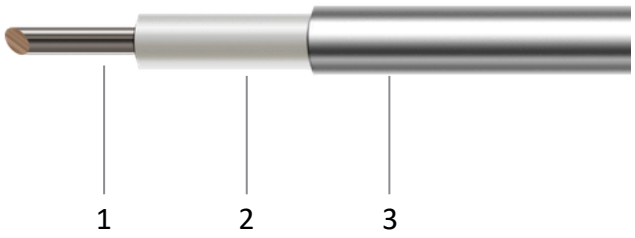
Copper Nickel Cryogenic Coaxial Cable

G22-CN

2.15 mm OD CuNi cryogenic RF coaxial cable for lower-loss cryogenic routing up to 18 GHz.



> **Product definition:** G22-CN is a CuNi cryogenic RF coaxial cable for longer lower-loss cryogenic routing where RF attenuation and thermal conduction must be evaluated together.

OUTER DIAMETER	OPERATING FREQUENCY	CABLE-LEVEL CUTOFF	MATERIAL FAMILY
2.15 mm	**18 GHz**	**67 GHz**	**CuNi**

CORE FEATURES

- 2.15 mm OD CuNi cryogenic coaxial construction
- Silver-plated CuNi inner conductor, PTFE dielectric, CuNi tube outer conductor
- Lower attenuation for longer low-temperature RF paths
- DC–18 GHz operating frequency with 67 GHz cable-level cutoff

TARGET APPLICATIONS

- General cryogenic RF routing in quantum systems
- Dilution refrigerator coaxial interconnects
- Low-temperature microwave measurement and test setups
- Longer RF paths where lower attenuation is required

CONSTRUCTION SPECIFICATION

NO.	COMPONENT	MATERIAL & PROCESS	DIAMETER MM [IN]
1	Inner Conductor	Silver-plated CuNi wire	**0.560 [0.022]**
2	Dielectric	PTFE	**1.630 [0.064]**
3	Outer Conductor	CuNi tube	**2.150 [0.085]**

ELECTRICAL PROPERTIES

Parameter	Value
Operating Frequency	**18 GHz**
Cable-Level Cutoff Frequency	**67 GHz**
Characteristic Impedance	**50 ± 2.0 Ω**
Shielding Effectiveness	**>165 dB**
Dielectric Withstand Voltage	**500 V DC**
Velocity of Propagation	**77%**

MECHANICAL & ENVIRONMENTAL

Parameter	Value
Min. Bending Radius, Static	**4.30 mm**
Weight	**0.020 kg/m**
Temperature Range	**-268°C to 150°C**

CABLE ATTENUATION

CONDITION	500 MHZ	1000 MHZ	5000 MHZ	10000 MHZ	18000 MHZ
Attenuation @300K (dB/m)	0.8	1.2	2.6	3.7	5.0
Attenuation @4K (dB/m)	0.4	0.6	1.3	1.8	2.5

Interpolation reference: A = K1 × √F(MHz) + K2 × F(MHz). Tabulated attenuation values are shown in dB/m. K1 = 0.036243, K2 = 0.000005.

CRYOGENIC DESIGN NOTE

Thermal conductivity is used for preliminary heat-load estimation only. Final cable assembly performance depends on cable length, connector interfaces, thermal anchoring, routing geometry, and operating temperature stages.

4K THERMAL CONDUCTIVITY

218 $\times 10^{-6}$ W·cm/K

Typical design data for preliminary thermal-load estimation; not a final assembly guarantee.

DESIGN NOTES AND DATA BOUNDARY

Operating frequency	18 GHz is the operating frequency rating for preliminary cable selection.
Cable-level cutoff	67 GHz is a cable-level construction parameter; final assembly operating frequency may be limited by connector interface and configuration.
Thermal data	4K thermal conductivity is typical design data for preliminary heat-load estimation.
Final assembly	Connector interface, cable length, routing form, and thermal anchoring may affect final performance.

CONFIGURATION INFORMATION REQUIRED FOR CABLE ASSEMBLY QUOTE

CABLE MODEL	**ASSEMBLY LENGTH**	**CONNECTOR INTERFACE**	**QUANTITY**
ROUTING FORM	**TEMPERATURE STAGE**	**MAGNETIC / NON-MAGNETIC REQUIREMENT**	**SPECIAL NOTES**