

# RF CABLE SOLUTIONS SELECTION GUIDE

Edition 2 Rev B / 2.2024



**TRANSMISSION LINE SOLUTIONS** 



### RFS TECHNOLOGIES, AN AMPHENOL COMPANY

## TABLE OF CONTENTS

LLFLEX <sup>®</sup> COAXIAL CABLES CELLFLEX sets the standard for communication cables	2
ANDARD AND PREMIUM CONNECTORS OMNI FIT connectors for every application and budget	<u>4</u>
TING SOLUTIONS CELLFLEX MultiFlex all-in-one pre-assembled solutions save time & effort	<u>5</u>
LLFLEX <sup>®</sup> TECHNICAL INFORMATION Cable, connector and accessory data specifications	<u>6</u>
EARFILL®LINE PLENUM-RATED CABLES Air-dielectric coaxial cables that operate in frequencies from 380 MHz to 6 GHz	<u>16</u>
JUMPER CABLES High-performance jumper cables for any application, any size	<u>18</u>
APTER SERIES Easy field connections	<u>21</u>
LLFLEX <sup>®</sup> CABLE MODEL STRUCTURES Understanding our model numbers	<u>22</u>
MPER MODEL STRUCTURES Understanding our model numbers	<u>23</u>

### **CELLFLEX® SETS THE STANDARD** FOR COMMUNICATION CABLES

It was 1961 when we pioneered CELLFLEX, the foam dielectric corrugated coaxial cables that guickly became the industry's preferred choice for base station applications. Since then, CELLFLEX cables have been proving their value in indoor and outdoor applications around the world.



Today, our premium attenuation, low-loss CELLFLEX cables continue to set industry standards for performance, flexibility and durability.

#### INDUSTRY-LEADING ELECTRICAL PERFORMANCE

CELLFLEX foam dielectric corrugated cables feature copper outer and inner conductors that are key to improving performance:

- · The two, solid copper conductors virtually eliminate interference due to passive intermodulation (PIM) and intermodulation distortion (IMD).
- · The outer conductor creates a continuous electromagnetic and radio frequency interference (EMI/RFI) shield that minimizes system interference.

With extremely low attenuation, excellent heat transfer properties and temperature-stabilized dielectric material, CELLFLEX cables deliver safe, long-term operation, even at high transmit power levels. Special low VSWR cable models help maintain system integrity.

#### **REMARKABLE FLEXIBILITY AND STRENGTH**

We've been continually advancing and refining our corrugation technology since we invented the first corrugated, seamwelded cable in 1951. Our ongoing dedication to superior corrugation techniques means CELLFLEX cables bend easily without risk of damage, even against strong bending forces. This rugged flexibility makes installations faster, easier and lower risk than installations using smooth wall cables.

CELLFLEX cables are also easier to reuse and recycle than competing cables because the layers are not bonded.



## **CELLFLEX® SETS THE STANDARD** FOR COMMUNICATION CABLES

#### A COMPREHENSIVE, FUTUREPROOF PORTFOLIO

Our entire portfolio of CELLFLEX cables supports frequencies from low MHz ranges to 6 GHz to protect your investment. You can take advantage of emerging spectrum and evolve to 5G anywhere in the world — no matter which stage of evolution you're in today.

With 20 CELLFLEX cable models ranging from 1/4-inch to 1 5/8-inch in diameter, there's a CELLFLEX cable for even the most complicated and demanding applications.

Together, CELLFLEX and CELLFLEX Lite make up the largest corrugated transmission-line portfolio in the wireless infrastructure industry.

#### **MEETING THE WORLD'S HIGHEST FIRE SAFETY STAN-**DARDS

CELLFLEX cables have achieved the top Construction Products Regulation (CPR) rating of B2ca with a d0 droplets rating. They also meet international flameand fire-retardancy standards, including:

- IEC 60754-1/-2: Halogen-free and non-corrosive jacket tests
- IEC 60332-1: Flame tests
- IEC 60332-3-24: Cable bundle tests
- · IEC 61034: Low-smoke emission tests



# CELLFLEX®

## Reduce your reliance on copper cables

When we invented CELLFLEX Lite foam dielectric corrugated coaxial cables in 2006, they were the first in the industry to combine an aluminum outer conductor with a copper inner conductor.

These lightweight cables are the ideal alternative to CELLFLEX copper cables when fluctuating copper prices rise and in areas





where copper theft is an issue. They're easy to transport, handle and install. And they offer an unbeatable price-performance combination.

CELLFLEX Lite communications cables deliver world-class electrical performance that meets or exceeds that of many other vendors' copper cables.

### **OMNI FIT™ CONNECTORS** FOR EVERY APPLICATION AND BUDGET

OMNI FIT connectors are known throughout the industry for their precisionengineered performance, ease of installation and long life in the field. They can be used with copper and aluminum cables, and are the perfect complement to our CELLFLEX<sup>®</sup> and CELLFLEX Lite communications cables in any scenario:

- Tower and rooftop deployments
- Small cell deployments in dense urban environments
- Indoor and underground deployments

#### A COMPLETE PORTFOLIO TO CHOOSE FROM

Simply choose the OMNI FIT connectors that match your requirements:

OMNI FIT Premium E01 series connectors are fully optimized to deliver the ultimate combination of electrical performance, simplicity, durability and cost.

OMNI FIT Standard C03 series connectors deliver a first-class feature set at a very cost-effective price point.

Our complete portfolio of OMNI FIT Premium and OMNI FIT Standard connectors is available with spacing-saving 4.3-10 interfaces as well as traditional Type-N and 7-16 DIN interfaces in all interface combinations, versions and variants.

#### **DESIGNED FOR FUTUREPROOF EVOLUTION TO 5G**

OMNI FIT connectors support all frequencies up to 6 GHz, making them the perfect choice for smooth evolution to 5G globally.

You can take advantage of newly available spectrum such as Citizens Broadband Radio Service (CBRS), C-Band and License Assisted Access (LAA) today, then seamlessly switch to different frequencies tomorrow.

#### **IDEAL FOR RETROFITS AND UPGRADES**

Because OMNI FIT connectors are backwards compatible with so many installed cables, they're a very cost-effective way to instantly gain access to the fully frequency range supported by existing cables.

Simply replace legacy, frequency-limited connectors with OMNI FIT connectors to extend the life of current installations, reduce upgrade costs and gain higher returns on previous investments.



## **OMNI FIT™ CONNECTORS** FOR EVERY APPLICATION AND BUDGET

#### **OMNI FIT PREMIUM: MAXIMUM VALUE FOR THE PRICE**

OMNI FIT Premium connectors are tested and proven to deliver outstanding PIM and VSWR performance at all frequencies up to 6 GHz. They feature an ultra-compact, lightweight and extremely robust two-piece design that simplifies installations and avoids the need for additional parts that can complicate installations or be lost.

To ensure watertight durability, OMNI FIT Premium E01 series connectors include a built-in seal against the outer conductor and against the cable jacket so there's no need for external sealing. They can be installed using the same tools and following the same principles as the previous generation D01 connectors.

#### OMNI FIT STANDARD: COST-EFFECTIVE CONNECTORS WITH NO COMPROMISES

OMNI FIT Standard connectors provide key performance and design features that help you squeeze every last bit of performance out of infrastructure at a very appealing price point.

The high-performance C03 series connectors provide excellent PIM and VSWR ratings that help to maintain signal quality and system performance end-to-end. They also feature a lightweight design that simplifies installation and minimizes weight burdens.

With three attachment options to choose from — push-pull, hand-screw and hex-head — OMNI FIT Standard connectors are easy to install in any environment.

### **CELLFLEX® MULTIFLEX ALL-IN-ONE SOLUTION**

Accelerate Installations



**CELLFLEX MultiFlex cabling** solutions feature 1-meter (3-ft) CELLFLEX jumpers connected to each end of a CELLFLEX feeder cable of any length with OMNI FIT<sup>™</sup> connectors. You choose the jumper, cable and connector combination you need, and we take care of assembly.

With a pre-assembled CELLFLEX MultiFlex solution, you'll save time and effort across indoor and





NEW PRODUCT

outdoor installations. And you'll have the ultimate combination: The flexibility of jumpers, the outstanding performance of larger feeder cables and the reliability of factory-installed connectors.

All CELLFLEX MultiFlex solutions support frequencies up to 6 GHz to get you to 5G faster anywhere in the world.

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

#### SCF14 Series: 20.4 GHz

#### ORDERING INFORMATION

Jacketing Options	Standard Attenuation Cable Model Numbers
Outdoor standard:	<u>SCF14-50</u>
Indoor flame retardant:	SCF14-50JFN

#### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
Dimensions Over Jacket	mm (in)	7.8 (0.307)	
Min. Bending Radius, Repeated	mm (in)	25 (0.984)	
Jacket Type		Polyethylene, PE	
Bending Moment	Nm (lb-ft)	0.7 (0.5)	
Tensile Strength	N (lb)	600 (135)	
Recommended/Maximum Clamp Spacing	m (ft)	0.2 / 0.2 (0.67 / 0.67)	

TEMPERATURE SPECIFICATIONS			
Installation	°C (°F)	-40 to 60 (-40 to 140)	
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)	
Storage	°C (°F)	-70 to 85 (-94 to 185)	
Operation	°C (°F)	-50 to 85 (-58 to 185)	

ELECTRICAL SPECIFICATIONS			
Operating Frequency Band	GHz	20.4	
Max. VSWR / Return Loss	dB (VSWR)	Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)	

ATTENUATION			
Frequency, MHz	dB per 100 m	dB per 100 ft	Power, kW
800	17.30	5.27	0.38
1800	26.90	8.20	0.25
2400	31.30	9.60	0.21
3500	39.10	11.90	0.17
5000	48.00	14.60	0.14
6000	53.40	16.30	0.12
8000	63.40	19.30	0.10
10000	72.60	22.10	0.09
12000	81.00	24.80	0.08
16000	97.00	29.60	0.07
18000	105.00	31.90	0.06
20400	113.00	34.60	0.06

## **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

#### ORDERING INFORMATION

Jacketing Options	Standard Attenuation Cable Model Numbers
Outdoor standard:	<u>SCF38-50</u> J
Indoor flame retardant:	SCF38-50JFN

#### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
Dimensions Over Jacket	mm (in)	10.2 (0.402)	
Min. Bending Radius, Repeated	mm (in)	25 (0.984)	
Jacket Type		Polyethylene, PE	
Bending Moment	Nm (lb-ft)	1.4 (1)	
Tensile Strength	N (lb)	600 (135)	
Recommended/Maximum Clamp Spacing	m (ft)	0.25 / 0.25 (0.8 / 0.8)	

TEMPERATURE SPECIFICATIONS		
Installation	°C (°F)	-40 to 60 (-40 to 140)
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)
Storage	°C (°F)	-70 to 85 (-94 to 185)
Operation	°C (°F)	-50 to 85 (-58 to 185)

#### **RELATED PRODUCTS**

Premium Conne Model Number	ector Series E01 Type	Accessories Model Number	1
716M-SCF14-E01	7-16 Male	TRIM-T01	Hand
NM-SCF14-E01	N Type Male		
<u>NF-SCF14-E01</u>	N Type Female		
43MR-SCF14-E01	4.3-10 Male Right Angle		
43M-SCF14-E01	4.3-10 Male		
<b>Tools for Series</b>	E01		
TRIM-SET-S14-D01	Universal Trimming Tool		
TRIM-IS14-D01	Univ. Trimming Tool Insert		

Accessories Model Number	Туре
	nd Tool Kit

#### **RELATED PRODUCTS**

Premium Conne Model Number	ector Series E01 Type	Accessories Model Number
NM-SCF38-E01	N Type Male	RSB-S38/L14
NF-SCF38-E01	N Type Female	TRIM-T01
43M-SCF38-E01	4.3-10 Male	
<b>Tools for Series</b>	E01	
TRIM-SET-S38-D01	Universal Trimming Tool	
TRIM-IS38-D01	Univ. Trimming Tool Insert	



SCF38 Series: 13.4 GHz

ELECTRICAL SPECIFICATIONS				
Operating Frequency Band		GHz		13.4
Max. VSWR / Return Loss		dB (VSWR)	Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)	
ATTENUATION				
Frequency, MHz	dB per 100	m dB per 1	00 ft	Power, kW
800	12.73	3.88	3	0.62
1800	20.05	6.1	1	0.39
2400	23.70	7.2	1	0.33
3500	29.50	9.01	1	0.27
5000	36.60	11.1	6	0.22
6000	41.00	12.4	8	0.19
8000	49.00	14.9	4	0.16
10000	56.50	17.2	1	0.14
12000	63.50	19.3	7	0.12
13400	68.30	20.8	2	0.12

Туре	
Stainless Steel Clarr	
Hand Tool Kit	

imp

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

### SCF12 Series: 10.6 GHz

#### **ORDERING INFORMATION**

Jacketing Options	Standard Attenuation Cable Model Numbers
Outdoor standard:	<u>SCF12-50</u>
Indoor flame retardant:	SCF12-50JFN

#### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
Dimensions Over Jacket	mm (in)	13.7 (0.539)	
Min. Bending Radius, Repeated	mm (in)	32 (1.3)	
Jacket Type		Polyethylene, PE	
Bending Moment	Nm (lb-ft)	2.5 (1.84)	
Tensile Strength	N (lb)	650 (146)	
Recommended/Maximum Clamp Spacing	m (ft)	0.3 / 0.5 (1 / 1.64)	

TEMPERATURE SPECIFICATIONS			
Installation	°C (°F)	-40 to 60 (-40 to 140)	
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)	
Storage	°C (°F)	-70 to 85 (-94 to 185)	
Operation	°C (°F)	-50 to 85 (-58 to 185)	

ELECTRICAL SPECIFICATIONS			
Operating Frequency Band	GHz	10.6	
Max. VSWR / Return Loss	dB (VSWR)	Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)	

ATTENUATION				
Frequency, MHz	dB per 100 m	dB per 100 ft	Power, kW	
800	9.57	2.92	0.74	
1800	14.90	4.55	0.47	
2400	17.50	5.35	0.40	
3500	21.80	6.63	0.32	
5000	26.80	8.16	0.26	
6000	29.80	9.09	0.24	
8000	35.50	10.80	0.20	
10000	40.60	12.40	0.17	

#### **RELATED PRODUCTS**

Standard Connectors		
Model Number	Туре	
716M-SCF12-C03	7-16 Male	
716F-SCF12-C03	7-16 Female	
43M-SCF12-C03	4.3-10 Male	
43MH-SCF12-C03	4.3-10 Male, Hand Screw	
43MP-SCF12-C03	4.3-10 Male, Push-Pull	
43F-SCF12-C03	4.3-10 Female	
NM-SCF12-C03	N Type Male	
NF-SCF12-C03	N Type Female	
716MR-SCF12-C03	7-16 Male Right Angle	
43MR-SCF12-C03	4.3-10 Male Right Angle	
Tools for Series	C03	
TRIM-SET-S12-C02	Universal Trimming Tool	

Premium Connect Model Number	t <b>or Series E01</b> Type	Accessories Model Number	T
716M-SCF12-E01	7-16 Male	<u>RSB-S12</u>	Stainless
716F-SCF12-E01	7-16 Female	<u>RSB-S12/78</u>	Stainless
43M-SCF12-E01	4.3-10 Male	<u>TRIM-T01</u>	Hand
43F-SCF12-E01	4.3-10 Female		
NM-SCF12-E01	N Type Male		
NF-SCF12-E01	N Type Female	-	
716MR-SCF12-E01	7-16 Male Right Angle		

### Туре Steel Clamp Steel Clamp l Tool Kit

## **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

### LCF14 Series: 15.8 GHz

#### ORDERING INFORMATION

Jacketing Options	Standard Attenuation Cable Model Numbers
Outdoor standard:	LCF14-50J
Indoor flame retardant:	LCF14-50JFN
	·

### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
mm (in)	10 (0.394)		
mm (in)	40 (1.575)		
mm (in)	85 (3.346)		
	Polyethylene, PE		
Nm (lb-ft)	1.9 (1.4)		
N (lb)	890 (200)		
m (ft)	0.5 / 1 (1.75 / 3.25)		
	mm (in) mm (in) mm (in) Nm (lb-ft) N (lb)		

TEMPERATURE SPECIFICATIONS			
Installation	°C (°F)	-40 to 60 (-40 to 140)	
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)	
Storage	°C (°F)	-70 to 85 (-94 to 185)	
Operation	°C (°F)	-50 to 85 (-58 to 185)	

#### RELATED PRODUCTS

Premium Conne Model Number	ector Series E01/D01 Type	Accessories Model Number	
<u>43M-LCF14-E01</u>	4.3-10 Male	RSB-S38/L14	Stainl
<u>NM-LCF14-E01</u>	N Type Male	GKSPEED20-14C	Ground
<u>NF-LCF14-E01</u>	N Type Female	GKSPEED20-14P	Ground
NMR-LCF14-E01	N Type Male Right Angle	TRIM-T01	Н
<b>Tools for Series</b>	D01		
TRIM-SET-L14-D01	Universal Trimming Tool		
TRIM-IL14-D01	Univ. Trimming Tool Insert		



4.3-10 Male Right Angle N Type Male Right Angle

Universal Trimming Tool Univ. Trimming Tool Insert

43MR-SCF12-E01

NMR-SCF12-E01 **Tools for Series E01** TRIM-SET-S12-D01

TRIM-IS12-D01



ELECTRICAL SPECIFICATIONS					
Operating Frequency	Band	GHz		15.8	
Max. VSWR / Return Loss		dB (VSWR) F		Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)	
ATTENUATION					
Frequency, MHz	dB per 100 n	n dB per 1	100 ft	Power, kW	
800	12.40	3.77	7	0.59	
1800	19.10	5.82	2	0.38	
2400	22.30	6.8	1	0.33	
3500	27.50	8.39	Э	0.27	
5000	33.70	10.3	0	0.22	
6000	37.40	11.4	0	0.20	
8000	44.10	13.5	0	0.17	
10000	50.30	15.3	0	0.15	

8000	44.10	13.50	0.17
10000	50.30	15.30	0.15
12000	56.10	17.10	0.13
15800	66.20	20.20	0.11

Туре
nless Steel Clamp
nding Kit, CCA Wire
nding Kit, Premium
Hand Tool Kit

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

### LCF38 Series: 13.5 GHz

#### ORDERING INFORMATION

Jacketing Options	Standard Attenuation Cable Model Numbers
Outdoor standard:	LCF38-50J
Indoor flame retardant:	LCF38-50JFN

### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
Dimensions Over Jacket	mm (in)	11.2 (0.441)	
Min. Bending Radius, Single	mm (in)	50 (2)	
Min. Bending Radius, Repeated	mm (in)	95 (4)	
Jacket Type		Polyethylene, PE	
Bending Moment	Nm (lb-ft)	1.9 (1.4)	
Tensile Strength	N (lb)	530 (119)	
Recommended/Maximum Clamp Spacing	m (ft)	0.5 / 1 (1.75 / 3.25)	

TEMPERATURE SPECIFICATIONS		
Installation	°C (°F)	-40 to 60 (-40 to 140)
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)
Storage	°C (°F)	-70 to 85 (-94 to 185)
Operation	°C (°F)	-50 to 85 (-58 to 185)

#### **RELATED PRODUCTS**

Standard Connectors Model Number Type		
<u>NM-LCF38-070</u>	N Type Male	
NF-LCF38-070	N Type Female	
NMR-LCF38-071	N Type Male Right Angle	
Tools for Series C03		
TRIM-38-L03	Combination Prep Tool	

ELECTRICAL SPECIFICATIONS			
Operating Frequency Band	GHz	13.5	
Max. VSWR / Return Loss	dB (VSWR)	Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)	

ATTENUATION				
Frequency, MHz	dB per 100 m	dB per 100 ft	Power, kW	
800	10.10	3.07	0.72	
1800	15.50	4.74	0.47	
2400	18.20	5.54	0.40	
3500	22.40	6.82	0.32	
5000	27.40	8.34	0.27	
6000	30.30	9.25	0.24	
8000	35.80	10.90	0.20	
10000	40.80	12.40	0.18	
12000	45.50	13.90	0.16	
13500	48.80	14.90	0.15	

Accessories Model Number	Туре
<u>RSB-38/12</u>	RSB Clamp Lining
<u>RSB-12</u>	RSB Clip (in Combination)
TRIM-T01	Hand Tool Kit

NMR-LCF38-E01	N Type Male Right Angle	
Tools for Series E01		
TRIM-SET-L38-E01	Universal Trimming Tool	
TDIM II 29 E01	Univ Trimming Tool Incort	

Туре

4.3-10 Male

N Type Male N Type Female

**Premium Connector Series E01** 

Model Number

43M-LCF38-E01

NM-LCF38-E01

Univ. Trimming Tool Insert

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

### LCF12 Series: 8.8 GHz

#### ORDERING INFORMATION

Jacketing Options	Premium Attenuation Cable Model Numbers	Lite Low-Loss Cable Model Numbers
Outdoor standard:	LCF12-50J	LCF12-50JL
Indoor flame retardant:	LCF12-50JFN	LCF12-50JFNL

### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS						
Dimensions Over Jacket	mm (in)	15.9 (0.62)				
Min. Bending Radius, Single	mm (in)	70 (3)				
Min. Bending Radius, Repeated	mm (in)	125 (5)				
Jacket Type		Polyethylene, PE				
Bending Moment	Nm (lb-ft)	6.5 (4.8)				
Tensile Strength	N (lb)	Copper 1050 (236) Aluminum 800 (180)				
Recommended/Maximum Clamp Spacing	m (ft)	0.6 / 1 (2 / 3.25)				

TEMPERATURE SPECIFICATIONS					
Installation	°C (°F)	-40 to 60 (-40 to 140)			
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)			
Storage	°C (°F)	-70 to 85 (-94 to 185)			
Operation	°C (°F)	-50 to 85 (-58 to 185)			

#### RELATED PRODUCTS

Standard Conne Model Number	Ind Connector Series C03Premium Connector Series E01NumberTypeModel NumberType		
716M-LCF12-C03	7/16 Male	716M-LCF12-E01	7/16 Male
716F-LCF12-C03	7/16 Female	716F-LCF12-E01	7/16 Female
43M-LCF12-C03	4.3-10 Male	43M-LCF12-E01	4.3-10 Male
43MH-LCF12-C03	4.3-10 Male, Hand Screw	43F-LCF12-E01	4.3-10 Female
43MP-LCF12-C03	4.3-10 Male, Push-Pull	NM-LCF12-E01	N Type Male
43F-LCF12-C03	4.3-10 Female	NF-LCF12-E01	N Type Female
NM-LCF12-C03	N Type Male	716MR-LCF12-E01	7/16 Male Right Angle
NF-LCF12-C03	N Type Female	43MR-LCF12-E01	4.3-10 Male Right Angle
716MR-LCF12-C03	7/16 Male Right Angle	NMR-LCF12-E01	N Type Male Right Angle
43MR-LCF12-C03	4.3-10 Male Right Angle	<b>Tools for Series</b>	E01
NMR-LCF12-C02	N Type Male Right Angle	TRIM-SET-L12-D01	Universal Trimming Tool
Tools for Series	Tools for Series C03		Univ. Trimming Tool Insert
TRIM-SET-L12-C02	Universal Trimming Tool	TRIM-LCF12-D01-A	Automatic Trimming Tool
TRIM-IL12-C02	Trimming Tool Insert	TRIM-B13	Blades for Automatic Tool







ELECTRICAL SPECIFICATIONS							
Operating Frequency Band GHz 8.8							
Max. VSWR / Return Lo	dE	8 (VSWR)	Prem	dard 20 nium 23 nium 24	(1.152)		
ATTENUATION							
Frequency, MHz	dB per	100 m	dB per	100 ft	Pow	er, kW	
Version	JA	JL	JA	JL	JA	JL	
800	6.48	6.94	1.98	2.12	1.16	1.28	
1800	10.10	10.70	3.07	3.26	0.75	0.83	
2200	11.30	11.90	3.44	3.63	0.67	0.75	
2600	12.40	13.10	3.78	3.98	0.61	0.68	

2600	12.40	13.10	3.78	3.98	0.61	0.68
3500	14.70	15.40	4.47	4.69	0.51	0.58
5000	18.00	18.80	5.50	5.72	0.42	0.47
6000	20.70	20.80	6.30	6.34	0.37	0.43
8000	23.80	24.50	7.26	7.47	0.32	0.36
8800	25.20	25.90	7.69	7.90	0.30	0.34

#### Accessories

Model Number	Туре
HOIST1-12L	Hoisting Grip
GKSPEED20-12C	Grounding Kit, CCA Wire
GKSPEED20-12P	Grounding Kit, Premium
GKSPEED20-12S	Grounding Kit, Standard
GKSPEED60-12S	Grounding Kit, High Speed
JSTRIP-12-3	Jacket Stripping Tool
CEAR-12	Connector Grounding Kit
BOOT4-12-4	Feed Through Assembly
BOOT-CP-12	Cushion Plug
<u>RSB-12</u>	Stainless Steel Clamp
TRIM-T01	Hand Tool Kit
Multi-Block Har	ngers
MBH12-2-F	2 per layer, 1 layer, 2 runs
<u>MBH12-6-F</u>	2 per layer, 3 layers, 6 runs
MBHS12-1-F	1 per layer, 1 layer, 1 run
MBHS12-2-F	1 per layer, 2 layers, 2 runs
<u>MBHS12-3-F</u>	1 per layer, 3 layers, 3 runs

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

### LCF78 Series: 5 GHz



#### ORDERING INFORMATION

Jacketing Options	Premium Attenuation Cable Model Numbers	Lite Low-Loss Cable Model Numbers
Outdoor standard:	LCF78-50JA	LCF78-50JL
Indoor flame retardant:	LCF78-50JFNA	LCF78-50JFNL

#### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS							
Dimensions Over Jacket	mm (in)	27.8 (1.094)					
Min. Bending Radius, Single	mm (in)	120 (5)					
Min. Bending Radius, Repeated	mm (in)	250 (10)					
Jacket Type		Polyethylene, PE					
Bending Moment	Nm (lb-ft)	13 (10)					
Tensile Strength	N (lb)	1440 (324)					
Recommended/Maximum Clamp Spacing	m (ft)	0.8 / 1 (2.75 / 3.25)					

TEMPERATURE SPECIFICATIONS						
Installation	°C (°F)	-40 to 60 (-40 to 140)				
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)				
Storage	°C (°F)	-70 to 85 (-94 to 185)				
Operation	°C (°F)	-50 to 85 (-58 to 185)				

ELECTRICAL SPECIFICATIONS						
Operating Frequency Band	GHz	5				
Max. VSWR / Return Loss	dB (VSWR)	Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)				

ATTENUATION						
Frequency, MHz	dB per	100 m	dB per	100 ft	Pow	er, kW
Version	JA	JL	JA	JL	JA	JL
800	3.48	3.72	1.06	1.13	2.41	2.85
1800	5.44	5.76	1.66	1.76	1.54	1.84
2200	6.09	6.43	1.86	1.96	1.38	1,65
2600	6.70	7.05	2.04	2.15	1.25	1.50
3600	8.30	8.47	2.53	2.58	1.03	1.25
4000	8.60	8.98	2.62	2.74	0.97	1.18
5000	9.81	10.20	2.99	3.11	0.85	1.04

#### **RELATED PRODUCTS**

Standard Connector Series C03 Model Number Type			
716M-LCF78-C03	7/16 Male		
716F-LCF78-C03	7/16 Female		
43M-LCF78-C03	4.3-10 Male		
43MH-LCF78-C03	4.3-10 Male, Hand Screw		
43MP-LCF78-C03	4.3-10 Male, Push-Pull		
43F-LCF78-C03	4.3-10 Female		
<u>NM-LCF78-C03</u>	N Type Male		
NF-LCF78-C03	N Type Female		
Tools for Series C03			
TRIM-SET-L78-C02	Universal Trimming Tool		
TRIM-IL78-C02	Trimming Tool Insert		
TRIM-FL78	Flaring Tool		

Premium Connector Series E01 Model Number Type			
716M-LCF78-E01	7/16 Male		
716F-LCF78-E01	7/16 Female		
43M-LCF78-E01	4.3-10 Male		
<u>43F-LCF78-E01</u>	4.3-10 Female		
<u>NM-LCF78-E01</u>	N Type Male		
NF-LCF78-E01	N Type Female		
Tools for Series E01			
TRIM-SET-L78-D01	Universal Trimming Tool		
TRIM-IL78-D01	Univ. Trimming Tool Insert		
TRIM-LCF78-D01-A	Automatic Trimming Tool		
TRIM-FL78	Flaring Tool		

Accessories Model Number	Туре	
HOIST1-78L	Hoisting Grip	
GKSPEED20-78C	Grounding Kit, CCA Wire	
GKSPEED20-78P	Grounding Kit, Premium	
GKSPEED20-78S	Grounding Kit, Standard	
GKSPEED60-78S	Grounding Kit, High Speed	
JSTRIP-78-2	Jacket Stripping Tool	
<u>CEAR-78</u>	Connector Grounding Kit	
<u>BOOT4-78-4</u>	Feed Through Assembly	
BOOT-CP-78	Cushion Plug	
<u>RSB-78</u>	Stainless Steel Clamp	
TRIM-T01	Hand Tool Kit	
Multi-Block Hangers		
<u>MBH78-2-F</u>	2 per layer, 1 layer, 2 runs	
<u>MBH78-6-F</u>	2 per layer, 3 layers, 6 runs	
<u>MBHS78-1-F</u>	1 per layer, 1 layer, 1 run	
MBHS78-2-F	1 per layer, 2 layers, 2 runs	

1 per layer, 3 layers, 3 runs

MRHS78-3-F

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

#### LCFS114 Series: 3.7 GHz

#### ORDERING INFORMATION

Jacketing Options	Premium Attenuation Cable Model Numbers
Outdoor standard:	LCFS114-50JA
Indoor flame retardant:	LCFS114-50JFNA
Indoor CPR certified	LCFS114-50CPR

#### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS				
Dimensions Over Jacket	mm (in)	39 (1.54)		
Min. Bending Radius, Single	mm (in)	200 (8)		
Min. Bending Radius, Repeated	mm (in)	380 (15)		
Jacket Type		Polyethylene, PE		
Bending Moment	Nm (lb-ft)	Copper 43 (32) Aluminum 22 (16.2)		
Tensile Strength	N (lb)	Copper 2490 (560) Aluminum 1850 (416)		
Recommended/Maximum Clamp Spacing	m (ft)	1 / 1.2 (3.25 / 4)		

TEMPERATURE SPECIFICATIONS			
Installation	°C (°F)	-40 to 60 (-40 to 140)	
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)	
Storage	°C (°F)	-70 to 85 (-94 to 185)	
Operation	°C (°F)	-50 to 85 (-58 to 185)	

#### **RELATED PRODUCTS**

Standard Conne Model Number	<b>ctor Series C02</b> Type	Premium Connector Series Model Number
716M-LCF114-C02	7/16 Male	716M-LCF114-E01 7/1
716F-LCF114-C02	7/16 Female	716F-LCF114-E01 7/16
NM-LCF114-C02	N Type Male	<u>43M-LCF114-E01</u> 4.3-
NF-LCF114-C02	N Type Female	<u>43F-LCF114-E01</u> 4.3-1
Tools for Series (	C02	<u>NM-LCF114-E01</u> N Ty
TRIM-SET-L114-C02	Universal Trimming Tool	<u>NF-LCF114-E01</u> N Typ
TRIM-IL114-C02	Trimming Tool Insert	<b>Tools for Series E01</b>
		TRIM-SET-L114-D01 Universal
		TRIM-IL114-D01 Univ. Trimn







ELECTRICAL SPECIFICATIONS				
Operating Frequency	Band	GHz		3.7
Max. VSWR / Return Loss		dB (VSWR)	Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)	
ATTENUATION				
Frequency, MHz	dB per 100	m dB per 1	00 ft	Power, kW
800	2.47	0.75	5	4.45

800	2.47	0.75	4.45
1900	4.00	1.22	2.75
2200	4.35	1.33	2.53
2600	4.80	1.46	2.29
2700	4.90	1.49	2.24
3000	5.21	1.59	2.11
3300	5.51	1.68	2.00
3600	5.80	1.77	1.90
3700	5.90	1.80	1.86

#### Series E01

#### Accessories

Туре	Model Number	Туре
7/16 Male	HOIST1-114L	Hoisting Grip
7/16 Female	GKSPEED20-114C	Grounding Kit, CCA Wire
4.3-10 Male	GKSPEED20-114P	Grounding Kit, Premium
4.3-10 Female	GKSPEED60-114S	Grounding Kit, High Speed
N Type Male	JSTRIP-114-2	Jacket Stripping Tool
N Type Female	<u>CEAR-114</u>	Connector Grounding Kit
	<u>RSB-114</u>	Stainless Steel Clamp
iversal Trimming Tool	<u>TRIM-T01</u>	Hand Tool Kit
v. Trimming Tool Insert	Multi-Block Har	ngers
	MBHS114-1-F	1 per layer, 1 layer, 1 run
	MBHS114-2-F	1 per layer, 2 layers, 2 runs
	<u>MBHS114-3-F</u>	1 per layer, 3 layers, 3 runs

### **CELLFLEX LOW-LOSS** FOAM-DIELECTRIC COAXIAL CABLE

### LCF158 Series: 2.75 GHz

#### **ORDERING INFORMATION**

Jacketing Options	Premium Attenuation Cable Model Numbers
Outdoor standard:	LCF158-50JA
Indoor flame retardant:	LCF158-50JFNA
Indoor flame retardant:	LCF158-50CPR

#### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
Dimensions Over Jacket	mm (in)	50.2 (1.98)	
Min. Bending Radius, Single	mm (in)	200 (8)	
Min. Bending Radius, Repeated	mm (in)	500 (20)	
Jacket Type		Polyethylene, PE	
Bending Moment	Nm (lb-ft)	42 (31)	
Tensile Strength	N (lb)	2500 (562)	
Recommended/Maximum Clamp Spacing	m (ft)	1.2 / 1.5 (4 / 5)	

TEMPERATURE SPECIFICATIONS			
Installation	°C (°F)	-40 to 60 (-40 to 140)	
Installation - JFNA	°C (°F)	-25 to 60 (-13 to 140)	
Storage	°C (°F)	-70 to 85 (-94 to 185)	
Operation	°C (°F)	-50 to 85 (-58 to 185)	

### **RELATED PRODUCTS**

Standard Connec Model Number	ctor Series C02 Type	
716M-LCF158-C02	7/16 Male	
716F-LCF158-C02	7/16 Female	
NM-LCF158-C02	N Type Male	
NF-LCF158-C02	N Type Female	
Tools for Series C02		
TRIM-SET-L158-C02	Universal Trimming Tool	
TRIM-IL158-C02	Trimming Tool Insert	

Premium Conne Model Number	<b>ctor Series E01</b> Type		
716M-LCF158-E01	7/16 Male		
716F-LCF158-E01	7/16 Female		
43M-LCF158-E01	4.3-10 Male		
43F-LCF158-E01	4.3-10 Female		
NM-LCF158-E01	N Type Male		
NF-LCF158-E01	N Type Female		
Tools for Series	Tools for Series E01		
TRIM-SET-L158-D01	Universal Trimming Tool		
TRIM-IL158-D01	Univ. Trimming Tool Insert		

Accessories Model Number	Туре
HOIST1-158L	Hoisting Grip
GKSPEED20-158C	Grounding Kit, CCA Wire
GKSPEED20-158P	Grounding Kit, Premium
GKSPEED60-158S	Grounding Kit, High Speed
JSTRIP-158-2	Jacket Stripping Tool
CEAR-158	Connector Grounding Kit
<u>BOOT4-158-1</u>	Feed Through Assembly
<u>RSB-158</u>	Stainless Steel Clamp
TRIM-T01	Hand Tool Kit
Multi-Block Har	ngers
<u>MBH158-2-F</u>	2 per layer, 1 layer, 2 runs
<u>MBH158-6-F</u>	2 per layer, 3 layers, 6 runs
MBHS158-1-F	1 per layer, 1 layer, 1 run
MBHS158-2-F	1 per layer, 2 layers, 2 runs

**ELECTRICAL SPECIFICATIONS** 

ATTENUATION

1.98

3.06

3.36

3.56

3.75

3.93

4.02

4.07

Operating Frequency Band

Max. VSWR / Return Loss

Frequency, MHz

800

1700

2000

2200

2400

2600

2700 2750 GHz

dB (VSWR)

dB per 100 m dB per 100 ft Power, kW

0.60

0.93

1.03

1.08

1.14

1.20

1.23

1.24

2.75

Standard 20 (1.222) Premium 23 (1.152) Premium 24 (1.135)

5.66

3.66

3.34

3.15

2.99

2.85

2.79

2.75



### LCF158 J Series: 2.75 GHz

#### ORDERING INFORMATION

Jacketing Options	Lite Low-Loss Cable Model Numbers	
Outdoor standard:	LCF158-50JL	
Indoor flame retardant:	LCF158-50JFNL	

### PRODUCT SPECIFICATIONS

GENERAL SPECIFICATIONS			
Dimensions Over Jacket	mm (in)	50.2 (1.98)	
Min. Bending Radius, Single	mm (in)	200 (8)	
Min. Bending Radius, Repeated	mm (in)	500 (20)	
Jacket Type		Polyethylene, PE	
Bending Moment	Nm (lb-ft)	40.7 (30.7)	
Tensile Strength	N (lb)	1800 (405)	
Recommended/Maximum Clamp Spacing	m (ft)	1.2 / 1.5 (4 / 5)	

TEMPERATURE SPECIFICATIONS		
Installation	°C (°F)	-40 to 60 (-40 to 140)
Installation - JFNL	°C (°F)	-25 to 60 (-13 to 140)
Storage	°C (°F)	-70 to 85 (-94 to 185)
Operation	°C (°F)	-50 to 85 (-58 to 185)

### **RELATED PRODUCTS**

Standard Conne Model Number	ctor Series C02 Type	Premium Conne Model Number	ctor Series E( Typ
716M-LCF158-C02	7/16 Male	716M-LCF158-E01	7/16 N
716F-LCF158-C02	7/16 Female	716F-LCF158-E01	7/16 Fe
NM-LCF158-C02	N Type Male	43M-LCF158-E01	4.3-101
NF-LCF158-C02	N Type Female	43F-LCF158-E01	4.3-10 Fe
Tools for Series	C02	NM-LCF158-E01	N Туре
TRIM-SET-L158-C02	Universal Trimming Tool	NF-LCF158-E01	N Type F
TRIM-IL158-C02	Trimming Tool Insert	<b>Tools for Series</b>	E01
		TRIM-SET-L158-D01	Universal Trin
		TRIM-IL158-D01	Univ. Trimming







1	-	ł	
1		-	-
		ŝ	2
1		ľ	
			3
			ų
			15

ELECTRICAL SPECIFICATIONS				
Operating Frequency	Band	GHz		2.75
Max. VSWR / Return I	/SWR / Return Loss d		Prem	dard 20 (1.222) hium 23 (1.152) hium 24 (1.135)
ATTENUATION				
Frequency, MHz	dB per 100 ı	m dB per '	100 ft	Power, kW
800	2.17	0.6	5	5.39
1700	3.33	1.02	2	3.51
2000	3.67	1.12	2	3.19
2200	3.88	1.18	8	3.02
2400	4.08	1.24	4	2.87
2600	4.28	1.3	1	2.73
2700	4.38	1.34	4	2.67
2750	4.43	1.3	5	2.64

•	Series E01
	Туре

#### Accessories

Туре	Model Number	Туре	
7/16 Male	HOIST1-158L	Hoisting Grip	
7/16 Female	GKSPEED20-158C	Grounding Kit, CCA Wire	
4.3-10 Male	GKSPEED20-158P	Grounding Kit, Premium	
4.3-10 Female	GKSPEED60-158S	Grounding Kit, High Speed	
N Type Male	JSTRIP-158-2	Jacket Stripping Tool	
N Type Female	CEAR-158	Connector Grounding Kit	
	BOOT4-158-1	Feed Through Assembly	
versal Trimming Tool	<u>RSB-158</u>	Stainless Steel Clamp	
. Trimming Tool Insert	TRIM-T01	Hand Tool Kit	
	Multi-Block Hangers		
	<u>MBH158-2-F</u>	2 per layer, 1 layer, 2 runs	
	<u>MBH158-6-F</u>	2 per layer, 3 layers, 6 runs	
	MBHS158-1-F	1 per layer, 1 layer, 1 run	
	MBHS158-2-F	1 per layer, 2 layers, 2 runs	

### **CLEARFILL<sup>®</sup>LINE PLENUM-RATED CABLES**

Our ClearFill®Line plenum-rated wideband cables deliver outstanding electrical and mechanical performance, and operate in frequencies from 380 MHz to 6 GHz to support all in-building wireless technologies and applications. These air dielectric coaxial cables are thoroughly tested for safe use within the "environmental air handling space" in ceilings as well as in more traditional plenum applications. They're available in copper or lighter weight aluminum models to meet any installation requirements.

#### IMPROVE IN-BUILDING WIRELESS NETWORK PERFORMANCE

ClearFill®Line plenum-rated cables provide low attenuation and excellent return loss.

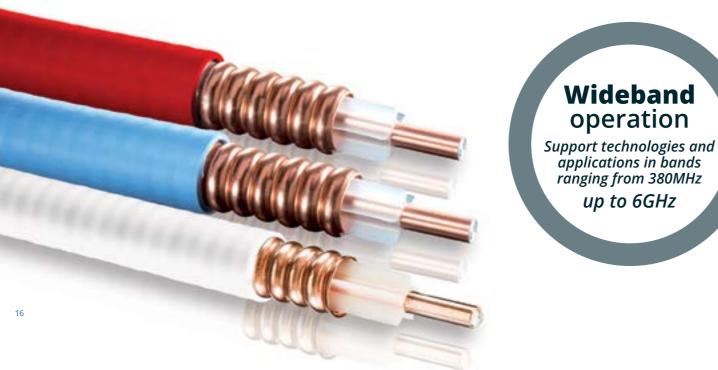
FREQUENCY RANGE (MHz)	RETURN LOSS (dB)	VSWR
698-960	24	1.13
1395-1432	24	1.13
1700-2155	24	1.13
2300-2700	20	1.22
3550-4200	18	1.29
5150-6000	18	1.29

They also feature robust construction that reduces the risk of performance issues:

- · A continuous, star-shaped dielectric provides complete support for the inner conductor to eliminate electrical and mechanical problems in tight bending areas.
- The solid outer conductor creates a continuous RFI/EMI shield that minimizes system interference.

#### LEVERAGE NEW SPECTRUM

With wideband spectrum support up to 6 GHz, ClearFillLine plenum-rated cables make it easy to take advantage of newly available Citizens Broadband Radio Service (CBRS) spectrum in the 3.5 GHz band and LTE License Assisted Access (LAA) spectrum in the unlicensed 5 GHz band.



## **CLEARFILL®LINE PLENUM-RATED CABLES**

### ICA12 Series: 6 GHz

#### ORDERING INFORMATION

1/2" Plenum-Rated Cables Jacket Color	Wideband Copper Cables Model Numbers	Wideband Aluminum Cables Model Numbers
Blue	ICA12-50JPL	ICA12-50JPLL
Red	ICA12-50JPLR	ICA12-50JPLLR
Black	ICA12-50JPLB	ICA12-50JPLLB
White	ICA12-50JPLW	ICA12-50JPLLW

#### **PRODUCT SPECIFICATIONS**

GENERAL SPECIFICATIONS						
Dimensions Over Jacket	mm (in)	15.93 (0.627)				
Min. Bending Radius, Single	mm (in)	76 (3)				
Min. Bending Radius, Repeated	mm (in)	127 (5)				
Jacket Type		m Rated, UV rated to 55, Water-resistant				
Bending Moment	Nm (lb-ft)	Copper 4.1 (3) Aluminum 5.4 (4)				
Tensile Strength	N (lb)	Copper 1112 (250) Aluminum 549 (150)				
Recommended/Maximum Clamp Spacing	m (ft)	0.5 / 0.9 (1.8 / 3)				

TEMPERATURE SPECIFICATIONS					
Installation	°C (°F)	-20 to 60 (-4 to 140)			
Storage	°C (°F)	-40 to 85 (-40 to 185)			
Operation	°C (°F)	-40 to 85 (-40 to 185)			

### **RELATED PRODUCTS**

Standard Conne	ector Series C03/C02	Premium Connector Series E01			
Model Number	Туре	Model Number	Туре		
716M-LCF12-C03	7/16 Male	716M-LCF12-E01	7/16 Male		
716F-LCF12-C03	7/16 Female	716F-LCF12-E01	7/16 Female		
43M-LCF12-C03	4.3-10 Male	43M-LCF12-E01	4.3-10 Male		
43F-LCF12-C03	4.3-10 Female	43F-LCF12-E01	4.3-10 Female		
NM-LCF12-C02-6	N Type Male	NM-LCF12-E01	N Type Male		
NF-LCF12-C02-6	N Type Female	NF-LCF12-E01	N Type Female		
NM-LCF12-C03	N Type Male	Tools for Series	E01		
NF-LCF12-C03	N Type Female	TRIM-SET-L12-D01	Universal Trimming Tool		
<b>Tools for Series</b>	C03/C02				
TRIM-ICA12-C02	Universal Trimming Tool				





ELECTRICAL SPECIFICATIONS						
Operating Frequency Band	GHz	6				
Max. VSWR / Return Loss	dB (VSWR)	24 (1.13) @ 698-960 MHz 24 (1.13) @ 1395-1432 MHz 24 (1.13) @ 1700-2155 MHz 20 (1.22) @ 2300-2700 MHz 18 (1.29) @ 3550-4200 MHz 18 (1.29) @ 5150-6000 MHz				

ATTENUATION								
Frequency, MHz	dB per	100 m	dB per	100 ft	Pow	er, kW		
Version	JPL	JPLL	JPL	JPLL	JPL	JPLL		
800	6.64	7.28	2.02	2.22	1.09	1.06		
1800	10.50	11.5	3.2	3.49	0.69	0.67		
2200	11.80	12.80	3.59	3.92	0.62	0.61		
2600	13.00	14.2	3.96	4.31	0.56	0.55		
3600	15.80	17.10	4.81	5.22	0.47	0.46		
4000	16.80	18.30	5.13	5.56	0.44	0.43		
5000	19.30	20.90	5.88	6.36	0.38	0.38		
6000	21.6	23.3	6.58	7.11	0.34	0.34		

Accessories Model Number	Туре
HOIST1-12L	Hoisting Grip
GKSPEED20-12C	Grounding Kit, CCA Wire
GKSPEED20-12P	Grounding Kit, Premium
GKSPEED20-12S	Grounding Kit, Standard
GKSPEED60-12S	Grounding Kit, High Speed
JSTRIP-12-3	Jacket Stripping Tool
<u>CEAR-12</u>	Connector Grounding Kit
<u>BOOT4-12-4</u>	Feed Through Assembly
BOOT-CP-12	Cushion Plug
<u>RSB-12</u>	Stainless Steel Clamp
<u>TRIM-T01</u>	Hand Tool Kit
Multi-Block Har	ngers
<u>MBH12-2-F</u>	2 per layer, 1 layer, 2 runs
MBH12-6-F	2 per layer, 3 layers, 6 runs
MBHS12-1-F	1 per layer, 1 layer, 1 run
MBHS12-2-F	1 per layer, 2 layers, 2 runs
<u>MBHS12-3-F</u>	1 per layer, 3 layers, 3 runs

### GET HIGH-PERFORMANCE JUMPER CABLES FOR ANY APPLICATION, ANY SIZE

We are a global leader in RF jumper cables and offers a completes portfolio of jumper cables that meet any requirements.

**CELLFLEX Factory-Fit Jumpers** are ideal for indoor environments and other locations where jumper connectors do not require weatherproofing.

**CELLFLEX SecureFit Booted Jumpers** are ideal for outdoor environments and other locations where jumper connectors need to be protected from the elements.

All of our CELLFLEX jumper cables support frequencies up to 6 GHz to simplify your network evolution and protect your investment.

#### CHOOSE FROM SUPER-FLEXIBLE AND LOW-LOSS JUMPER CABLES

CELLFLEX Factory-Fit Jumpers and CELLFLEX SecureFit Booted Jumpers are designed for seamless connection to our renowned CELLFLEX foam dielectric coaxial cables:



CELLFLEX super-flexible jumper cables combine outstanding bending characteristics and electrical performance to improve quality and efficiency in the most challenging deployment scenarios.

CELLFLEX low-loss jumper cables deliver extremely low attenuation that increases the efficiency of signal transfers in any RF system.

#### MIX AND MATCH JUMPER CABLE CONFIGURATIONS AND FEATURES TO MEET **APPLICATION AND SITE REQUIREMENTS**

We offer a variety of features and configuration options for each jumper cable type and size. Options include:

- Jacket type: Standard or flame-retardant
- Connector type for each endpoint: NEX10, 4.3-10, N-Type or 7-16 DIN right-angled or straight connectors
- Performance: UltraPIM or Premium PIM
- Length: 1 m to 20 m or 3 ft to 50 ft

18

We manufacture and stock the most popular combinations and can deliver custom lengths when required.

#### SIMPLIFY 4G, 5G AND SMALL CELL DEPLOYMENTS IN CROWDED URBAN **ENVIRONMENTS**

As you upgrade and add network technologies to already-crowded sites, the ability to make more coaxial cable connections in smaller spaces is crucial.

CELLFLEX super-flexible 1/4-inch jumpers with miniaturized NEX10 and 4.3-10 connectors make urban installations faster and easier. They're ideal for installations in highly constrained spaces, such as street poles, and for short-distance connections. To ensure optimal attenuation over longer distances, rely on our low-loss 1/2-inch jumper cables.



## GET HIGH-PERFORMANCE JUMPER CABLES FOR ANY APPLICATION, ANY SIZE

#### MAINTAIN ULTRA-HIGH PERFORMANCE END-TO-END

You can't afford to compromise on performance. Jumper cables that provide the ultimate in electrical performance are essential to guarantee end-to-end transmission line performance and support the next generations of applications.

CELLFLEX jumper cables feature our industry-leading UltraPIM performance, and we guarantee the performance specifications for every jumper cable.

All of our jumpers are fully tested for PIM, VSWR (return loss) and interface performance. Test results are available online for products sold globally.

#### **GET MORE VALUE FROM EXISTING EQUIPMENT**

We understand your need to extract maximum value from the investments you've already made in network equipment.

While some jumper cable vendors are discontinuing older connector types, such as N-Type and 7-16 DIN, we continue to offer the interfaces.

**BRING US YOUR TOUGHEST DEPLOYMENT CHALLENGES** We have the expertise and experience needed to adapt our jumper designs and deliver innovative, custom jumper cables that are designed to meet your unique requirements and resolve the most difficult installation challenges.

One of our recent innovations includes jumper cables with shortened, molded boots that fit within the available space on a specific outdoor small cell radio while still allowing a plastic cover to close over the end of the jumper.

#### SUPPORT DEPLOYMENTS ANYWHERE IN THE WORLD

We understand your need to extract maximum value from the investments you've already made in network equipment While some jumper cable vendors are discontinuing older connector types, such as N-Type and 7-16 DIN, we continue to offer the interfaces.

# **CLUSTER** CONNECTORS



### Make More Jumper Connections in Less Space

Our innovative new jumper cables with RF cluster connectors are ideal for connecting to highly integrated antennas that have a large number of RF ports in a very compact footprint.

Each cluster connector supports connections to multiple RF ports to enable



connections to more than 20 multiband 4T4R and 8T8R ports within the space of a typical antenna end cap.

Simplify your next deployment using cluster jumpers with MQ4/MQ5 connectors or M-LOC systems.

#### **LEARN MORE**



# PROTECT CRITICAL CONNECTIONS WITH THE ULTIMATE WEATHERPROOFING BOOT

RFS CELLFLEX SecureFit Booted Jumpers feature specially designed, injection-molded weatherproof boots that protect jumper connections from all forms of moisture — from rain to snow and ice — as well as salt, sand, dust and other contaminants that can corrode connectors, degrade connection quality and reduce connector lifespan.



**CELLFLEX SecureFit Booted Jumpers** are available in a wide variety of RFS jumper cables sizes, for all RFS-supported connector types and in all RFS jumper configurations. In 2022, RFS has added smaller cable sizes and more models with right-angle and NEX10 connectors to the product portfolio.

With the addition of the new jumper models, RFS' SecureFit Booted Jumper portfolio now includes the following jumper sizes and factoryinstalled connectors:

- 1/4-inch and 3/8-inch jumpers with 4.3-10 or NEX10 connectors
- 1/2-inch jumpers with right-angle connectors
- 1/2-inch jumpers with NEX10 connectors

The boot's sleek, close-fitting design results in a small footprint that's ideal to protect any connection, including connections to multi-port equipment with tight connector spacing.

## UPGRADE TO FASTER, EASIER WEATHERPROOFING WITH CELLFLEX SECUREFIT BOOTED JUMPERS

With CELLFLEX SecureFit Booted Jumpers, you can quickly and easily add an additional level of sealing and strain relief to any connection with no need for installers to waste time and effort applying and removing sealing tape.

Installers can connect and disconnect our SecureFit Booted Jumpers far faster and easier than they can when sealing tape is used to protect connections. And no waste is generated, so installers never have to worry about garbage removal or clutter while they're working high on towers. There's also no that risk that jumper cables can be damaged or installers injured as is the case when a knife is used to remove sealing tape from connections.

## ENSURE CONSISTENT AND RELIABLE WEATHERPROOFING ON ALL CONNECTIONS

The SecureFit boot design is the same no matter which connector type you're using or which equipment you're connecting to.

The ergonomic boot design allows installers to use a single hand to easily slide the boot into place over the connection and to remove the boot when needed. Installers quickly master the technique and can apply consistent and reliable weatherproofing across all connections with minimal training.

The lead time for CELLFLEX SecureFit Booted Jumpers is the same as our CELLFLEX Factory-Fit Jumpers, so there are no delays when booted jumpers are required.

Protect your network investment and maintain premium performance with a reliable and exceptionally easy weatherproofing solution from RFS





### UNLIMITED CONNECTIONS WITH THE RFS ADAPTER SERIES

## CONNECTIONS IN THE FIELD JUST GOT EASIER

RFS' new coaxial adapter series provides a fast, easy and cost-effective solution for jumper connections. With a large selection of both straight and right angle adapters, there is a model for every network requirement. Passive intermodulation specifications for all RFS adapters is < -163 dBc.



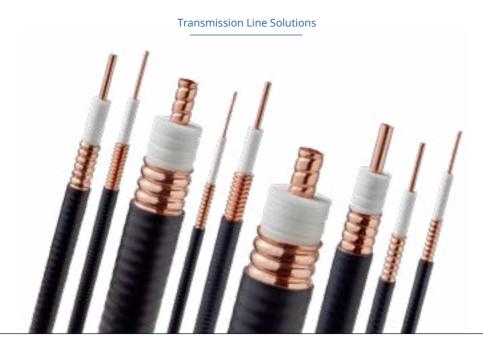






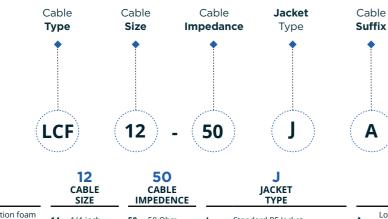


MODEL NUMBER (STRAIGHT)	MODEL NUMBER (RIGHT ANGLE)
<u>716M-716F</u>	<u>716M-R-716F</u>
<u>716F-43F</u>	716M-R-716M
716M-716M	<u>43M-R-43F</u>
<u>716M-43M</u>	<u>NM-R-NM</u>
716M-43F	<u>NM-R-NF</u>
<u>716M-NM</u>	716F-R-716F
<u>716M-NF</u>	<u>716F-R-43M</u>
<u>43F-43F</u>	<u>716F-R-43F</u>
<u>43F-NM</u>	716F-R-NM
<u>43F-NF</u>	<u>716F-R-NF</u>
<u>43M-43M</u>	<u>716M-R-43M</u>
<u>43M-NM</u>	<u>716M-R-43F</u>
<u>43M-NF</u>	<u>716M-R-NM</u>
<u>NM-NM</u>	716M-R-NE
<u>NM-NF</u>	<u>43F-R-43F</u>
<u>NF-NF</u>	43F-R-NM
716F-716F	<u>43F-R-NF</u>
<u>716F-43M</u>	<u>43M-R-43M</u>
<u>716F-NM</u>	<u>43M-R-NM</u>
<u>716F-NF</u>	43M-R-NF
<u>43M-43F</u>	<u>NF-R-NF</u>



## UNDERSTANDING CABLE MODEL NAMES





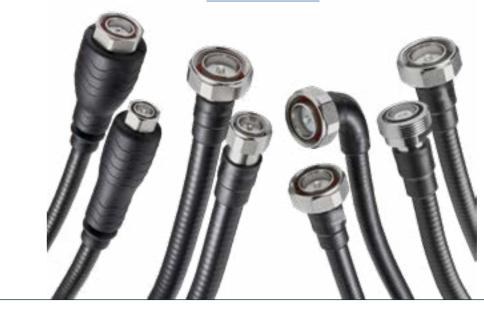
	LCF CABLE TYPE		12 CABLE SIZE	IN	50 CABLE MPEDENCE		J JACKET TYPE
LCF	Low attenuation foam dielectric, corrugated	14	1/4-inch	50	50 Ohm	J	Standard PE Jacket
LCFS	Corrugated IC	38	3/8-inch	75	75 Ohm	JFN	Flame Retardant LSZH Jacket
SCF	Superflexible	12	1/2-inch	_		CPR	Specific CPR Jacket
SCFS	Superflexible, standardized version	78	7/8-inch	-			·
UCF	Ultraflexible, corrugated IC	114	1-1/4-inch	_			
		158	1-5/8-inch	-			

· · · · ·			
	A CABLE SUFFIX		-BAA DESIGN VARIANT
A	Low Loss Premium Attenuation	-c	China
в	B Type – Lower technical performance	-D	Germany
L	Light cable – Aluminum OC	-U	USA
GR	Grey Jacket RAL7004	-BAA	Compliant to the Buy America Act
RP	Rodent Protection – Nylon Jacket	-B2	CPR rating B2
тс	Phase stabilized after temerature cycles	-B2d2	CPR rating B2d2
w	White Jacket	-B2d0	CPR rating B2d0
		-Cd2	CPR rating Cd2
		-Cd0	CPR rating Cd0
		-Dx	CPR rating D?

Design

Variant

-BAA



## UNDERSTANDING JUMPER MODEL NAMES

All RFS jumper model names are based on a naming structure that tells you:



7M

7F

7MR

43M

43F

43MR

NM

NF

NMR

NXM

7MB

7MRB

43MB

43MRB

NMR

NMRB

NXMB

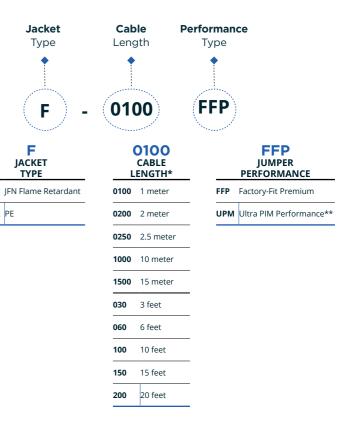
Weatherboots N-Type Male Right Angle

Weatherboots

with Weatherboots NEX10 Male with







#### NOTES:

\* 4 digits indicate meter length, 3 digits indicate feet length Others lengths available on request

\*\* Available on request



Transmission Line Solutions	
NOTES	
	_
	_
	 _
	_
	_

NOTES









an Amphenol Company