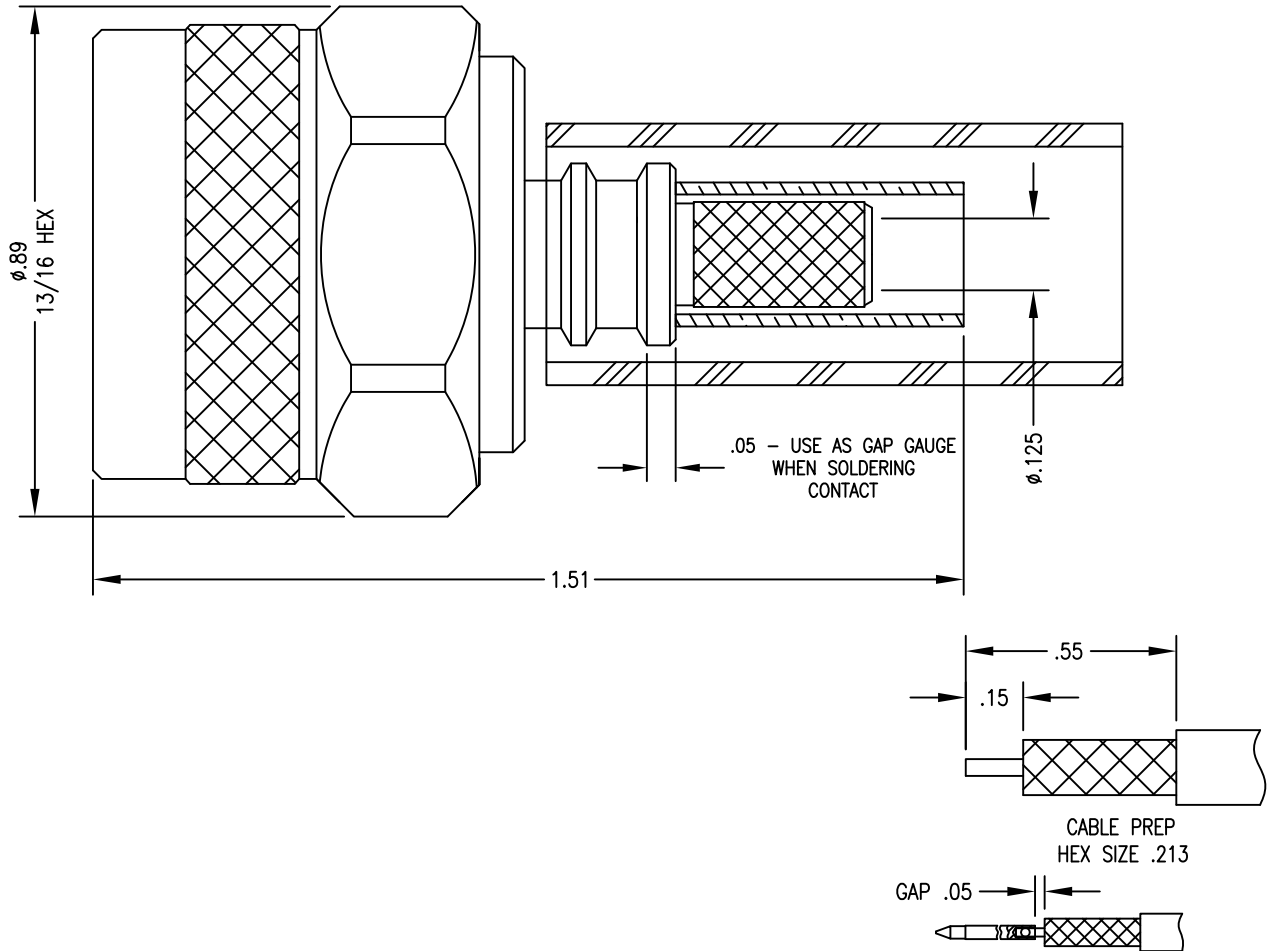


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SYM	REVISION DESCRIPTION	DFTM	DATE	APPD	DATE
A	RELEASED FOR PRODUCTION	N.N.N	2/13/14	J.D.B.	2/14/14
B	CHANGED PER CDC #40047	N.N.N	6/6/14	J.D.B.	6/6/14



- |   |  |                               |
|---|--|-------------------------------|
| 1.0 PERFORMANCE                         | 2.0 MATERIALS                          | 3.0 FINISHES: SEE TABLE       |
| 1.1 FREQUENCY RANGE: DC-6 GHz           | 2.1 DIELECTRIC: PTFE                   | 4.0 MECHANICAL                |
| 1.2 NOMINAL IMPEDANCE: 50 OHMS          | 2.2 CONTACT: BRASS                     | 4.1 INTERFACE PER MIL-STD-348 |
| 1.3 DWV: 1,000 VRMS @ 60 Hz (SEA LEVEL) | 2.3 LOCKING RING: PHOSPHOR BRONZE      |                               |
| 1.4 TEMPERATURE RANGE: -65°C TO +165°C  | 2.4 CRIMP FERRULE: SOFT COPPER         |                               |
|   | 2.5 OTHER METAL PARTS: BRASS           |                               |
|   | 2.6 GASKET: SILICONE RUBBER            |                               |
|   | 2.7 HEAT SHRINK: POLYOLEFIN THICK WALL |                               |

BODY	CONTACT
ALBALOY	GOLD/NI

MATL:	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES MACHINED SURFACES FINISH N/A RMS MAX. REMOVE ALL BURRS .005 MAX. BREAK MACHINE CORNERS .005 MAX. FILLET R. TOLERANCES ON DECIMALS . XX ± .03 . XXX ± .005 ANGLES ± 1° FRACTIONS ± 1/32	DFTM. N. N. N	TIMES MICROWAVE SYSTEMS
		DATE 2/13/14	
USED ON: D		CHKD. J. D. B.	<b>TC-200-NMH-X</b> NM FOR LMR-200 CABLE
		DATE 2/14/14	
SCALE: N/A	DWG. SIZE A	APPD. J. D. B.	SHEET 1 of 1
		DATE 2/14/14	
DO NOT SCALE DRAWING	CODE IDENT 68999	DATE 2/14/14	REV B



## TNC Female Right Angle Bulkhead Mount Connector Crimp/ Solder Attachment for PE-C200, LMR-200, .480 inch D Hole

### RF Connectors Technical Data Sheet

PE44847

#### Configuration

- TNC Female Connector
- 50 Ohms
- Right Angle Body Geometry
- PE-C200, LMR-200 Interface Type
- Crimp/Solder Attachment
- Bulkhead

#### Features

- Max. Operating Frequency 11 GHz
- Good VSWR of 1.35:1
- Gold Plated Brass Contact
- 30  $\mu$ m minimum contact plating

#### Applications

- General Purpose Test
- Rack and Panel Mount Applications
- Custom Cable Assemblies

#### Description

Pasternack's PE44847 TNC female right angle bulkhead connector with crimp/solder attachment for PE-C200 and LMR-200 (.480 inch D hole) is part of our full line of RF components available for same-day shipping. Our TNC female connector operates up to a maximum frequency of 11 GHz and offers good VSWR of 1.35:1. Its right angle body geometry allows for easier connections in tight spaces. This TNC bulkhead connector allows designers to create external connections on their product enclosures, and can be used in a variety of other rack mount and panel mount applications.

Our TNC female right angle bulkhead connector PE44847 datasheet specifications and drawing with dimensions are shown below in this PDF. Pasternack's broad catalog of RF, microwave and millimeter wave connectors allows designers to configure and customize their signal connections however they like. Whether the need is to provide an I/O for a board design, or simply create a custom cable assembly configuration, Pasternack has the right connector for the job. Pasternack can also expertly build your custom cable assemblies for you and ship same-day.

#### Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		11	GHz
VSWR			1.35:1	
Operating Voltage (AC)			500	Vrms
Dielectric Withstanding Voltage (AC)			1,500	Vrms
Inner Conductor DC Resistance			1.5	mOhms
Outer Conductor DC Resistance			0.5	mOhms
Insulation Resistance	5,000			MOhms

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [TNC Female Right Angle Bulkhead Mount Connector Crimp/Solder Attachment for PE-C200, LMR-200, .480 inch D Hole PE44847](#)



## TNC Female Right Angle Bulkhead Mount Connector Crimp/ Solder Attachment for PE-C200, LMR-200, .480 inch D Hole

### RF Connectors Technical Data Sheet

PE44847

#### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 3					GHz
Insertion Loss, Max	0.2					dB

Electrical Specification Notes:  
RF leakage: 60 dB min at 3GHz.

#### Mechanical Specifications

##### Size

Length	1.75 in [44.45 mm]
Width/Dia.	0.7 in [17.78 mm]
Weight	0.074 lbs [33.57 g]
Mating Cycles	500 Cycles

#### Material Specifications

Description	Material	Plating
Contact	Brass	Gold 30 µin minimum
Insulation	PTFE	
Outer Conductor	Brass	Nickel
Body	Brass	Nickel 100 µin minimum

#### Environmental Specifications

##### Temperature

Operating Range	-65 to +165 deg C
Vibration	MIL-STD-202, Method 204, Condition B
Temperature Cycle	MIL-STD-202, Method 107, Condition B
Salt Spray	MIL-STD-202, Method 101, Condition B

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [TNC Female Right Angle Bulkhead Mount Connector Crimp/Solder Attachment for PE-C200, LMR-200, .480 inch D Hole PE44847](#)



## TNC Female Right Angle Bulkhead Mount Connector Crimp/ Solder Attachment for PE-C200, LMR-200, .480 inch D Hole

### RF Connectors Technical Data Sheet

PE44847

**Compliance Certifications** (see [product page](#) for current document)

#### Plotted and Other Data

Notes:

TNC Female Right Angle Bulkhead Mount Connector Crimp/Solder Attachment for PE-C200, LMR-200, .480 inch D Hole from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99% availability and are part of the broadest selection in the industry.

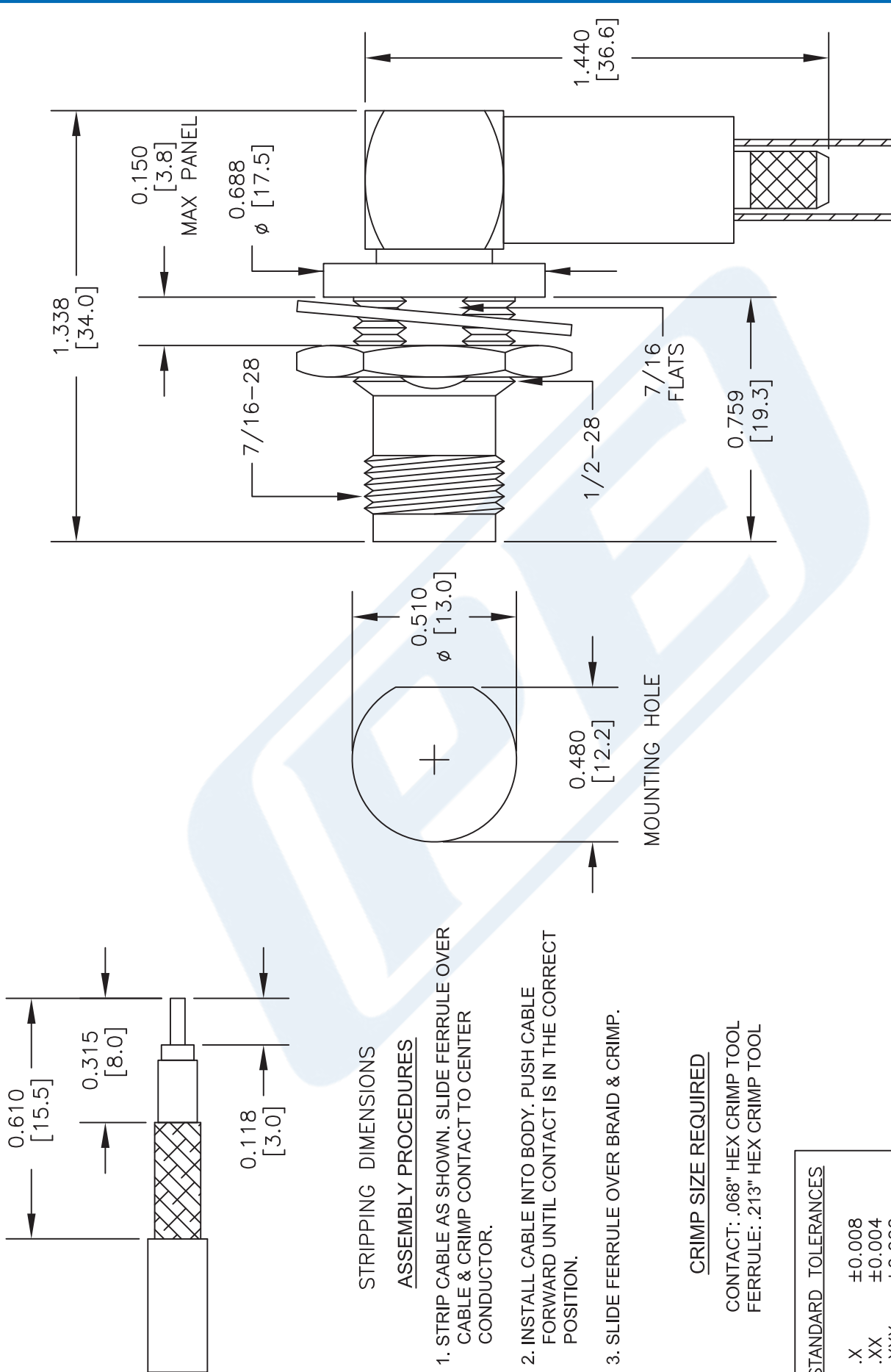
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [TNC Female Right Angle Bulkhead Mount Connector Crimp/Solder Attachment for PE-C200, LMR-200, .480 inch D Hole PE44847](#)

URL: <https://www.pasternack.com/tnc-female-standard-pe-c200-lmr-200-connector-pe44847-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

# PE44847 CAD Drawing

TNC Female Right Angle Bulkhead Mount Connector Crimp/Solder  
Attachment for PE-C200, LMR-200, .480 inch D Hole



### STRIPPING DIMENSIONS ASSEMBLY PROCEDURES

1. STRIP CABLE AS SHOWN. SLIDE FERRULE OVER CABLE & CRIMP CONTACT TO CENTER CONDUCTOR.
2. INSTALL CABLE INTO BODY. PUSH CABLE FORWARD UNTIL CONTACT IS IN THE CORRECT POSITION.
3. SLIDE FERRULE OVER BRAID & CRIMP.

### CRIMP SIZE REQUIRED

CONTACT: .068" HEX CRIMP TOOL  
FERRULE: .213" HEX CRIMP TOOL

### STANDARD TOLERANCES

.X ±0.008  
.XX ±0.004  
.XXX ±0.002

\*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

DWG TITLE

**PE44847**

NOTES:  
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.  
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.  
3. DIMENSIONS ARE IN INCHES [mm].

**PE PASTERNAK**  
THE ENGINEER'S RF SOURCE  
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Phone: (949) 261-1920 | Fax: (949) 261-7451  
Website: www.pasternack.com | E-Mail: sales@pasternack.com

FSCM NO. 53919

CAD FILE 040516

SCALE N/A

SIZE A

3045

# LMR<sup>®</sup>-200 Flexible Low Loss Communications Coax

## Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application (e.g. WLL, GPS, LMR, WLAN, WISP, WiMax, SCADA, Mobile Antennas) requiring an easily routed, low loss RF cable



• **LMR<sup>®</sup>** standard is a UV Resistant Polyethylene jacketed cable designed for 20-year service outdoor use. The bending and handling characteristics are significantly better than air-dielectric and corrugated hard-line cables.

• **LMR<sup>®</sup>-DB** is identical to standard LMR plus has the advantage of being watertight. The addition of waterproofing compound in and around the foil/braid insures continuous reliable service should the jacket be inadvertently damaged during installation or in the future.

• **LMR<sup>®</sup>-FR** is a non-halogen (non-toxic), low smoke, fire retardant cable designed for in-building runs that can be routed anywhere except air handling plenums. LMR-FR is UL/NEC & CSA rated 'CMR' and 'FT4' respectively, meets FAA FAR25 requirements and is MSHA-P for mining applications.

• **LMR<sup>®</sup>-FR-PVC** is a general-purpose indoor cable and has a UL/NEC & CSA rating of 'CMR' and 'FT4' respectively. It is less expensive than LMR-FR, however it emits toxic fumes (HCL) and greater smoke density when burned.

• **LMR<sup>®</sup>-PVC** is designed for low loss general-purpose applications and is somewhat more flexible than the standard polyethylene jacketed LMR.

• **LMR<sup>®</sup>-PVC-W** is a white-jacketed version of LMR-PVC for marine and other applications where color compatibility is desired.

• **LMR<sup>®</sup>-MA** is a flexible cable designed specifically for mobile antenna applications. It has a PVC jacket and un-bonded aluminum tape to facilitate end stripping with automated equipment.

• **Flexibility** and bendability are hallmarks of the LMR-200 cable design. The flexible outer conductor enables the tightest bend radius available for any cable of similar size and performance.

• **Low Loss** is another hallmark feature of LMR-200. Size for size LMR has the lowest loss of any flexible cable and comparable loss to semirigid hard-line cables.

• **RF Shielding** is 50 dB greater than typical single shielded coax (40 dB). The multi-ply bonded foil outer conductor is rated conservatively at > 90 dB (i.e. >180 dB between two adjacent cables).

• **Weatherability:** LMR-200 cables designed for outdoor exposure incorporate the best materials for UV resistance and have life expectancy in excess of 20 years.

• **Connectors:** A wide variety of connectors are available for LMR-200 cable, including all common interface types, reverse polarity, and a choice of solder or non-solder center pins. Most LMR connectors employ crimp outer attachment using standard hex crimp sizes.

• **Cable Assemblies:** All LMR-200 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

Part Description				Stock
Part Number	Application	Jacket	Color	Code
LMR-200	Outdoor	PE	Black	54022
LMR-200-DB	Outdoor/Watertight	PE	Black	54089
LMR-200-FR	Indoor/Outdoor Riser	CMR FRPE	Black	54028
LMR-200-FR-PVC	Indoor/Outdoor Riser	CMR FRPVC	Black	54125
LMR-200-PVC	General Purpose	PVC	Black	54216
LMR-200-PVC-W	General Purpose	PVC	White	54201
LMR-200-MA	Mobile Antennas	PVC	Black	54045

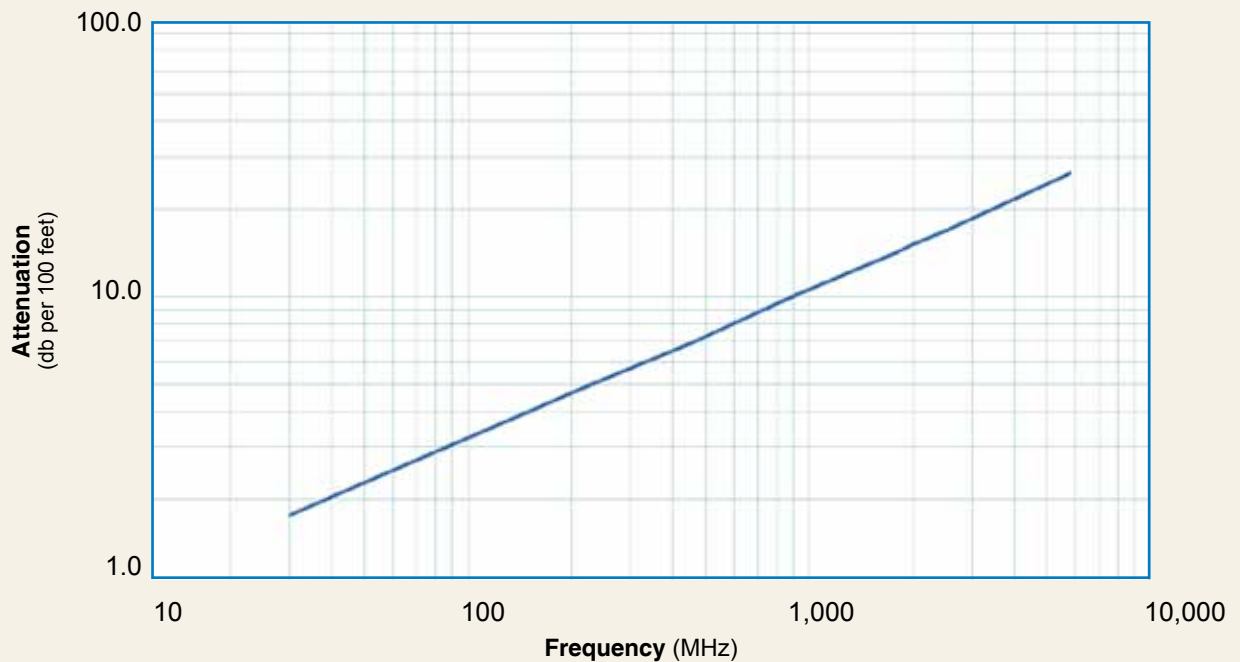
Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Solid BC	0.044	(1.12)
Dielectric	Foam PE	0.116	(2.95)
Outer Conductor	Aluminum Tape	0.121	(3.07)
Overall Braid	Tinned Copper	0.144	(3.66)
Jacket	(see table above)	0.195	(4.95)

<b>Mechanical Specifications</b>			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	0.5	(12.7)
Bend Radius: repeated	in. (mm)	2	(50.8)
Bending Moment	ft-lb (N-m)	0.2	(0.27)
Weight	lb/ft (kg/m)	0.022	(0.03)
Tensile Strength	lb (kg)	40	(48)
Flat Plate Crush	lb/in. (kg/mm)	15	(0.27)

<b>Environmental Specifications</b>		
Performance Property	°F	°C
Installation Temperature Range	-40/+185	-40/+85
Storage Temperature Range	-94/+185	-70/+85
Operating Temperature Range	-40/+185	-40/+85

<b>Electrical Specifications</b>			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	83	
Dielectric Constant	NA	1.45	
Time Delay	nS/ft (nS/m)	1.22	(4.02)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	24.5	(80.3)
Inductance	uH/ft (uH/m)	0.061	(0.20)
Shielding Effectiveness	dB	>90	
<b>DC Resistance</b>			
Inner Conductor	ohms/1000ft (/km)	5.36	(17.6)
Outer Conductor	ohms/1000ft (/km)	4.9	(16.1)
Voltage Withstand	Volts DC	1000	
Jacket Spark	Volts RMS	3000	
Peak Power	kW	2.5	

**Attenuation vs. Frequency (typical)**



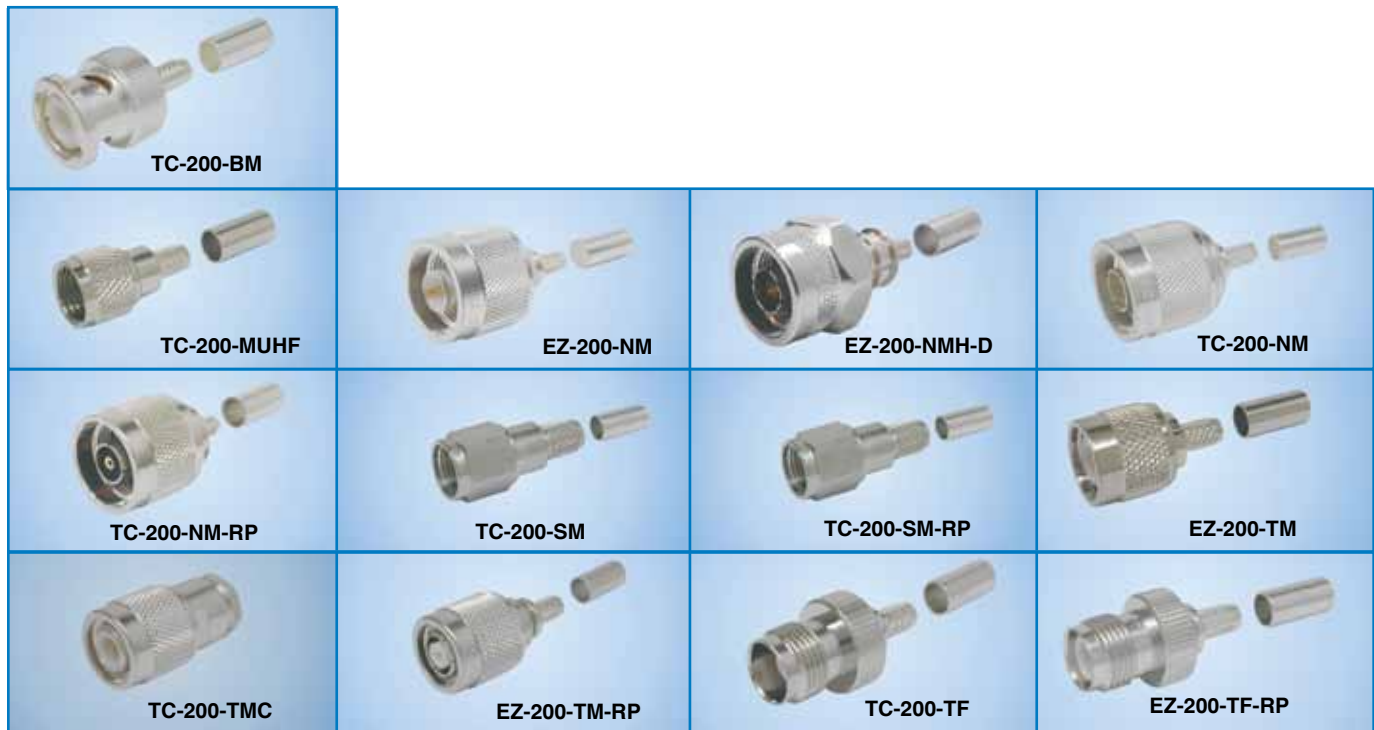
Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
<b>Attenuation dB/100 ft</b>	1.8	2.3	4.0	4.8	7.0	9.9	12.9	14.2	15.0	16.9	26.4
<b>Attenuation dB/100 m</b>	5.8	7.5	13.1	15.9	22.8	32.6	42.4	46.6	49.3	55.4	86.5
<b>Avg. Power kW</b>	1.02	0.79	0.45	0.37	0.26	0.18	0.14	0.13	0.12	0.11	0.07

**Calculate Attenuation =**  
 $(0.320900) \cdot \sqrt{\text{FMHz}} + (0.000330) \cdot \text{FMHz}$  (interactive calculator available at [http://www.timesmicrowave.com/cable\\_calculators](http://www.timesmicrowave.com/cable_calculators))

**Attenuation:**  
 VSWR=1.0; Ambient = +25°C (77°F)

**Power:**  
 VSWR=1.0; Ambient = +40°C; Inner Conductor = 100°C (212°F); Sea Level; dry air; atmospheric pressure; no solar loading

# LMR<sup>®</sup>-200 Flexible Low Loss Communications Coax



## Connectors

Interface	Description	Part Number	Stock Code	VSWR** Freq. (GHz)	Coupling Nut	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in (mm)	Width in (mm)	Weight lb (g)
BNC male	Straight Plug	TC-200-BM	3190-225	<1.25:1 (2.5)	Knurl	Solder	Crimp	S/G	1.7 (43.2)	0.56 (14.2)	0.045 (20.4)
Mini-UHF	Straight Plug	TC-200-MUHF	3190-444	<1.25:1 (2.5)	Knurl	Solder	Crimp	NG	1.1 (27.9)	0.45 (11.4)	0.015 (6.8)
N male	Straight Plug	EZ-200-NM	3190-1475	<1.25:1 (8)	Knurl	Spring Fit	Crimp	S/G	1.5 (38.1)	0.75 (19.1)	0.073 (33.1)
N male	Straight Plug	EZ-200-NMH-D	3190-1918	<1.25:1 (8)	Hex/Knurl	Spring Fit	Crimp	A/G	1.5 (38.1)	0.75 (19.1)	0.073 (33.1)
N male	Straight Plug	TC-200-NM	3190-224	<1.25:1 (2.5)	Knurl	Solder	Crimp	S/G	1.5 (38.1)	0.75 (19.1)	0.073 (33.1)
N male	Reverse Polarity	TC-200-NM-RP	3190-959	<1.25:1 (2.5)	Knurl	Solder	Crimp	N/G	1.5 (38.1)	0.75 (19.1)	0.073 (33.1)
SMA male	Straight Plug	TC-200-SM	3190-612	<1.25:1 (8)	Hex	Solder	Crimp	SS/G	1.0 (25.4)	0.32 (8.1)	0.015 (6.8)
SMA male	Reverse Polarity	TC-200-SM-RP	3190-327	<1.25:1 (2.5)	Hex	Solder	Crimp	SS/G	1.0 (25.4)	0.32 (8.1)	0.015 (6.8)
TNC male	Straight Plug	EZ-200-TM	3190-1266	<1.25:1 (2.5)	Knurl	Spring Fit	Crimp	S/G	1.4 (35.6)	0.59 (15.0)	0.045 (20.4)
TNC male	Straight Plug	TC-200-TMC	3190-240	<1.25:1 (2.5)	Knurl	Solder	Clamp	S/G	1.7 (43.2)	0.59 (15.0)	0.045 (20.4)
TNC male	Reverse Polarity	EZ-200-TM-RP	3190-792	<1.25:1 (2.5)	Knurl	Spring Fit	Crimp	A/G	1.4 (35.6)	0.32 (8.1)	0.045 (20.4)
TNC female	Straight Jack	TC-200-TF	3190-263	<1.25:1 (2.5)	NA	Solder	Crimp	N/G	1.3 (33.0)	0.57 (14.5)	0.033 (15.0)
TNC female	Reverse Polarity	EZ-200-TF-RP	3190-793	<1.25:1 (2.5)	NA	Spring Fit	Crimp	A/G	1.3 (33.0)	0.57 (14.5)	0.033 (15.0)

\* Finish metals: N=Nickel, S=Silver, G=Gold, SS=Stainless Steel, A=Alballoy \*\*VSWR spec based on 3 foot cable with a connector pair



## Hardware Accessories

Type	Part Number	Stock Code	Description
Ground Kit	GK-S200TT	GK-S200TT	Standard Ground Kit (each)



## Install Tools

Type	Part Number	Stock Code	Description
Crimp Tool	CT-240/200/195/100	3190-667	Crimp tool for LMR-100, 195, 200 and 240 connectors
Cutting Tool	CCT-01	3190-1544	Cable end flush cut tool
Deburr Tool	DBT-U	3192-001	Removes center conductor rough edges
Replacement Blade	RB-01	3190-1609	Replacement blade for cutting tool