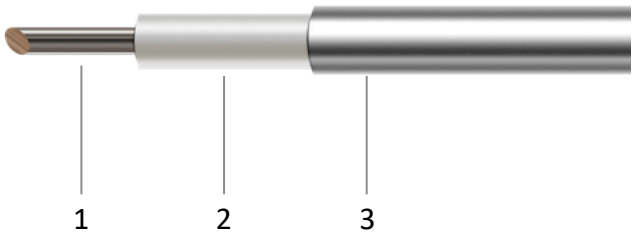
Stainless Steel Cryogenic Coaxial Cable

G22E-SS

2.17 mm OD stainless steel cryogenic RF coaxial cable for larger-format low-thermal-load routing up to 18 GHz.



> **Product definition:** G22E-SS is a stainless steel cryogenic RF coaxial cable for larger-format low-thermal-load routing where reduced heat conduction is a key design requirement.

OUTER DIAMETER	OPERATING FREQUENCY	CABLE-LEVEL CUTOFF	MATERIAL FAMILY
2.17 mm	**18 GHz**	**59 GHz**	**SS**

CORE FEATURES

- 2.17 mm OD stainless steel cryogenic coaxial construction
- Stainless steel inner conductor, PTFE dielectric, stainless steel outer conductor
- Low-thermal-load conductor system for larger cryogenic RF routing
- DC–18 GHz operating frequency with 59 GHz cable-level cutoff

TARGET APPLICATIONS

- Low-thermal-load dilution refrigerator interconnects
- Cryogenic RF routing between temperature stages
- Quantum system input and control lines
- Larger-format RF paths where heat conduction into cold stages is constrained

CONSTRUCTION SPECIFICATION

NO.	COMPONENT	MATERIAL & PROCESS	DIAMETER MM [IN]
1	Inner Conductor	Stainless steel	**0.530 [0.021]**
2	Dielectric	PTFE	**0.860 [0.034]**
3	Outer Conductor	Stainless steel	**2.170 [0.085]**

ELECTRICAL PROPERTIES

Parameter	Value
Operating Frequency	**18 GHz**
Cable-Level Cutoff Frequency	**59 GHz**
Characteristic Impedance	**50 ± 2.0 Ω**
Shielding Effectiveness	**>165 dB**
Dielectric Withstand Voltage	**500 V DC**
Velocity of Propagation	**70%**

MECHANICAL & ENVIRONMENTAL

Parameter	Value
Min. Bending Radius, Static	**7.00 mm**
Weight	**0.021 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)	3.0	4.3	9.6	13.6	18.3
Attenuation @4K (dB/m)	1.9	2.6	5.9	8.3	11.2

Interpolation reference: A = K1 × √F(MHz) + K2 × F(MHz). Tabulated attenuation values are shown in dB/m. K1 = 13.559520, K2 = 0.000612.

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

43 $\times 10^{-6}$ 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	59 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**