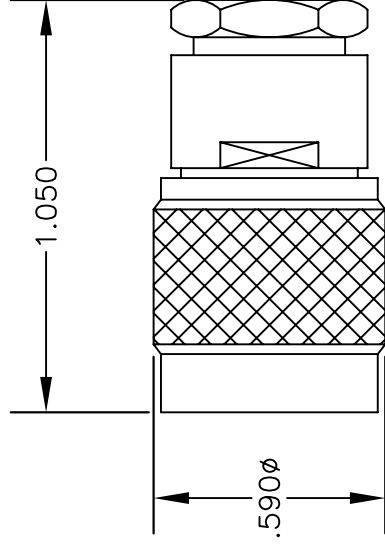


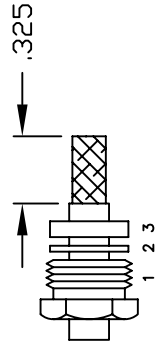
MATERIALS

| | |
|------------------|----------------------------|
| BODY | BRASS NICKEL PLATED |
| CONTACT | GOLD PLATED |
| INSULATOR | PTFE |
| | |

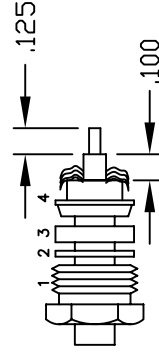


ASSEMBLY PROCEDURES

1. SLIDE CLAMP NUT (1), WASHER (2) & GASKET (3) OVER CABLE. STRIP CABLE AS SHOWN. DO NOT NICK BRAID WHILE CUTTING JACKET. TAPER END OF BRAID TO PERMIT ASSEMBLY OF BRAID CLAMP (4). SLIDE BRAID CLAMP (4) OVER BRAID & SEAT AGAINST CABLE.



2. FORM BRAID OVER CLAMP NUT (4). TRIM BRAID BACK TO SHOULDER. CUT DIELECTRIC & CENTER CONDUCTOR TO DIMENSION SHOWN. DO NOT NICK CENTER CONDUCTOR. SOLDER CONTACT TO CENTER CONDUCTOR. REMOVE EXCESS SOLDER. DO NOT OVER HEAT DIELECTRIC. INSERT CABLE ASSEMBLY INTO BODY & TIGHTEN.



* PE-C Series is a functionally equivalent to Times Microwave LMR® series
 ** LMR® is a registered trademark of Times Microwave



PASTERNAK ENTERPRISES, INC.
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 E-MAIL ADDRESS: sales@pasternack.com
COAXIAL & FIBER OPTICS

DWG TITLE

PE44061

DES. TNC MALE, CLAMP ATTACHMENT FOR PE-C200* & LMR200**

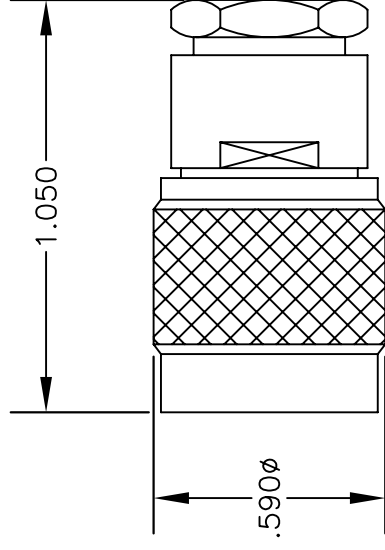
| | | | | | |
|--------|----------------|-----------------|-----------|--------|-----|
| REV. - | FSCM NO. 53919 | CAD FILE 050609 | SCALE N/A | SIZE A | 127 |
|--------|----------------|-----------------|-----------|--------|-----|

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.

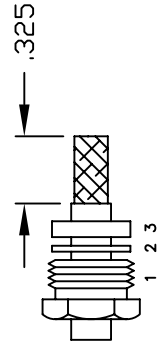
MATERIALS

| | |
|------------------|----------------------------|
| BODY | BRASS NICKEL PLATED |
| CONTACT | GOLD PLATED |
| INSULATOR | PTFE |
| | |

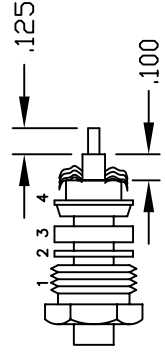


ASSEMBLY PROCEDURES

1. SLIDE CLAMP NUT (1), WASHER (2) & GASKET (3) OVER CABLE. STRIP CABLE AS SHOWN. DO NOT NICK BRAID WHILE CUTTING JACKET. TAPER END OF BRAID TO PERMIT ASSEMBLY OF BRAID CLAMP (4). SLIDE BRAID CLAMP (4) OVER BRAID & SEAT AGAINST CABLE.



2. FORM BRAID OVER CLAMP NUT (4). TRIM BRAID BACK TO SHOULDER. CUT DIELECTRIC & CENTER CONDUCTOR TO DIMENSION SHOWN. DO NOT NICK CENTER CONDUCTOR. SOLDER CONTACT TO CENTER CONDUCTOR. REMOVE EXCESS SOLDER. DO NOT OVER HEAT DIELECTRIC. INSERT CABLE ASSEMBLY INTO BODY & TIGHTEN.



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COAXIAL & FIBER OPTICS

| | | | |
|----------------|----------------|--|-------|
| DWG TITLE | | DES. | |
| PE44061 | | TNC MALE, CLAMP ATTACHMENT FOR PE-C200* & LMR200** | |
| REV. - | FSCM NO. 53919 | CAD FILE | SCALE |
| | | 050609 | N/A |
| | | SIZE | A |
| | | 127 | |

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.

LMR[®]-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[®]** 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[®]-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[®]-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[®]-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[®]-PVC** is designed for low loss general-purpose applications and is somewhat more flexible than the standard polyethylene jacketed LMR.

• **LMR[®]-PVC-W** is a white-jacketed version of LMR-PVC for marine and other applications where color compatibility is desired.

• **LMR[®]-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 |

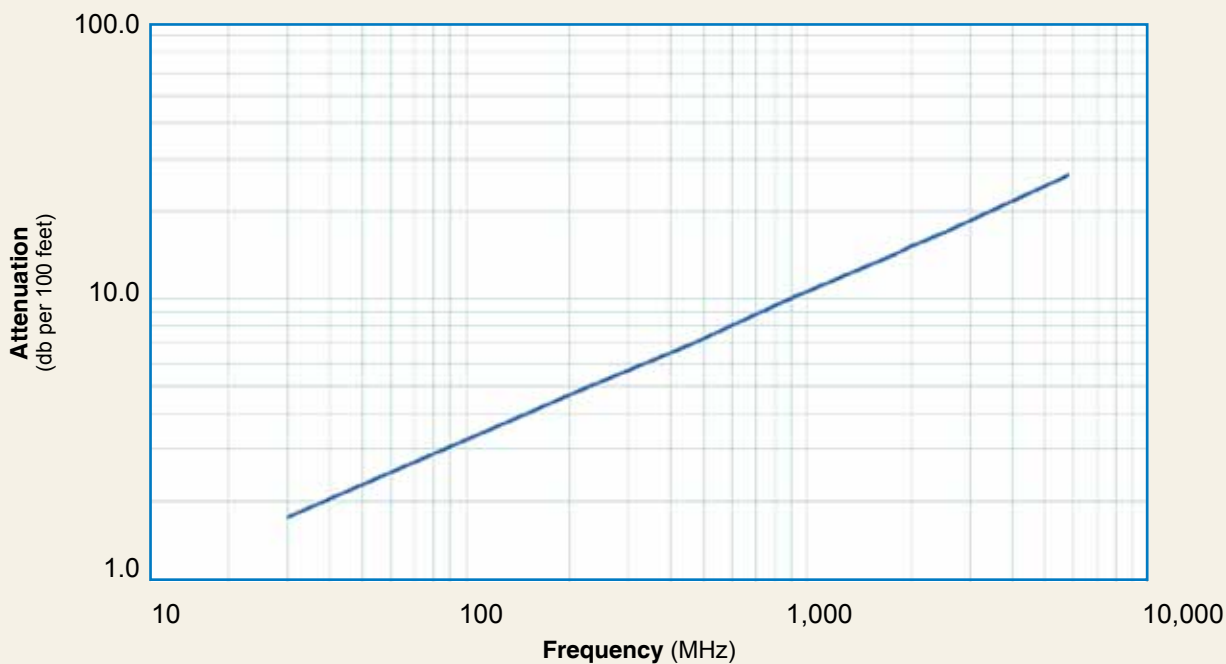
| Construction Specifications | | | |
|-----------------------------|-------------------|-------|--------|
| Description | Material | In. | (mm) |
| Inner Conductor | Solid BC | 0.044 | (1.12) |
| Dielectric | Foam PE | 0.116 | (2.95) |
| Outer Conductor | Aluminum Tape | 0.121 | (3.07) |
| Overall Braid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

| Mechanical Specifications | | | |
|---------------------------|----------------|-------|----------|
| 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) |

| Environmental Specifications | | |
|--------------------------------|----------|---------|
| 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 |

| Electrical Specifications | | | |
|---------------------------|-------------------|-------|----------|
| 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 | |
| DC Resistance | | | |
| 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)



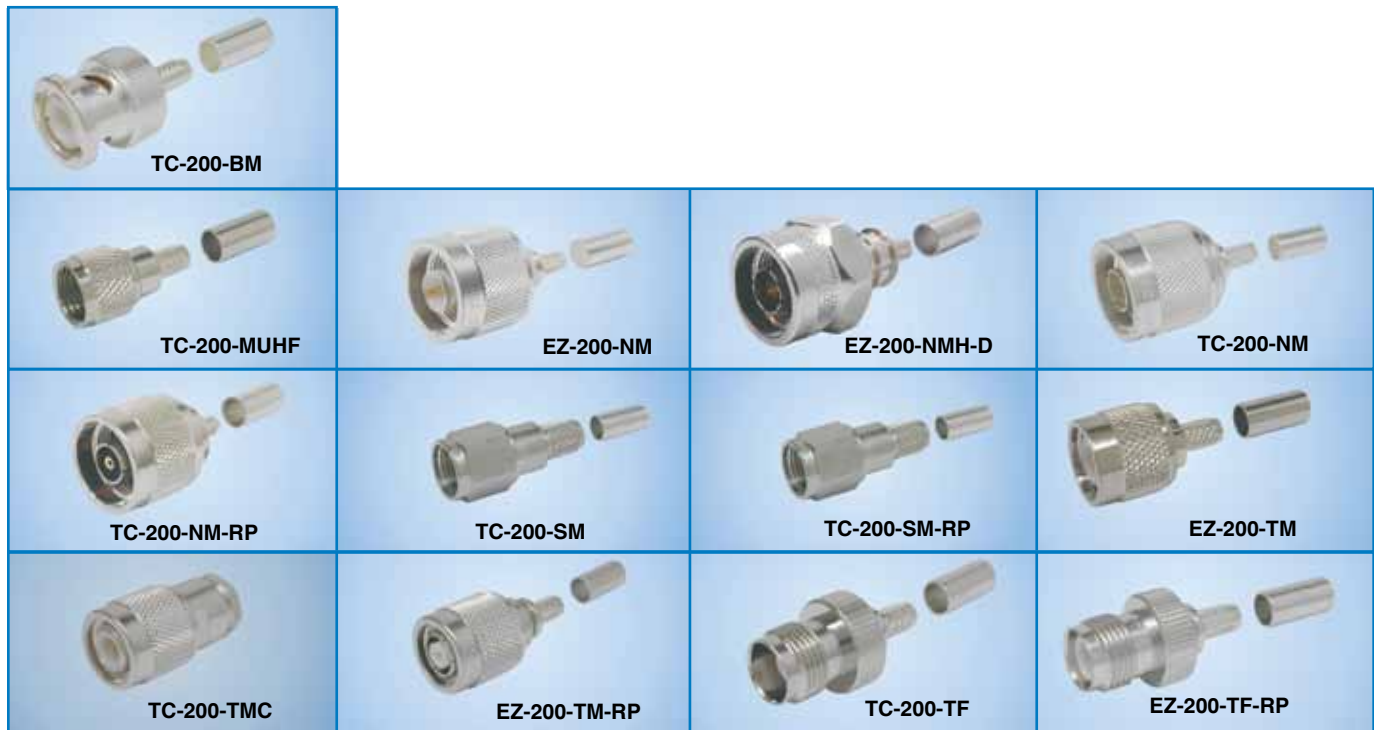
| Frequency (MHz) | 30 | 50 | 150 | 220 | 450 | 900 | 1500 | 1800 | 2000 | 2500 | 5800 |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Attenuation dB/100 ft | 1.8 | 2.3 | 4.0 | 4.8 | 7.0 | 9.9 | 12.9 | 14.2 | 15.0 | 16.9 | 26.4 |
| Attenuation dB/100 m | 5.8 | 7.5 | 13.1 | 15.9 | 22.8 | 32.6 | 42.4 | 46.6 | 49.3 | 55.4 | 86.5 |
| Avg. Power kW | 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)

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[®]-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 |