ohms
A	OF	ACRYLATE	NA
B	SPCW	PTFE	75 ± 2.0 ohms
C	SPCW	PTFE	35 ± 2.0 ohms
D	SPC	PTFE	25 ± 2.0 ohms
F	SPCW	PTFE	18 ± 2.0 ohms
H	SPCW	PTFE	70 ± 2.0 ohms
J	SPCW	PTFE	93 ± 1.5 ohms

Table 3 Outer Conductor Finish Code

Number	Finish
1	Plain
2	Silver Plated QQ-S-365 Type I
3	Tin-Plated, ASTM-B545
4	Tin-Plated, MIL-P-81728 60/40 TIN Lead
5	Tin-Plated, MIL-P-81728/1 90/10 TIN Lead
6	GOLD, Per ASTM B488, Type II, Code C (37.75 min) over Sulfamate NI Per SAE AMS2403 (100 -250 min)
JI	MIL-I-23053/5 Jacket

Abbreviation Code

PTFE	Polytetrafluorethylene, Type F1
T-PTFE	Tape Wrapped PTFE
SPC	Silver-Coated Copper Wire
SPCW	Silver-Coated Copper-Clad Steel Wire
SPBC	Silver-Coated Beryllium Copper Wire
BC	Bare Beryllium Copper Wire
C	Bare Copper Wire
OF	Optical Fiber
POF	Plated Optical Fiber
E-PTFE	Expanded PTFE

About Winchester Interconnect

Winchester Interconnect is a US-based manufacturer of high-precision connectors, cable assemblies, and cable. Our products are ideal for military and aerospace, industrial, medical, and space applications where expertise and reliability are critical to your success.

Our 30,000+ connectivity solutions include standard and custom RF and microwave interconnects, hermetic connectors and packaging, micro-miniature connectors and assemblies, fiber optic connectors, industrial cable, and undersea cable

We work in the toughest industries where failure is not an option. For connectivity applications requiring high performance in harsh environments, life-saving systems, and the latest connected technologies, our industry-leading knowledge and engineering capabilities will ensure reliable, cutting-edge interconnect solutions that won't fail when it matters most.

Our Industries & Market Solutions



Industrial
Automation



Space



Oil & Gas



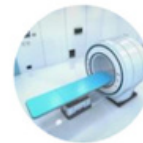
Test &
Measurement



Aerospace
& Defense



Rail Mass
Transit



Medical



Semiconductor