

SELECTION GUIDE

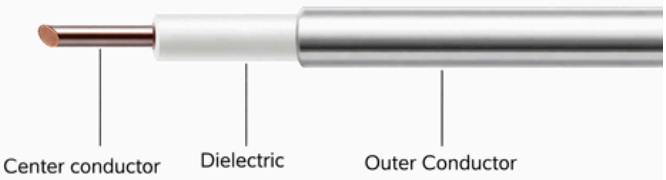
Semi-Rigid **Coaxial Cables**

Standard, low loss, and phase-stable cable solutions for controlled RF routing and precision installations.

FAMILY POSITIONING

Why **Semi-Rigid Cable**

Semi-rigid coaxial cables are commonly used in fixed RF interconnect paths where stable mechanical routing, strong shielding performance, and repeatable high-frequency behavior are important. Compared with flexible cable constructions, a solid metal outer conductor helps maintain routing shape and supports more controlled installation paths.



FREQUENCY COVERAGE

Up to 240 GHz

FAMILY STRUCTURE

- Standard
- Low Loss
- Phase Stable

THE SEMI-RIGID ADVANTAGE

- **Fixed Routing Stability**
  Suitable for reliable point-to-point internal interconnects and mechanically stable fixed routing applications.
- **Strong Shielding Performance**
  A solid metal outer conductor supports strong RF isolation in compact RF assemblies.
- **Low-Loss Options Available**
  Low-loss constructions are available for applications where attenuation becomes more critical as frequency increases.
- **Phase-Stable Options Available**
  Phase-stable constructions are available for temperature-sensitive testing and other phase-critical measurement paths.

WHERE IT FITS BEST

- Test and measurement instrumentation
- RF module internal interconnects
- Laboratory microwave assemblies
- Fixed-routing system integration
- Phase-sensitive RF applications

FAMILY MAP

Choose the Right **Semi-Rigid Construction**

Three subfamilies are available to balance cost, attenuation, and phase performance. Select the right construction based on your routing priorities and application requirements.

STANDARD SEMI-RIGID CABLE

01

For broad-use fixed RF routing and module interconnects

A practical entry point for reliable point-to-point internal module connections and fixed RF routing, where mechanical stability and strong shielding are required.

PAGE 05 →

LOW LOSS SEMI-RIGID CABLE

02

For attenuation-sensitive high-frequency paths

Designed for applications where insertion loss becomes more critical as frequency increases, helping preserve signal integrity in fixed microwave paths.

PAGE 06 →

PHASE STABLE SEMI-RIGID CABLE

03

For repeatable phase performance in changing environments

Designed for precision test setups and other phase-sensitive RF applications where more repeatable phase behavior is required across changing temperatures.

PAGE 07 →

SELECTION MATRIX

Quick **Selection Matrix**

A quick reference matrix to help engineers compare cable size, frequency capability, and application positioning across the Vinstronics semi-rigid cable family.

Model	Outer Diameter (inch / mm)	Max Freq. (GHz)	Positioning
1. STANDARD SEMI-RIGID CABLE (VXG-E SERIES)			
VXG06E	.020" (0.51 mm)	240	Compact standard
VXG08E	.034" (0.86 mm)	154	Compact standard
VXG12E	.047" (1.19 mm)	110	General standard
VXG22E	.086" (2.18 mm)	59	Broad-use standard
VXG36E	.141" (3.58 mm)	34	Large OD standard
VXG64E	.250" (6.35 mm)	24	Large OD standard
2. LOW LOSS SEMI-RIGID CABLE (VXG SERIES)			
VXG22	.086" (2.18 mm)	64	Low loss
VXG36	.141" (3.58 mm)	36	Low loss
VXG64	.250" (6.35 mm)	19	Low loss
3. PHASE STABLE SEMI-RIGID CABLE (VXC-G SERIES)			
VXC22G	.086" (2.18 mm)	68	Phase stable
VXC36G	.141" (3.58 mm)	38	Phase stable

Engineering Notes:

• Max Frequency: Values are provided as a cable-level selection reference. Actual system frequency may be limited by the selected connector interface and assembly configuration.

MODEL INDEX

Model **Index**

A structured index of Vinstronics semi-rigid cable models across the standard, low loss, and phase-stable families. Use this page to quickly identify the relevant model range before reviewing the detailed series pages.

Standard Semi-Rigid Cable General-purpose fixed routing	Low Loss Semi-Rigid Cable Lower attenuation paths	Phase Stable Semi-Rigid Cable Repeatable phase performance
• VXG06E	• VXG22	• VXC22G
• VXG08E	• VXG36	• VXC36G
• VXG12E	• VXG64	
• VXG22E		
• VXG36E		
• VXG64E		

> **Model Note**: Vinstronics model numbers shown here are used throughout this catalog for product identification, selection, and inquiry reference.

VXG-E SERIES

Standard
Semi-Rigid Cable

The VXG-E series provides a reliable, general-purpose solution for point-to-point RF interconnects and internal box routing. Designed for fixed installations, this series supports stable mechanical routing and strong shielding performance across a broad range of outer diameter classes.

Available in multiple size options, the standard series balances electrical performance with mechanical durability, making it a practical foundation for standard microwave and RF applications.

SERIES OVERVIEW

CATEGORY
Standard Semi-Rigid Cable

POSITIONING
General-purpose fixed routing

FREQUENCY RANGE
24 to 240 GHz

MODEL RANGE
VXG06E to VXG64E

TYPICAL USE
Internal RF interconnects and fixed box routing

MODEL OVERVIEW

Model	Outer Diameter (inch / mm)	Max Freq. (GHz)	Positioning
VXG06E	.020" (0.51 mm)	240	Compact standard
VXG08E	.034" (0.86 mm)	154	Compact standard
VXG12E	.047" (1.19 mm)	110	General standard
VXG22E	.086" (2.18 mm)	59	Broad-use standard
VXG36E	.141" (3.58 mm)	34	Large OD standard
VXG64E	.250" (6.35 mm)	24	Heavy-duty large OD

> **Model Note**: For applications where lower attenuation becomes more important across longer or higher-frequency routing paths, refer to the Low Loss (VXG) Series on page 06.

VXG SERIES

Low Loss
Semi-Rigid Cable

The VXG series is designed for microwave and RF applications where lower attenuation becomes more important across longer or higher-frequency routing paths. Compared with the standard semi-rigid range, this series is positioned for signal paths where transmission efficiency is a higher priority.

The VXG series remains suited for fixed-routing RF installations while offering a lower-loss option for systems where attenuation control becomes more critical than in general-purpose applications.

SERIES OVERVIEW

CATEGORY
Low Loss Semi-Rigid Cable

POSITIONING
Lower-loss signal paths

FREQUENCY RANGE
19 to 64 GHz

MODEL RANGE
VXG22 to VXG64

TYPICAL USE
Attenuation-sensitive RF routing and longer microwave paths

MODEL OVERVIEW

Model	Outer Diameter (inch / mm)	Max Freq. (GHz)	Positioning
VXG22	.086" (2.18 mm)	64	Compact low loss
VXG36	.141" (3.58 mm)	36	General low loss
VXG64	.250" (6.35 mm)	19	Large OD low loss

> **Model Note**: For applications where phase repeatability becomes more important than attenuation alone, refer to the Phase Stable (VXC-G) Series on page 07.

VXC-G SERIES

Phase Stable
Semi-Rigid Cable

The VXC-G series is designed for RF applications where phase repeatability becomes more important across changing operating conditions. This series is positioned for installations that require more stable phase behavior than general-purpose or low-loss routing alone.
The VXC-G series is well suited for precision test setups, phase-sensitive RF routing, and other installations where more repeatable phase behavior is required across channels or operating conditions.

SERIES OVERVIEW

CATEGORY
Phase Stable Semi-Rigid Cable

POSITIONING
Repeatable phase performance

FREQUENCY RANGE
38 to 68 GHz

MODEL RANGE
VXC22G to VXC36G

TYPICAL USE
Phase-sensitive RF routing and precision test setups

MODEL OVERVIEW

Model	Outer Diameter (inch / mm)	Max Freq. (GHz)	Positioning
VXC22G	.086" (2.18 mm)	68	Compact phase stable
VXC36G	.141" (3.58 mm)	38	Compact phase stable

Model Note: For broader comparison of attenuation and other cable-level performance characteristics across the semi-rigid family, refer to the Electrical & Mechanical Performance summary on page 08.

TECHNICAL BENCHMARKS

Electrical & **Mechanical Performance**

This page provides a series-level overview of the main electrical and mechanical considerations across the semi-rigid cable family. Use it to compare attenuation focus, phase behavior, routing stability, and selection priorities before moving into application-specific decisions.

PERFORMANCE OVERVIEW

Performance Factor	Standard (VXG-E)	Low Loss (VXG)	Phase Stable (VXC-G)
Insertion Loss Focus	Standard	Lower	Low
Phase Stability	Standard	Standard	Enhanced
Routing Stability	Fixed	Fixed	Fixed
Typical Use	General RF routing	Lower-loss paths	Phase-sensitive paths
Frequency Range	24–240 GHz	19–64 GHz	38–68 GHz

SELECTION PRIORITIES BY FAMILY

Model Family	Typical OD Range	Main Selection Priority
VXG-E	.020" to .250"	General-purpose routing
VXG	.086" to .250"	Lower attenuation
VXC-G	.086" to .141"	Repeatable phase behavior

Model Note:

- Performance characteristics shown here are intended for series-level comparison only.
- Actual system loss and usable frequency range may vary depending on connector interface, assembly method, and routing geometry.
- For application-specific guidance, detailed cable selection should be reviewed together with the intended routing path and interface requirements.

INTEGRATED SOLUTIONS

Connectors & **Formed Assemblies**

From cable preparation to formed assembly support, Vinstronics can assist with semi-rigid interconnect solutions for fixed-routing RF installations. This page outlines typical interface compatibility and formed assembly support for applications requiring controlled routing geometry.

TYPICAL INTERFACE COMPATIBILITY

Interface Type	Typical Frequency Class
SMA / Precision SMA	Up to 26.5 GHz class
N Type	Up to 18 GHz class
2.92mm (K)	Up to 40 GHz class
2.4mm	Up to 50 GHz class
1.85mm (V)	Up to 67 GHz class
SMP / SMPM	High-frequency class
SSMP	High-frequency class

PRECISION FORMING

CUSTOM FORMED ASSEMBLIES

Semi-rigid cables often require controlled forming processes for repeatable routing in fixed installations. Vinstronics can support custom formed assemblies for applications with defined space constraints and routing requirements.

- → Controlled forming support
- → Repeatable 3D routing
- → Custom drawing review
- → Application-specific assembly support
- → Fixed-path installation assistance

Pre-formed assemblies can help reduce routing variation and the risk of conductor damage during manual field forming.

Procurement & Design Tip: When requesting formed assemblies, please provide a 3D STEP file or a detailed 2D drawing with bend radii and coordinate points. Vinstronics can assist in reviewing routing geometry for manufacturability and installation suitability.

TECHNICAL SUPPORT

Engineering & **Custom Builds**

Vinstronics can support custom semi-rigid cable assembly projects with engineering review, routing assessment, and manufacturability input. This page outlines a typical workflow for application-specific builds and the common verification steps used before delivery.

CUSTOM ASSEMBLY WORKFLOW

01 DRAWING & MODEL REVIEW

Customer provides 2D drawings or 3D STEP files. Engineering review focuses on routing path, interface selection, and installation constraints.

02 MANUFACTURABILITY CHECK

Verification of bend feasibility, straight length requirements behind connectors, and general forming suitability for the requested layout.

03 PRECISION FABRICATION

Controlled cutting, stripping, forming, and connector termination are performed according to the defined assembly scope.

04 ASSEMBLY CHECK

Electrical and mechanical checks may be performed prior to delivery to confirm assembly consistency against the defined project scope.

VERIFICATION SUPPORT

TYPICAL VERIFICATION SCOPE

√ **High-Frequency VNA Testing:**	Insertion loss and VSWR checks for the intended operating range, as applicable to the project scope.
√ **Phase Matching Review:**	Available on request for multi-channel or phase-sensitive applications.
√ **Mechanica Inspection:**	Dimensional checks of formed geometry and connector interface condition.
√ **Continuity & Basic Electrical Checks:**	Continuity, isolation, and other basic electrical checks as required by the assembly scope.

Design Consideration: Early engagement during the enclosure design phase can help identify routing efficiencies and prevent minimum-bend-radius violations before mechanical layouts are finalized.

Precision RF Interconnect Solutions

Vinstronics

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