



industrial data rf cable series

RG-401-U / RG-402-U / RG-405-U

Semi-Rigid Coaxial Cable

MIL-DTL-17 · Semi-rigid solid Cu tubing PTFE microwave coax · 50 Ω · DC-65 GHz ·
>120 dB



MIL-DTL-17/129 · /130 · /133

50 Ω · .250" / .141" / .086"

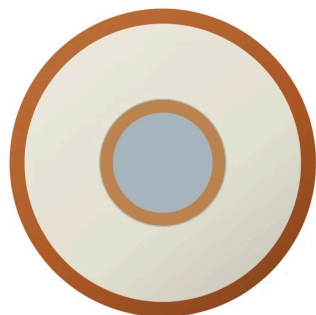
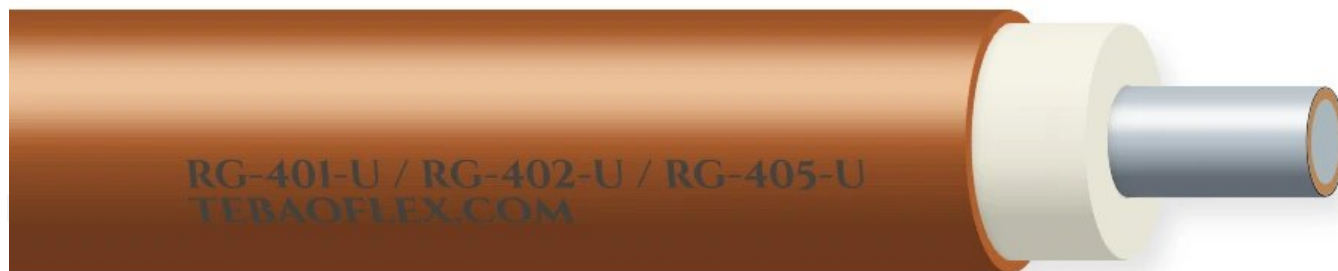
DC-67 GHz · >120 dB Isolation

Application

50 Ω semi-rigid solid copper-tubing microwave coaxial cable (RG-401/U .250", RG-402/U .141", RG-405/U .086" — M17/129, M17/130, M17/133) per MIL-DTL-17 with a silver-plated core, PTFE dielectric (69.5 % VoP), and seamless copper outer tube (> 120 dB).

Typical uses: AESA Radar Transmit/Receive (T/R) Modules, Satellite & Deep-Space RF Payloads, 5G mmWave & Microwave Radio Units, Vector Network Analyzer & ATE Chassis, Cryogenic & Quantum Computing Dilution Fridges

Construction



Cross-section, not to scale

- 1 Solid silver-plated copper / SPCW center conductor
- 2 Solid virgin PTFE microwave dielectric
- 3 Seamless drawn solid copper outer conductor tube

Technical data

Typical values

Characteristic impedance	50 Ω $\pm$ 0.5 Ω (RG-401) $\cdot$ $\pm$ 1.0 Ω (RG-402) $\cdot$ $\pm$ 1.5 Ω (RG-405)	Max. operating frequency	20 GHz (RG-401) $\cdot$ 34 GHz (RG-402) $\cdot$ 67 GHz (RG-405)
Velocity of propagation	69.5 % nominal (capacitance 95.1 pF/m, 4.80 ns/m)	Attenuation @ 10 GHz	82 dB/100m (RG-401) $\cdot$ 138 dB/100m (RG-402) $\cdot$ 220 dB (RG-405)
Attenuation @ 20 GHz	128 dB/100m (RG-401) $\cdot$ 207 dB/100m (RG-402) $\cdot$ 328 dB (RG-405)	Dielectric withstand voltage	7,500 V (RG-401) $\cdot$ 5,000 V (RG-402) $\cdot$ 5,000 V RMS (RG-405)
Operating temperature range	-55 $^{\circ}$ C to +125 $^{\circ}$ C (MIL-DTL-17) $\cdot$ up to +200 $^{\circ}$ C (LD-PTFE)	Avg CW power @ 10 GHz	205 W (RG-401) $\cdot$ 70 W (RG-402) $\cdot$ 22 W (RG-405)
Solder termination temp.	Withstands +260 $^{\circ}$ C direct connector soldering	Center / dielectric / outer $\varnothing$	1.63/6.35 (401) $\cdot$ 0.92/3.58 (402) $\cdot$ 0.51/2.20 mm (405)
Min. inside bend radius	12.7 mm (RG-401) $\cdot$ 6.35 mm (RG-402) $\cdot$ 3.18 mm (RG-405)	Outer tube plating options	Bare Copper, Tin-Plated Copper, or Silver-Plated Copper
RF shielding effectiveness	> 120 dB (seamless drawn solid copper wall)	Vacuum & outgassing	Zero organic jacket outgassing (space & cryo ready)
Chemical & solvent immunity	PTFE + copper immune to all solvents and fuels	Standards	MIL-DTL-17/129 (RG-401), /130 (RG-402) & /133 (RG-405)

Sizes

8 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Impedance / size	Conductor & dielectric	Wall $\approx$ mm	Outer $\varnothing \approx$ mm	Metal kg/km	Weight $\approx$ kg/km	Min. bend R fixed mm
Standard RG-401-U / RG-402-U / RG-405-U configurations 8 sizes							
☐ M17/133-RG405 (.086" Cu)	50 Ω $\cdot$.086" (2.20 mm)	SPCW $\varnothing$ 0.51 + PTFE + Cu Tube	0.26	2.20	14.5	22.3	3
☐ M17/133-00001 (.086" Sn)	50 Ω $\cdot$.086" Tin-Plated	SPCW $\varnothing$ 0.51 + PTFE + Sn-Cu	0.26	2.20	14.5	22.5	3
☐ M17/130-RG402 (.141" Cu)	50 Ω $\cdot$.141" (3.58 mm)	SPCW $\varnothing$ 0.92 + PTFE + Cu Tube	0.30	3.58	34.0	53.6	6
☐ M17/130-00001 (.141" Sn)	50 Ω $\cdot$.141" Tin-Plated	SPCW $\varnothing$ 0.92 + PTFE + Sn-Cu	0.30	3.58	34.0	54.0	6
☐ M17/129-RG401 (.250" Cu)	50 Ω $\cdot$.250" (6.35 mm)	SPC $\varnothing$ 1.63 + PTFE + Cu Tube	0.52	6.35	98.0	156.0	13
☐ M17/129-00001 (.250" Sn)	50 Ω $\cdot$.250" Tin-Plated	SPC $\varnothing$ 1.63 + PTFE + Sn-Cu	0.52	6.35	98.0	157.0	13
☐ M17/151-00001 (.047" Cu)	50 Ω $\cdot$.047" (1.19 mm)	SPCW $\varnothing$ 0.29 + PTFE + Cu Tube	0.13	1.19	4.2	6.8	2
☐ HF-141 Hand-Formable	50 Ω $\cdot$.141" Tin-Soaked	SPCW $\varnothing$ 0.92 + PTFE + Sn-Braid	0.30	3.58	32.0	48.0	8

- Outer diameters and weights are nominal engineering values for RG-401-U / RG-402-U / RG-405-U subject to standard manufacturing tolerances per MIL-DTL-17/129, /130 & /133 (RG-401 .250", RG-402 .141", RG-405 .086" Semi-Rigid).

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 $^{\circ}$ C Ω /km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test V AC rms
M17/133-RG405 (.086" Cu) (50 Ω $\cdot$.086" (2.20 mm))	210.00	50.0	69.5	5,000
M17/133-00001 (.086" Sn) (50 Ω $\cdot$.086" Tin-Plated)	210.00	50.0	69.5	5,000
M17/130-RG402 (.141" Cu) (50 Ω $\cdot$.141" (3.58 mm))	65.00	50.0	69.5	5,000
M17/130-00001 (.141" Sn) (50 Ω $\cdot$.141" Tin-Plated)	65.00	50.0	69.5	5,000
M17/129-RG401 (.250" Cu) (50 Ω $\cdot$.250" (6.35 mm))	8.40	50.0	69.5	7,500
M17/129-00001 (.250" Sn) (50 Ω $\cdot$.250" Tin-Plated)	8.40	50.0	69.5	7,500
M17/151-00001 (.047" Cu) (50 Ω $\cdot$.047" (1.19 mm))	650.00	50.0	69.5	2,000
HF-141 Hand-Formable (50 Ω $\cdot$.141" Tin-Soaked)	65.00	50.0	69.5	5,000

- Characteristic impedance, propagation velocity, DC resistance at +20 $^{\circ}$ C, and dielectric withstand voltages verified per MIL-DTL-17/129, /130 & /133 (RG-401 .250", RG-402 .141", RG-405 .086" Semi-Rigid).

Standards and approvals

- ✓ MIL-DTL-17/129, /130 & /133 (RG-401 .250", RG-402 .141", RG-405 .086" Semi-Rigid)
- ✓ CE (2014/35/EU) & RoHS 3 (2015/863/EU) Compliant
- ✓ REACH SVHC Compliance Verified

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

+86 185 9591 3361

Email

info@tebaoflex.com

Web

tebaoflex.com/cables/mil-dtl-17-semi-rigid-copper-tubing-ptfe-microwave-coaxial-cable



Typical values for this cable type, based on MIL-DTL-17/129, /130 & /133 (RG-401 .250", RG-402 .141", RG-405 .086" Semi-Rigid). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.