

Low-Loss, Phase-Stable RF Cable Selection Guide



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FEATURES:

- Low loss to 110 GHz
- Phase Stable over Flexure
- High VoP up to 85%
- Armored and Ruggedized Options
- Temperature Range from -55°C to +200°C



HASCO carries a large selection of test cables to meet low-loss, phase-stable and temperature-stable requirements to 110 GHz. In addition to standard low-loss test cables, we offer ruggedized and armored versions to suit every application. The standard connectors offered are 1.0mm, 1.85mm, 2.4mm, 2.92mm, 3.5mm, SMA, TNC, N, and SMP. HASCO stocks popular connector configurations, with additional connector configurations available in less than 4 weeks.

This selector guide offers critical parameters to identify the best test cable for your specific application. The table also provides information at 18 GHz for comparison purposes.

CABLE PARAMETERS (TABLE 1)

Cable Series	Arm. Rugg.	Cable Max. Frequency	Attenuation @ 18 GHz	Phase Stability @ 18 GHz	Max CW Power @ 18 GHz	VoP	Temp. Phase Stability (PPM)	Cable Dia.	Min. Bend Radius	Temperature Range
HULL320		18 GHz	0.19 dB/ft	±2.0°	425W	85%	500	0.319"	2.00"	-55°C to +85°C
HLL142		26.5 GHz	0.36 dB/ft	±3.6°	165W	80%		0.142"	1.00"	-55°C to +200°C
HLL142A	Y	26.5 GHz	0.36 dB/ft	±6.4°	165W	83%		0.195"	2.50"	-55°C to +200°C
HLL283R	Y	26.5 GHz	0.50 dB/ft	±2.2°	115W	76%		0.283"	0.70"	-55°C to +125°C
HSB42		26.5 GHz	0.59 dB/ft	±2.0°	125W	70%		0.195"	1.00"	-55°C to +105°C
HULL190		30 GHz	0.32 dB/ft	±2.0°	197W	83%	500	0.189"	1.00"	-65°C to +200°C
HSS45A	Y	40 GHz		±1.86°	21W	70%		0.256"	1.00"	-55°C to +200°C
HULL140		40 GHz	0.51 dB/ft	±2.0°	150W	85%	500	0.142"	0.70"	-55°C to +85°C
HULL140A	Y	40 GHz	0.51 dB/ft	±2.0°	150W	85%	500	0.322"	0.50"	-55°C to +85°C
HLL141TS		40 GHz	0.55 dB/ft	±2.0°	120W	85%	500	0.142"	1.00"	-65°C to +165°C
HLL150		45 GHz	0.49 dB/ft	±4.0°	120W	83%	630	0.091"	0.32"	-55°C to +85°C
HLL150A	Y	45 GHz	0.49 dB/ft	±4.0°	120W	83%	630	0.322"	1.50"	-55°C to +85°C
HBTC		46 GHz	1.10 dB/ft		125W	78%		0.305"	2.00"	-65°C to +200°C
HLL140M		50 GHz	2.00 dB/ft	±1.4°	80W	74%	2,000	0.140"	0.56"	-55°C to +165°C
HLL228R	Y	50 GHz	0.59 dB/ft	±2.5°	72W	76%		0.228"	0.57"	-55°C to +165°C
HLL185R	Y	67 GHz	0.88 dB/ft	±2.5°	21W	82%		0.185"	0.35"	-55°C to +125°C
HLB098		67 GHz	0.69 dB/ft	±4.0°	23W	76%		0.098"	0.20"	-65°C to +165°C
HLL125		70 GHz	0.96 dB/ft		50W	75%		0.110"	0.20"	-65°C to +200°C
SW192		110 GHz	1.8 dB/ft		8W	70%		0.056"	0.20"	-65°C to +165°C
HLB055	Y	110 GHz	0.69 dB/ft	±4.0°	23W	78.7%		0.055"	0.20"	-55°C to +85°C

STANDARD CABLE CONFIGURATION AVAILABILITY (TABLE 2)

(Marked with * available upon request)
Additional configurations and cables also available upon request

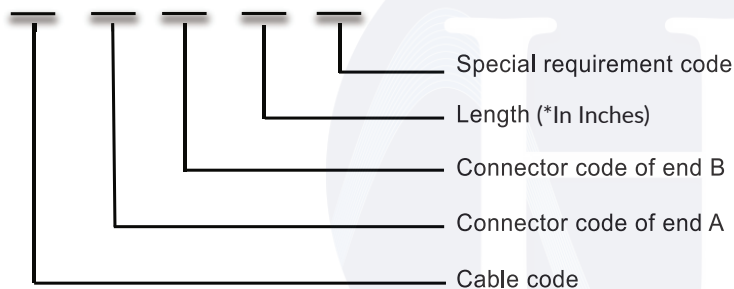
Connector → ↓ Cable Type/Code	1.0mm 110 GHz	1.85mm 67 GHz	2.4mm 50 GHz	2.92mm 40 GHz	3.5mm 26.5 GHz	SMA 26.5 & 18 GHz	TNC 18 GHz	N 18 GHz
HULL320						S1	TNCP*	NP*, NJ*
HLL142				29P*	35P*, 35J*	S1, S2*, S1RA*	TNCP*	NP, NJ, NPRA*
HLL142A						S1		NP
HLL283R						S1, S2		
HSB42						S1, S2		NP*, NJ*
HULL190					35P*, 35J	S1, S2*, S1RA*	TNCP*, TNCJ*	NP*
HSS45A			24P*	29P				
HULL140			24P*	29P, 29J*	35P*	S1*, S2*, S1Z*		
HULL140A			24P*	29P, 29J*		S1*, S2*, S1Z*		
HLL141TS			24P*	29P, 29J*		S1*, S2*		
HLL150			24P*	29P	35P*, 35J*	S1*		
HLL150A			24P*	29P	35P*, 35J*			
HBTC				29P, 29J				
HLL140M			24P, 24J*					
HLL228R			24P					
HLL185R		185P						
HLL125		185P						
SW192	192							
HLB098		VP, VJ	24P	29P		S1, S2BH		
HLB055	WP, WJ							

Selecting the Right Cable for Your Project:

1. Refer to the **CABLE PARAMETERS (TABLE 1)** on page 1 to select the parameters that are important to your application, such as armoring, maximum frequency, temperature range, insertion loss, and CW power handling.
Note: Loss is linear, so the lowest loss cable at 18 GHz will remain the lowest loss at its max frequency.
2. Look for that **Cable Type/Code** from **TABLE 2** above and choose a **Connector** that is compatible with that Cable Type.
Note: HASCO also has between-series coax adapters that can adapt to other connectors, but the max frequency will be limited by the lowest frequency connector.
• SMA. 3.5mm, and 2.92mm will mate with one another. • 2.4mm and 1.85mm will mate with one another.
3. Use **TABLE 3** below to create the desired part number.
4. Feel free to call HASCO Customer Service at (888) 492-3242 if the desired cable does not show a compatible connector on the table, or if you have any questions about cables and cable assemblies. HASCO continually builds new configurations and we may already have what you need.

HOW TO CONFIGURE RF CABLES (TABLE 3)

HLL228R-24P-24J - 12* - PM**



*NOTE: Maximum frequency of final cable configuration will be limited to the maximum frequency of the lowest frequency connector.

**SPECIAL REQUIREMENTS: If you have a special requirement, such as Phase Matched or Right Angle Clocking, we will be happy to assist you with the configuration process.

STANDARD CONNECTOR CODES

Connector	Male	Female	Right Angle Male
N	NP	NJ	NPRA
TNC	TNCP	TNCJ	N/A
SMA	S1	S2	S1RA
3.5mm	35P	35J	N/A
2.92mm	29P	29J	N/A
2.4mm	24P	24J	N/A
1.85mm	185P/VP	185J/VJ	N/A
1.0mm	192/WP	WJ	N/A
SMP	SMPP	SMPJ	N/A

*Additional Connectors and Configurations Available
(ie. Right-Angle, Bulkhead, etc.)*