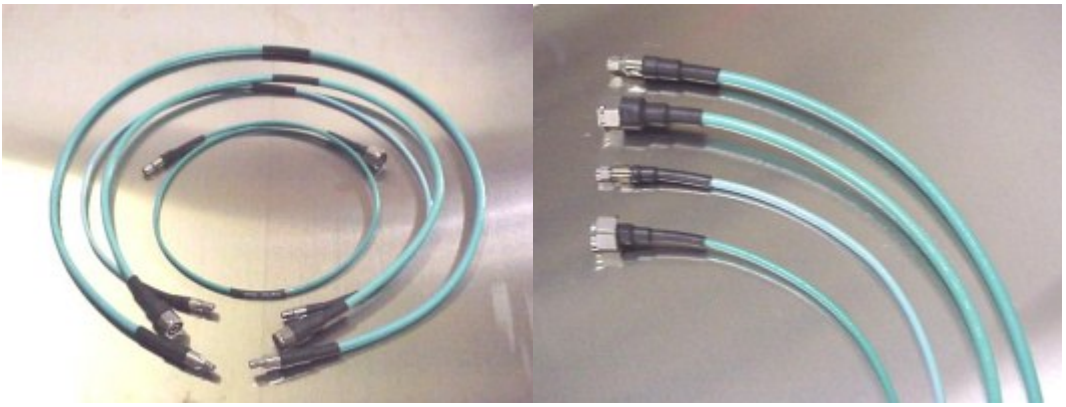
Flexible Coax Cable,

Cable and Connector Specifications

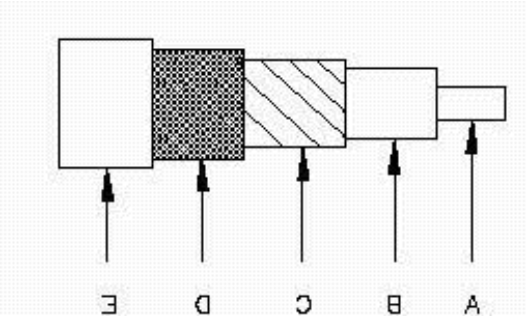
Advanced Technical Materials (ATM) manufactures high performance microwave cable that utilizes only the very best materials, incorporating proprietary manufacturing methods, which yield very low Insertion Loss characteristics, high power capability and is Amplitude and Phase Stable on a level not readily available in the microwave industry. This product line has five different sizes of cable designed to operate from DC-60 GHz. Please call us and discuss your needs with one of our design engineers.



ATM utilizes a solid, silver plated copper center conductor and Expanded PTFE dielectric material which allows for very low Insertion Loss and high power handling capability. The outer conductor is a flat, silver plated copper foil wrapped helically around the dielectric and mechanically locked to the dielectric core to promote superior phase and amplitude stability, as well as, very low VSWR performance. A silver plated copper, braided shield is then added to increase the axial tensile quality of the cable and further enhance RF leakage characteristics. The outer jacket is a tough, high temperature thermoplastic that can withstand temperatures from -65° to +200° Celsius.

All this adds up to a very superior microwave cable product that can meet the most demanding requirements. This product can be sold in bulk cable form, or as fully guaranteed cable assemblies. ATM tests all cable and assemblies 100% for Impedance, Insertion Loss and VSWR, other electrical requirements can be tested for in our well equipped Test Lab. ATM works for our customers to provide great service, excellent pricing and fast deliveries, with the highest possible quality available in the microwave cable industry. Give ATM your toughest interconnection requirements and let us show you how we can help you save money and solve your interconnect problems.

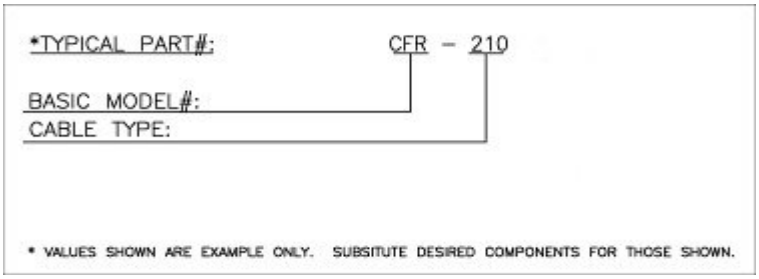
A) Silver Plated Copper Center Conductor
B) Expanded PTFE Dielectric Core
C) Silver Plated Copper Outer Conductor
D) Silver Plated Copper Outer Shield
E) FEP Outer Jacket, Black



Ordering Information

Raw Cable lengths

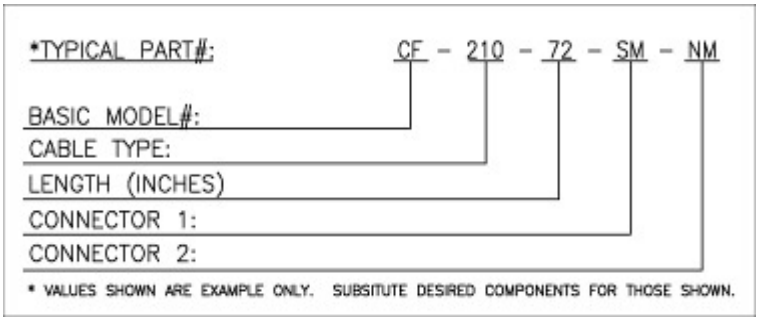
Design a Model # to fit your requirements using the Cable Type reference table below for cable type. All Model numbers begin with CFR - Cable, unless otherwise specified, will be supplied in multiple lengths to make up quantity ordered. Click here for typical lengths of a given cable type. Minimum ordering length is 25 Ft.
Total quantity shipped will be +/-10% of total ordered.



Cable Assemblies

Design a Model # to fit your requirements using the Cable Type reference table below for cable type, and the Connector Type reference table below for Connectors.
All model numbers begin with CF.

Note: Option for Armored cable exists. Add suffix "A" to basic cable type. Ex.: CF-210A-72-SM-NM

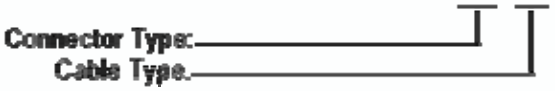


Connector Specifications

Connectors

Design a Model # to fit your requirements using the reference table below for connector type.

***Example P/N:** **SM -210**



***VALUES SHOWN ARE EXAMPLE. SUBSITUTE DESIRED COMPONENTS FOR THOSE SHOWN HERE.**

Connector Types			■ = Indicates Availability					
Connector Type		Connector Code	Atm Flexible Cable Type					
			100	135	160	210	300	500
MCX	FEMALE	MCXF	■		■			
	MALE	MCXM						
MMCX	FEMALE	MMCXF	■					
	MALE	MMCXM						
1.85mm (V)	FEMALE	VF	■					
	MALE	VM						
2.4mm	FEMALE	2.4F	■	■				
	MALE	2.4M						
2.9mm (K)	FEMALE	KF	■	■				
	MALE	KM						
SMA	FEMALE	SF	■	■	■	■	■	
	MALE	SM						
SMA BULKHEAD	FEMALE	SFB	■	■	■	■	■	
	MALE	SMB						
SMA 90° (RT. ANGLE)	FEMALE	SFR	■	■	■	■	■	
	MALE	SMR						
3.5	FEMALE	3.5F				■	■	
	MALE	3.5M						
TYPE-N	FEMALE	NF	■	■	■	■	■	■
	MALE	NM						
TYPE-N BULKHEAD	FEMALE	NFB	■	■	■	■	■	

	MALE	NMB						
TYPE-N 90° (RT. ANGLE)	FEMALE	NFR	■	■	■	■	■	
	MALE	NMR						
TNC	FEMALE	TF	■	■	■	■	■	
	MALE	TM						
TNC BULKHEAD	FEMALE	TFB	■	■	■	■	■	
	MALE	TMB						
TNC 90° (RT. ANGLE)	FEMALE	TFR	■	■	■	■	■	
	MALE	TMR						
APC-7	N/A	APC7				■	■	
SC	FEMALE	SCF					■	■
	MALE	SCM						
SC BULKHEAD	FEMALE	SCFB					■	■
	MALE	SCMB						
SC 90° (RT. ANGLE)	FEMALE	SCFR					■	■
	MALE	SCMR						
7/16"	FEMALE	7/16M			■		■	■
	MALE	7/16F						
Connector Type		**Connector Code**	**100**	**135**	**160**	**210**	**300**	**500**
			Cable Type					

Cable Specifications

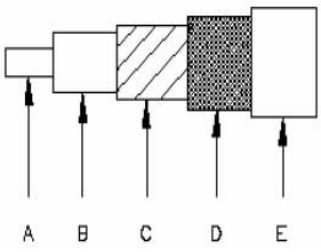
Flexible Cable Types						
Cable Type:	**100**	**135**	**160**	**210**	**300**	**500**
Frequency Operation (GHz)	DC - 62	DC - 46	DC - 35	DC - 33	DC - 18	DC - 11
Size O.D. (inches)	0.110	0.145	0.170	0.220	0.310	0.500
Impedance (ohms)	50	50	50	50	50	50
Dielectric Type	SPTFE	EPTFE	SPTFE	EPTFE	EPTFE	PE
Capacitance (pF/ft)	29	24	29	24	24	23
Time Delay (ns/ft)	1.4	1.2	1.4	1.2	1.2	1.15
Velocity (%)	70	84	70	84	84	85
RF Leakage	>100dB to 18 GHz	>100dB to 18GHz 80dB to 40 GHz	>100dB to 18GHz	>100dB to 18 GHz	>100dB to 18 GHz	>100dB to 11 GHz
Cut Off Frequency (GHz)	62	46	35	33	18	11
Weight (lbs/100ft)	1.9	3	6.5	7	12.5	15
Min Bend Radius (in)	0.25	0.5	0.75	1.0	1.75	2
Temp Range (min/max °C)	-65°/+200°	-65°/+200°	-65° to +200° C	-65°/+200°	-65°/+200°	-65°/+120°
Please consult factory on specifications regarding phase stability of our cables.						
Typical Assembly* VSWR: (All applicable cable types) *Spec. includes Connectors	DC - 12 GHz: 1.30: 1 DC - 18 GHz 1.35: 1 DC - 26.5 GHz 1.40 : 1 DC - 40 GHz 1.45 : 1 DC - 50 GHz 1.50 : 1 DC - 60 GHz 1.60 : 1					
Total Cable Assembly Loss for 12" Assembly @ 10 GHz (dB)	0.75	0.48	0.61	0.46	0.39	0.35
Total Cable Assembly Loss: (dB)	CF100	CF135	CF160	CF210	CF300	CF500

Average Power						
Cable Type:	**100**	**135**	**160**	**210**	**300**	**500**
@ Frequency:	**Avg. Power (W)**					
1.0 GHz	375	540	625	800	1900	2500
2.0 GHz	250	400	435	600	1400	1600
3.0 GHz	150	300	330	475	1100	1200
6.0 GHz	100	210	225	320	650	700
12.0 GHz	70	160	175	210	520	600 to 11GHz
18.0 GHz	50	100	100	160	400	

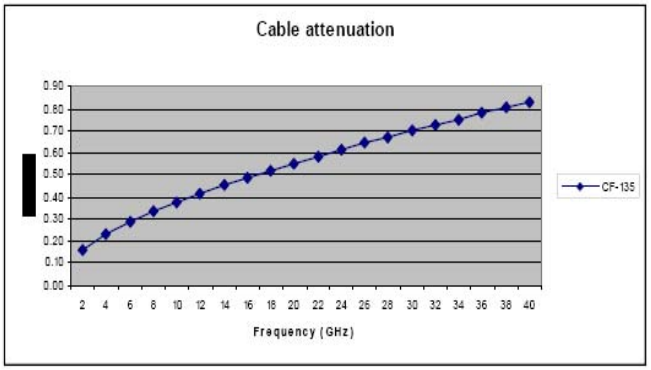
Advanced Technical Materials
49 Rider Avenue Patchogue, NY 11779
Ph: 631-289-0363 Fax: 631-289-0358

CF-135 Flexible Microwave Cable

Frequency Operation: DC-40 GHz
Velocity of Propagation: 84%
RF Leakage: > 100 dB to 18 GHz, 80 dB to 40 GHz
Impedance: (Ohms): 50
Capacitance: 24 pF/Foot
Delay: 1.2 nS/Foot
Phase vs. Temperature: -400 ppm -65° to +120° Celsius
*Phase vs. Flexure:+/-5° Change w/ 360° Loop to 40 GHz***
Temperature Range: -65° to +200° Celsius
Cable Diameter: 0.145"
Minimum Bend Radius: 0.5"
Weight: .03 lbs./Foot
Power: 100 W, CW to 18 GHz
*** 3' long cable assembly w/captivated 2.92mm connectors*



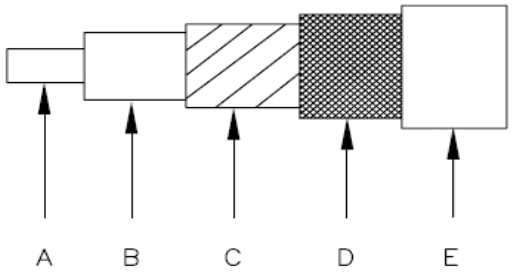
A.) Silver Plated Copper Center Conductor
B.) Expanded PTFE Dielectric Core
C.) Silver Plated Copper Outer Conductor
D.) Silver Plated Copper Outer Shield
E.) FEP Outer Jacket, Teal



REV	DATE		APPROVED
D	3/8/02	DIMENSIONAL UPDATE	MAB

CABLE SPECIFICATIONS

IMPEDANCE: 50 +/−2 OHMS
VELOCITY OF PROPAGATION: 84% NOMINAL
TIME DELAY: 1.20 nS/FOOT
CAPACITANCE: 24 pF/FOOT
CUT OFF FREQUENCY: 33 GHz
RF LEAKAGE: > 100 dB TO 18 GHz
TEMPERATURE RANGE: −65C TO +200C
MINIMUM BEND RADIUS: 1.0"
WEIGHT: 4.1 lbs/100'



MATERIALS	DIAMETER	TOLERANCE
A.) SILVER PLATED COPPER	.051"	+/−.0005
B.) EPTFE DIELECTRIC CORE	.140"	+/−.002
C.) SILVER PLATED COPPER FOIL	.146"	+/−.002
D.) 38 AWG SPC BRAID	.160"	+/−.002
E.) FEP OUTER JACKET, TEAL	.220"	MAX

MATERIAL	TREATMENT	DRAWN ACAD	DATE 3/8/02
FINISH	MOD NO.	CHECKED MAB	DATE 3/8/02
LOW LOSS, PHASE STABLE COAXIAL CABLE		APPROVED	DATE
		CAGE CODE: OR8N4	DO NOT SCALE DWG

ADVANCED TECHNICAL MATERIALS, INC.
49 RIDER AVE., PATCHOGUE N.Y. 11772
TEL: (631) 289−0386 FAX: (631) 289−0358
http://www.atmmicrowave.com

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/64 DECIMALS ±.01 ±.005 ANGLES ±1/2°

SHEET. 1−1

SCALE NTS | DWG. NO. CF−210 | REV. D

Advanced Technical Materials
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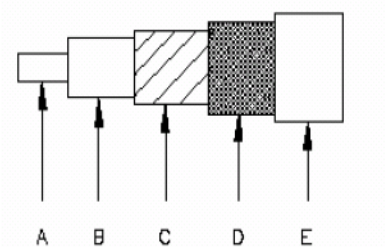
CF-300 Flexible Microwave Cable

Frequency Operation: DC-18 GHz
Velocity of Propagation: 84%
RF Leakage: > 100 dB to 18 GHz
Impedance: (Ohms): 50
Capacitance: 24 pF/Foot
Delay: 1.2 nS/Foot
Phase vs. Temperature: -400 ppm -65° to +120° Celsius
*Phase vs. Flexure: +/-5° Change w/360° loop to 18 GHz***
Temperature Range: -65° to +200° Celsius
Cable Diameter: 0.30"
Minimum Bend Radius: 2.0"
Weight: .125 lbs./Foot
Power: 400 W, CW to 18 GHz
*** 3' long cable assembly w/captivated SMA connectors*



Materials	*Diameter-Nominal*
A: Solid, Silver Plated Center Conductor	*.088"*
B:Expanded PTFE Dielectric Core	*.242"*
C:Silver Plated Copper Outer Conductor	*.252"*
D:Silver Plated Copper Outer Shield	*.272"*
E: FEP Outer Jacket, Teal	*.300"*