

MULTIFLEX

The flexible alternative to SEMI-RIGID

Content

Product description.....	65
Features and benefits.....	65
Overview of available MULTIFLEX cable types.....	65
Product specification of	
MULTIFLEX_86.....	66
MULTIFLEX_141.....	68
Suitable connectors.....	70



MULTIFLEX

The flexible alternative to SEMI-RIGID

Product description

MULTIFLEX microwave cables are the flexible alternative to semi-rigid cables. They are used in commercial and military RF and microwave airborne systems, communications systems, cellular base stations, satellite ground systems - in brief: anywhere a "flexible semi-rigid-cable" is required.



Features and benefits

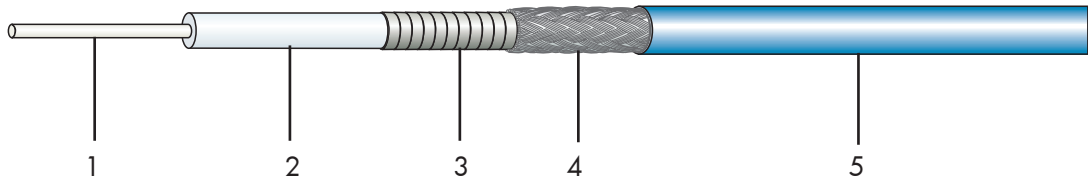
- Comparable electrical performance as corresponding semi-rigid cable types; high screening
- High flexibility: no 3D drawings required for design and manufacture
- Semi-rigid connectors can be used; quick and easy assembly
- Resistant to chemicals, oils, lubricants, humidity, etc.

HUBER+SUHNER cable type	Item no.	Operating frequency (GHz)	Temperature range		Outer dia. (mm)	Nom. attenuation 18 GHz, 25 °C (dB/m)	Bending radii		More information see page
			minimum (°C)	maximum (°C)			static (mm)	dyn. (mm)	
MULTIFLEX_86	22511965	40	-65	+165	2.65	3.6	6	20	66
MULTIFLEX_141	22511964	33	-65	+165	4.14	2.1	10	40	68

MULTIFLEX_86

Item no. 22511965

Cable design



	Description	Diameter
1. Centre conductor	Solid silver-plated copper wire	0.47 mm
2. Dielectric	Solid PTFE	1.48 mm
3. 1st outer conductor	Silver-plated copper tape	1.71 mm
4. 2nd outer conductor	Silver-plated copper braid	2.11 mm
5. Jacket	Fluoroethylenpropylene, blue	2.65 mm

Electrical cable data

Impedance	50 Ohm	
Operating frequency	40 GHz	
Capacitance	95 pF/m	
Velocity of propagation	71 %	
Time Delay	4.7 ns/m	
Nom. attenuation*	coefficient a 0.71702	coefficient b 0.02892
Max. attenuation*	coefficient a 0.75288	coefficient b 0.03037
Max. operating voltage	1.5 kVrms	
Min. screening effectiveness up to 18 GHz	90 dB	

*Attenuation calculation $a_{25} = a \cdot \sqrt{f(\text{GHz})} + b \cdot f(\text{GHz})$ (dB/m)

General cable data

Temperature range	-65...+165 °C
Weight	2.1 kg/100m
Min bending radius static	6 mm
Min bending radius dynamic	20 mm
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)

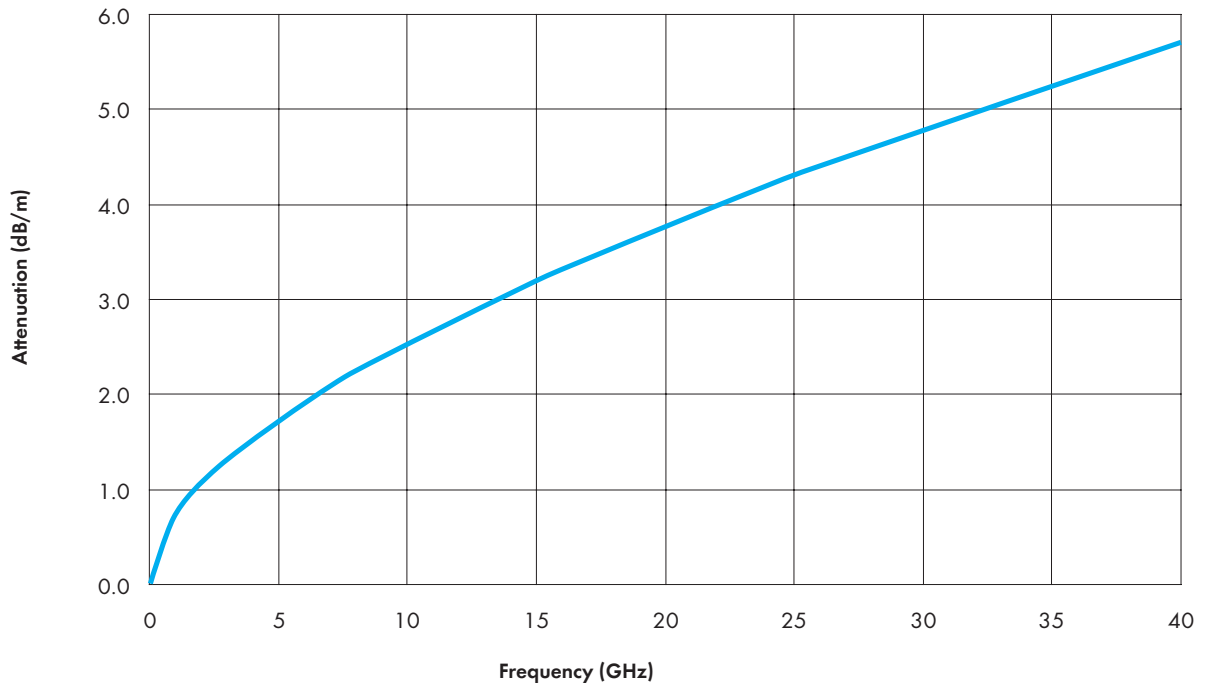
Suitable Connectors

Cable group (please refer to pages 70 ff)	Y11
---	-----

MULTIFLEX_86

Cable attenuation

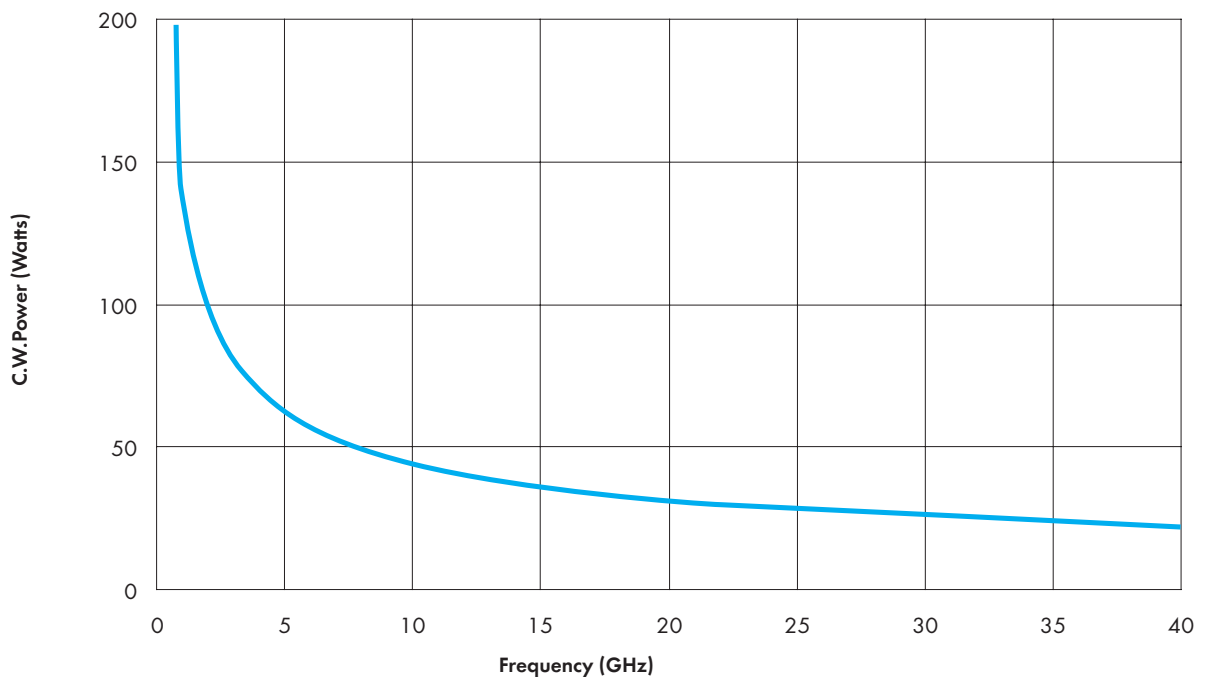
Nominal values @ +25 °C ambient temperature



MULTIFLEX

Power handling

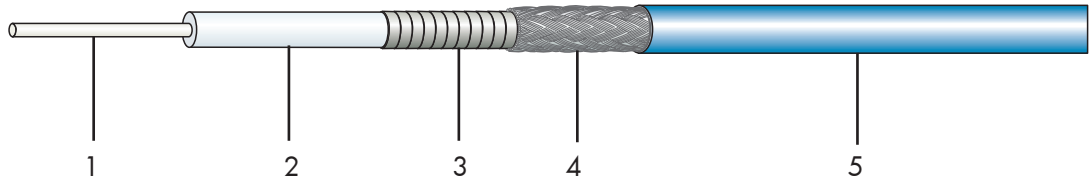
Maximum values @ +40 °C ambient temperature and sea level



MULTIFLEX_141

Item no. 22511964

Cable design



	Description	Diameter
1. Centre conductor	Solid silver-plated copper wire	0.92 mm
2. Dielectric	Solid PTFE	2.93 mm
3. 1st outer conductor	Silver-plated copper tape	3.21 mm
4. 2nd outer conductor	Silver-plated copper braid	3.53 mm
5. Jacket	Fluoroethylenepropylene, blue	4.14 mm

Electrical cable data

Impedance	50 Ohm	
Operating frequency	33 GHz	
Capacitance	95 pF/m	
Velocity of propagation	71 %	
Time delay	4.7 ns/m	
Nom. attenuation*	coefficient a 0.37320	coefficient b 0.02790
Max. attenuation*	coefficient a 0.41052	coefficient b 0.03069
Operating voltage	1.9 kVrms	
Min. screening effectiveness up to 18 GHz	90 dB	

*Attenuation calculation $a_{25} = a \cdot \sqrt{f(\text{GHz})} + b \cdot f(\text{GHz})$ (dB/m)

General cable data

Temperature range	-65...+165 °C
Weight	4.5 kg/100m
Min. bending radius static	10 mm
Min. bending radius dynamic	40 mm
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)

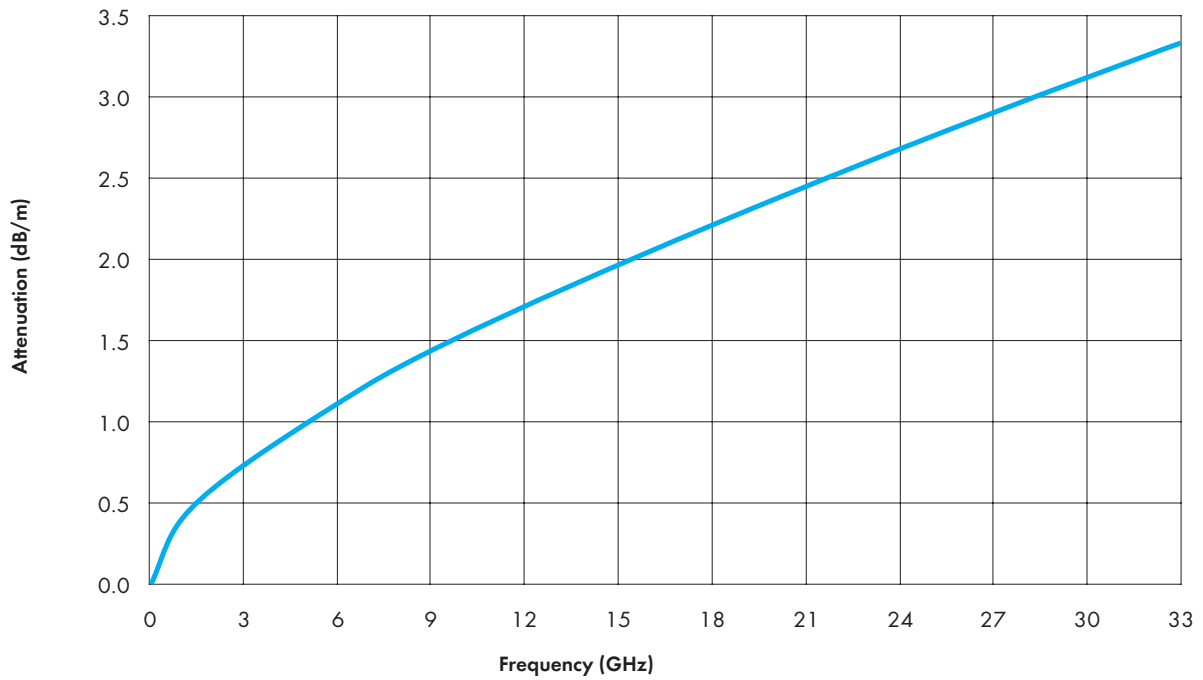
Suitable connectors

Cable group (please refer to pages 70 ff)	Y12
---	-----

MULTIFLEX_141

Cable attenuation

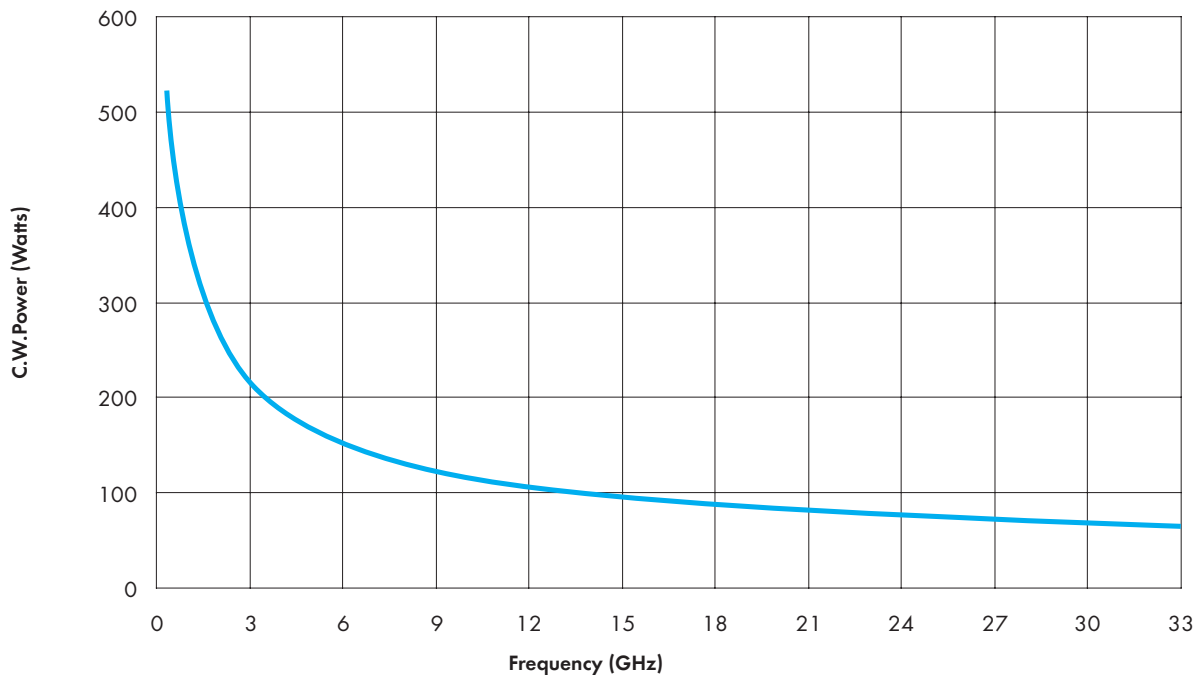
Nominal values @ +25 °C ambient temperature



MULTIFLEX

Power handling

Maximum values @ +40 °C ambient temperature and sea level



MULTIFLEX

A wide range of standard connectors is available for MULTIFLEX microwave cables. In addition, HUBER+SUHNER offers a fast delivery service for RF tested ready-to-use cable assemblies.

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
MULTIFLEX_86 Cable group Y11	MCX			
	Straight cable plug	11_MCX-50-2-19/111_NE	23024699	6
	Straight cable plug	11_MCX-50-2-19/111_NH	23032147	6
	Right angle cable plug	16_MCX-50-2-104/111_NH-1	23032067	6
	Right angle cable plug	16_MCX-50-2-104/111_NH	22658277	6
	Straight panel bulkhead cable jack	24_MCX-50-2-3/111_NE	22543580	6
	MMBX			
	Straight cable plug	11_MMBX-50-2-4/111_NH	23033280	12.4
	Right angle cable plug	16_MMBX-50-2-4/111_NH	23033281	12.4
	Straight panel bulkhead cable jack	24_MMBX-50-2-2/111_NH	23037876	12.4
	MMCX			
	Straight cable plug	11_MMCX-50-2-1/111_OH	22649039	6
	Straight cable plug	11_MMCX-50-2-1/111_OE	22645297	6
	Right angle cable plug	16_MMCX-50-2-1/111_OH	22649044	6
	Right angle cable plug	16_MMCX-50-2-1/111_OE	22645957	6
	Straight cable jack	21_MMCX-50-2-1/111_OE	22645290	6
	Straight panel bulkhead cable jack	24_MMCX-50-2-1/111_OE	22645954	6
	N			
	Straight cable plug	11_N-50-2-15/113_UE	22660315	18
	Right angle cable plug	16_N-50-2-9/13_UH	23013729	11
	Straight cable jack	21_N-50-2-14/133_NE	22642666	18
	Straight panel bulkhead cable jack	24_N-50-2-14/133_NE	22544637	18
	Straight panel cable jack, flange mount	25_N-50-2-14/133_NE	22641303	18
	PC3.5			
	Straight cable plug	11_PC35-50-2-4/199_UE	84009440	33
	Straight cable jack	21_PC35-50-2-4/199_UE	84009419	33
	Straight panel bulkhead cable jack	24_PC35-50-2-2/199_UE	84009405	33
	QMA			
	Straight cable plug	11_QMA-50-2-3/133_NE	23017704	6
	Straight cable plug	11_QMA-50-2-3/133_NH	23017705	6
	Right angle cable plug	16_QMA-50-2-3/133_NE	23017666	6
	Right angle cable plug	16_QMA-50-2-3/133_NH	23017667	6
	Straight panel bulkhead cable jack	24_QMA-50-2-1/111_NE	23017742	6
Straight panel bulkhead cable jack	24_QMA-50-2-1/111_NH	23017743	6	

MULTIFLEX

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
MULTIFLEX_86 Cable group Y11	SK			
	Straight cable plug	11_SK-50-2-57/119_NE	84013239	40
	SMA			
	Straight cable plug	11_SMA-50-2-29/119_NH	22660366	18
	Straight cable jack	21_SMA-50-2-15/111_NE	22544549	18
	Straight panel bulkhead cable jack	21_SMA-50-2-15/111_NH	22652141	18
	Straight panel bulkhead cable jack	24_SMA-50-2-15/111_NE	22544532	18
	Straight panel bulkhead cable jack	24_SMA-50-2-15/111_NH	22645490	18
	SMB			
	Straight cable plug	11_SMB-50-2-13/111_NE	22543362	4
	Straight cable plug	11_SMB-50-2-13/111_NH	22658765	4
	Right angle cable plug	16_SMB-50-2-23/111_NE	22644079	4
	Straight cable jack	21_SMB-50-2-13/111_NE	22543425	4
	Straight panel bulkhead cable jack	24_SMB-50-2-13/111_NE	22640822	4
	SMC			
	Straight cable plug	11_SMC-50-2-13/111_NE	22543363	10
	Straight cable plug	11_SMC-50-2-13/111_NH	22650675	10
	Right angle cable plug	16_SMC-50-2-25/111_NE	22644126	10
	Right angle cable plug	16_SMC-50-2-25/111_NH	23003713	10
	Straight panel bulkhead cable jack	24_SMC-50-2-13/111_NE	22640297	10
	Straight panel bulkhead cable jack	24_SMC-50-2-13/111_NH	22650209	10
	SMPX			
	Straight cable plug	11_SMPX-50-2-1/111_NE	23021825	40
	Right angle cable plug	16_SMPX-50-2-1/111_NE	23022715	40
	Right angle cable plug	16_SMPX-50-2-2/111_NE	23022716	40
	Straight panel cable jack, flange mount	25_SMPX-50-2-1/119_NE	23025359	40
	TNC			
	Straight cable plug	11_TNC-50-2-20/103_NE	22642519	11
	Straight panel bulkhead cable jack	24_TNC-50-2-31/133_NE	23001721	11
	MULTIFLEX_141 Cable group Y12	N		
Straight cable plug		11_N-50-3-13/113_NE	22542083	11
Straight cable plug		11_N-50-3-51/133_NE	22543919	18
Right angle cable plug		16_N-50-3-15/133_NE	22648832	11
Straight cable jack		21_N-50-3-11/133_NE	22543921	18
Straight cable jack		21_N-50-3-51/19_NE	22543922	18
Straight panel bulkhead cable jack		24_N-50-3-14/133_NE	22542300	18

MULTIFLEX

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
MULTIFLEX_141 Cable group Y12	N			
	Straight panel bulkhead cable jack	24_N-50-3-51/19_NE	22642344	18
	Straight panel cable jack, flange mount	25_N-50-3-9/133_NE	22543952	11
	PC3.5			
	Straight cable plug	11_PC35-50-3-4/199_UE	84009380	33
	Straight cable jack	21_PC35-50-3-3/199_UE	84009382	33
	Straight panel bulkhead cable jack	24_PC35-50-3-2/199_UE	84009383	33
	QMA			
	Straight cable plug	11_QMA-50-3-3/133_NE	23017695	6
	Straight cable plug	11_QMA-50-3-3/133_NH	23017696	6
	Right angle cable plug	16_QMA-50-3-3/133_NE	23017693	6
	Right angle cable plug	16_QMA-50-3-3/133_NH	23017694	6
	Straight panel bulkhead cable jack	24_QMA-50-3-3/111_NE	23017683	6
	Straight panel bulkhead cable jack	24_QMA-50-3-3/111_NH	23017684	6
	QN			
	Straight cable plug	11_QN-50-3-3/113_NE	23033393	11
	Right angle cable plug	16_QN-50-3-3/13_NE	23033268	11
	Straight panel bulkhead cable jack	24_QN-50-3-3/13_NE	23033423	11
	SMA			
	Straight cable plug	11_SMA-50-3-77/119_NH	84005524	18
	Right angle cable plug	16_SMA-50-3-3/111_NE	22640073	18
	Right angle cable plug	16_SMA-50-3-3/111_NH	22646569	18
	Straight panel bulkhead cable jack	24_SMA-50-3-15/111_NE	22641153	18
	Straight panel bulkhead cable jack	24_SMA-50-3-15/111_NH	22645259	18
	TNC			
	Straight cable plug	11_TNC-50-3-29/103_NE	22641997	11
	Straight panel bulkhead cable jack	24_TNC-50-3-30/133_NH	23001723	11

Connector dimensions and additional information

For connector dimensions and additional information please refer to the corresponding connector type in the HUBER+SUHNER Coaxial Connectors General Catalogue or contact your local HUBER+SUHNER partner.