

Flexiform[®] 380

Re-formable coaxial cable

Features & Benefits:

Reformable alternative to semi-rigid coaxial cables

Offers the unique ability to be hand-formed, no special tools required

Outstanding shielding properties

Fluoropolymer jacket (FJ), halogen free jacket (HFJ) and alternative colours also available

Ref: CC-eFF380-02
Date: 2006-08-14
Approved by:



Construction:

Flexiform 380

		Ø (in)	Ø (mm)
Conductor	Silver plated copper (1x1,20)	0.047	1,20
Dielectric	Solid extruded PTFE	0.149	3,80
Braid	Tin-soaked tin plated copper (0,127)	0.171	4,35
Weight	57 kg/km		
Operating temperature	-40 / +165°C		
Order reference:	31000-380-00		

Flexiform 380 FJ

Jacket	FPI 205, Blue	0.198	5,05
Weight	65 kg/km		
Operating temperature	-40 / +165°C		
Order reference:	31000-380-01		

Flexiform 380 HFJ

Jacket	HFI 100, Black	0.210	5,35
Weight	69 kg/km		
Operating temperature	-40 / +100°C		
Order reference:	31000-380-04		

Flexiform 380:



Flexiform 380 FJ:



Flexiform 380 HFJ:



Electrical:

Impedance	50 ± 2 Ohms
Capacitance	94 pF/m
Velocity of signal propagation	70%
Signal delay	4.8 ns/m
Working voltage, AC r.m.s.	2500 max
Working voltage, DC	5000 max
Attenuation, typical values (nominal values at an air temperature of +20°C)	see table (top right)
Power, typical values (ambient temperature of 40°C at sea level and VSWR 1.0)	see table (bottom right)
Suitable for frequencies	up to 18 GHz
Shielding effectiveness	typically <-130dB/m

Environmental & Mechanical:

Minimum bend radius (MBR) single bend (installation)	single bend: 20mm
Minimum bend radius (MBR) dynamic use	multiple bends: 80mm
Flame resistance	passes IEC 60332-3-24
Flammability	UL 94 V-0
Connectors	Custom made connector required

Attenuation:

(MHz)	(dB/100m)
400	20
900	30
1800	44
2000	46
2400	52
3000	59
5000	79
10000	120
18000	172

Average Power:

(MHz)	W
400	750
900	500
1800	350
2000	330
2400	300
3000	268
5000	208
10000	147
18000	110

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Flexiform[®] 402 NM

Re-formable coaxial cable

Features & Benefits:

Reformable alternative to semi-rigid coaxial cables

Offers the unique ability to be hand-formed, no special tools required

Outstanding shielding properties

Fluoropolymer jacket (FJ), halogen free jacket (HFJ) and alternative colours also available

Magnetic conductors also available

Ref: CC-eFF402NM-05
Date: 2006-08-14
Approved by:



Construction:

Flexiform 402 NM

		Ø (in)	Ø (mm)
Conductor	Silver plated copper (1x0,94)	0.037	0,94
Dielectric	Solid extruded PTFE	0.116	2,95
Braid	Tin-soaked tin plated copper	0.141	3,60
Weight	44 kg/km		
Operating temperature	-65 / +165°C		
Order reference:	31000-402-03		

Flexiform 402 NM FJ

Jacket	FPI 205, Blue	0.161	4,10
Weight	52 kg/km		
Operating temperature	-65 / +165°C		
Order reference:	31000-402-04		

Flexiform 402 NM HFJ

Jacket	HFI 100, Black	0.181	4,60
Weight	53 kg/km		
Operating temperature	-25 / +100°C		
Order reference:	31000-402-05		

Flexiform 402 NM:



Flexiform 402 NM FJ:



Flexiform 402 NM HFJ:



Electrical:

Impedance	50 ± 2 Ohms
Capacitance	nom 94 pF/m
Velocity of signal propagation	70%
Signal delay	4.8 ns/m
Working voltage, AC r.m.s.	2500 max
Working voltage, DC	5000 max
Attenuation, typical values (nominal values at an air temperature of +20°C)	see table
Power, typical values (ambient temperature of 40°C at sea level and VSWR 1.0)	see table
Suitable for frequencies	up to 18 GHz
Shielding effectiveness	typically <-130dB/m

Environmental & Mechanical:

Minimum bend radius (MBR) single bend (installation)	single bend: 10mm
Minimum bend radius (MBR) dynamic use	multiple bends: 40mm
Flame resistance	passes IEC 60332-3-24
Flammability	UL 94 V-0
Connectors	As semi-rigid M17/130-RG 402

Attenuation:

(MHz)	(dB/100m)
400	25
1000	41
1800	57
2000	60
2400	67
3000	76
5000	102
10000	152
18000	215

Average Power:

(MHz)	W
400	686
1000	419
1800	308
2000	291
2400	265
3000	236
5000	182
10000	122
18000	83

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Flexiform 405 NM

Reformable Coaxial Cables

Construction:

Features & Benefits:

Reformable alternative to semi-rigid coaxial cables

Offers the unique ability to be hand-formed, no special tools required

Outstanding shielding properties

Fluoropolymer (FJ) and halogen free jacket (HFJ) versions available

Magnetic conductors also available on request

Alternative jacket colours available on request

Construction:

Flexiform 405 NM

	Ø (in)	Ø (mm)
Conductor.....Silver plated copper (1x0,56)	0.022	0,56
Dielectric.....Solid extruded PTFE	0.066	1,70
Braid.....Tin-soaked tin plated copper	0.086	2,20
Weight.....15 kg/km		
Operating temperature.....-65 / +165°C		
Order reference.....31000-405-03		

Flexiform 405 NM FJ

Jacket.....FPI 205, Blue	0.102	2,60
Weight.....18 kg/km		
Operating temperature.....-65 / +165°C		
Order reference.....31000-405-04		

Flexiform 405 NM HFJ

Jacket.....HFS 80, Blue	0.125	3,20
Weight.....21 kg/km		
Operating temperature.....-25 / +80°C		
Order reference.....31000-405-05		

Flexiform 405 NM:



Flexiform 405 NM FJ:



Flexiform 405 NM HFJ:



Technical Data / Attenuation & Power:

Electrical:

Impedance.....	50 ± 2 Ohms
Capacitance.....	nom 94 pF/m
Velocity of signal propagation.....	70%
Signal delay.....	4.8 ns/m
Working voltage, AC r.m.s.....	1500 max
Working voltage, DC.....	3000 max
Attenuation, typical values.....	see table
(nominal values at an air temperature of +20°C)	
Power, typical values.....	see table
(ambient temperature of 40°C at sea level and VSWR 1.0)	
Suitable for frequencies.....	up to 18 GHz
Shielding effectiveness.....	typically <-130dB/m

Attenuation:

(MHz)	(dB/100m)
400	43
1000	70
1800	97
2000	102
2400	113
3000	127
5000	172
10000	249
12000	276
18000	346

Environmental & Mechanical:

Minimum bend radius (MBR).....	single bend: 6mm
Minimum bend radius (MBR).....	multiple bends: 25mm
Flame resistance.....	passes IEC 60332-3-24
Connectors.....	as semi-rigid M17/130-RG 405

Average Power:

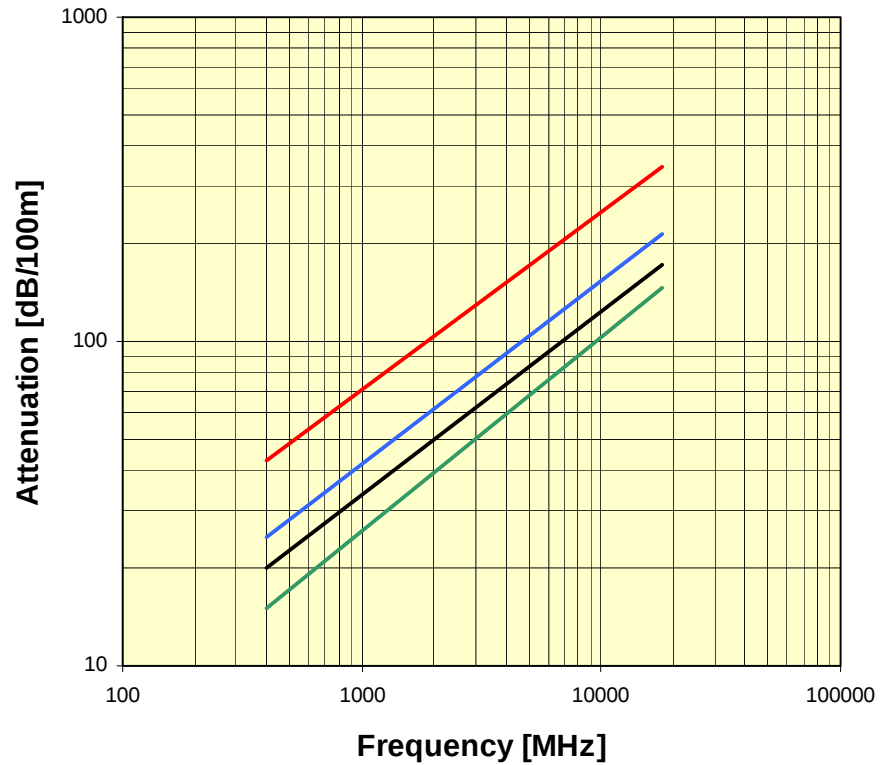
(MHz)	(W)
400	253
1000	157
1800	116
2000	110
2400	100
3000	89
5000	69
10000	47
12000	42
18000	33

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Attenuation & Power Graphs:

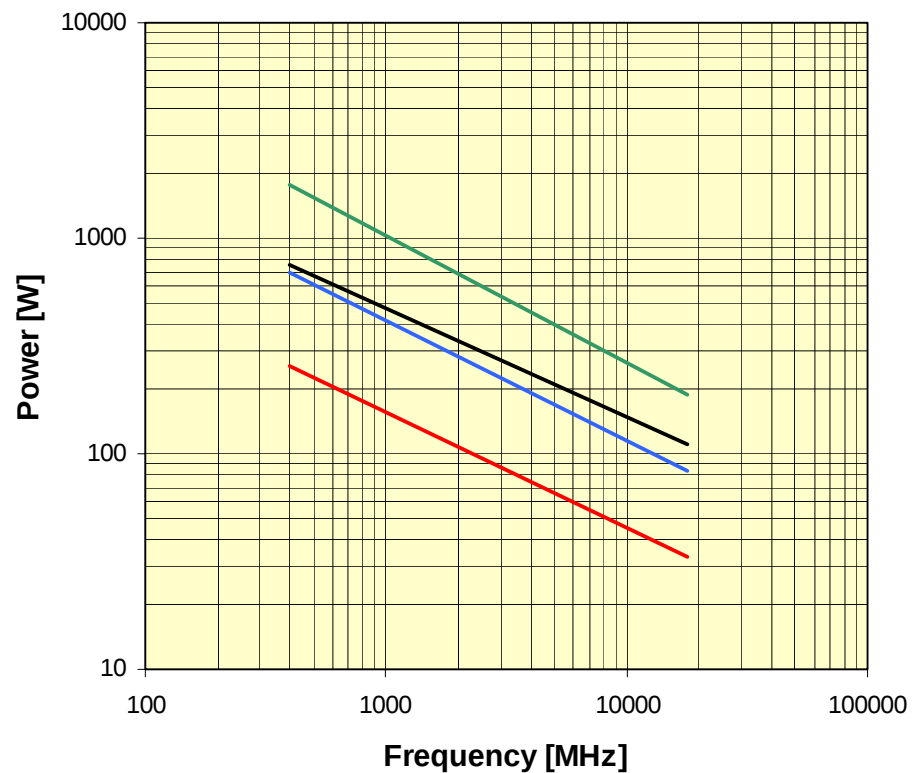
Cable Attenuation:

Nominal values at +25°C ambient temperature



Average Power:

Ambient temperature of 40°C at sea level and VSWR 1.0



— Flexiform 380 — Flexiform 401 — Flexiform 402 NM — Flexiform 405 NM

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Habia Cable

Speedflex[®]

**Halogen free
coaxial cables**



www.habia.com

Speedflex is a completely halogen-free and environmentally-friendly alternative to standard RG coaxial cables.

Speedflex®
Halogen-Free Coaxial Cable

Engineering Data

Item	Material	Speedflex 142 Diam (mm)	Speedflex 178 Diam (mm)	Speedflex 179 Diam (mm)	Speedflex 316 Diam (mm)	Speedflex 316D Diam (mm)	Speedflex 393 Diam (mm)	Speedflex 400 Diam (mm)	Speedflex 295 Diam (mm)	Speedflex 375 Diam (mm)	Speedflex 585 Diam (mm)
① Conductor	Solid or stranded silver-plated copper, non-magnetic	0.94	n/a	n/a	0.54	0.54	2.43	0.98	1.12	1.40	2.22
or	Solid or stranded, silver-plated copper-covered steel	n/a	0.30	0.30	n/a	n/a	n/a	n/a	n/a	n/a	n/a
② Dielectric	Polyethylene Foam	2.95	0.85	1.60	1.52	1.52	7.24	2.95	2.95	3.75	5.85
③ Outer conductor	Single braid of silver-plated copper wires	n/a	1.30	2.05	2.00	n/a	n/a	n/a	n/a	n/a	n/a
④ or	Double braid of silver-plated copper wires	4.10	n/a	n/a	n/a	2.45	8.70	4.10	4.10	4.70	7.25
⑤ Jacket	Low-smoke, zero-halogen Black	5.10	1.90	2.60	2.70	3.10	10.10	5.10	5.10	5.70	9.00

Note: all figures are nominal unless otherwise specified

Introduction

The Speedflex range of cables has been developed to meet the rapidly changing demands of the telecommunications industry. High electrical performance is required, together with halogen-free, flame-retardant materials. Speedflex cables use both low-foamed and high-foamed polyethylene dielectrics with a low-smoke, zero-halogen jacket in order to meet these demands.

Low-foamed dielectrics achieve the same dielectric constant as PTFE. The resultant types have the same dimensions and electrical performance as their RG equivalent. High-foamed dielectrics give improved electrical performance over low-foamed types.

Features & Benefits

Up to 3 GHz operating frequency
Use standard RG connectors
Improved flexibility
Good shielding properties
Good attenuation
Non-magnetic construction as standard
UV Sunlight resistant 720h passes UL1581

Custom Design

Variations on our standard versions are available on request

- * Cross-linked versions to extend operating temperature
- * UL versions to meet the requirements of the US market
- * Optional jacket with blue stripe to distinguish from standard RG coaxials

Connectors

Low-foamed versions use standard RG connectors.
For high-foamed versions, details are available on request.

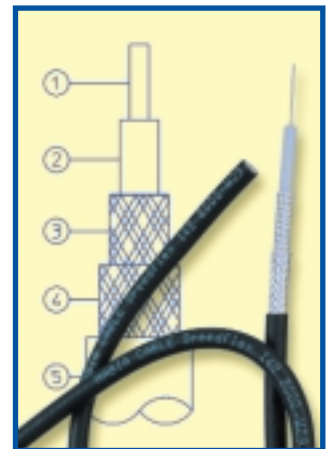
Cable Marking

Jackets of all cables are marked with type and date of manufacture

Typical applications

Drop-in, jumper assemblies
Short antenna feeders

All applications where a standard RG coaxial cable can be used, with additional benefits of halogen-free and flame-retardant materials being used.



Custom Design

Speedflex is a completely halogen-free plug-in replacement for standard RG coaxial types. Other variations can be provided on request.

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Speedflex® 142

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor	0.94
Dielectric	2.95
Outer conductor.....a) silver-plated copper wire braid	
.....coverage min 90%	
.....b) silver-plated copper wire braid	
.....coverage min 90%	4.10
Jacket.....Low-smoke, zero-halogen, black	5.10
Marking	
.....Habia Cable Speedflex 142,	
.....and date of manufacture	
.....(plus optional blue longitudinal stripe)	

Electrical Data

Impedance.....	50 ± 2 Ω
Capacitance	95 pF/m
Velocity of signal propagation	70 %
Signal delay.....	4.7 ns/m
Working voltage, maximum	1600V
Shielding effectiveness.....	>90 dB
Attenuation, typical values.....	see table
Power, typical values.....	see table
DC resistance, inner conductor	25 Ω/km
DC resistance, outer conductor.....	8 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	25 mm
Minimum bend radius, multiple bends	50 mm
Weight.....	56 kg/km
Operating temperature	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance	10 ⁵ Gy

Connectors

Compatible with all standard connector types for M17/60-RG142 (RG142 B/U) and M17/158-00001.

Additional Information

Speedflex 142 UL 1375

UL version in accordance with AWM style 1375.	
Working voltage	30 V
Operating temperature	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 142 XL

Cross-linked version	
Operating temperature	-40 to +100 °C

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	19
220	23
450	34
900	51
1500	69
1800	78
2000	83
2500	95

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	220
220	180
450	125
900	90
1500	65
1800	60
2000	55
2500	50

Dimensional Equivalents:

MIL-C-17/60 - RG 142 (RG142B/U)
M17/158-00001

low-smoke, flame-retardant, non-magnetic

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Speedflex® 178

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre cond.....solid, silver-plated copper-covered steel	0.30
Dielectric low-foamed polyethylene	0.85
Outer conductor.....silver-plated copper wire braid	1.30
.....overall coverage min 90%	
Jacketlow-smoke, zero-halogen, black	1.90
MarkingHabia Cable Speedflex 178,and date of manufacture(plus optional blue longitudinal stripe)	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	95 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.7 ns/m
Working voltage, maximum	500V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see table
Power, typical values.....	see table
DC resistance, inner conductor.....	802 Ω/km
DC resistance, outer conductor.....	61 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	6 mm
Minimum bend radius, multiple bends.....	20 mm
Weight	6.9 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance.....	10 ⁵ Gy

Connectors

Compatible with all standard connector types for M17/93-RG178 (RG178 B/U) and M17/93-00001, M17/169-00001.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	48.5
220	59
450	85
900	123
1500	160
1800	175
2000	185
2500	206

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	34
220	28
450	20
900	15
1500	11
1800	10
2000	9
2500	8

Additional Information

Speedflex 178 UL 1375

UL version in accordance with AWM style 1375.	
Working voltage	30 V
Operating temperature.....	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 178 XL

Cross-linked version	
Operating temperature.....	-40 to +100 °C

Dimensional Equivalents:

MIL-C-17/93 - RG 178 (RG178B/U)
M17/93-00001, M17/169-00001
low-smoke, flame-retardant

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Speedflex® 179

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor..... stranded silver-platedcopper-covered steel (7/33)	0.30
Dielectric..... low-foamed polyethylene	1.60
Outer conductor.....silver-plated copper wire braidcoverage min 90%	2.05
Jacket.....low-smoke, zero-halogen, black	2.60
Marking.....Habia Cable Speedflex 179,and date of manufacture(plus optional blue longitudinal stripe)	

Electrical Data

Impedance.....	75 ± 3 Ω
Capacitance.....	64 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4 ns/m
Working voltage, maximum.....	900V
Shielding effectiveness.....	>90 dB
Attenuation, typical values.....	see table
Power, typical values.....	see table
DC resistance, inner conductor.....	802 Ω/km
DC resistance, outer conductor.....	37 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	8 mm
Minimum bend radius, multiple bends.....	30 mm
Weight.....	11.6 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes.....	IEC 60332-1, UL1581 VW-1
Smoke, passes.....	IEC 61034-2
Halogens, passes.....	IEC 60754-2
Radiation resistance.....	10 ⁶ Gy

Connectors

Compatible with all standard connector types for M17/94-RG179 (RG 179 B/U) and M17/136-00001.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	30
220	36
450	51
900	72
1500	93
1800	105
2000	112
2500	127

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	60
220	50
450	35
900	25
1500	20
1800	16
2000	15
2500	13

Additional Information

Speedflex 179 UL 1375

UL version in accordance with AWM style 1375.

Working voltage.....	30 V
Operating temperature.....	-40 to +60 °C
Flame rating.....	UL 1581 VW-1
Our file no.....	E75929

Speedflex 179 XL

Cross-linked version	
Operating temperature.....	-40 to +100 °C

Dimensional Equivalents:

MIL-C-17/60 - RG 142 (RG142B/U)
M17/158-00001
low-smoke, flame-retardant

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Speedflex[®] 316

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre condsilver-plated copper, stranded (7/33)	0.54
Dielectriclow-foamed polyethylene	1.52
Outer conductorsilver-plated copper wire braid	2.00
.....coverage min 90%	
Jacketlow-smoke, zero-halogen, black	2.70
MarkingHabia Cable Speedflex 316,	
.....and date of manufacture	
.....(plus optional blue longitudinal stripe)	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	95 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.7 ns/m
Working voltage, maximum	1000V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see table
Power, typical values.....	see table
DC resistance, inner conductor.....	234 Ω/km
DC resistance, outer conductor.....	37 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	9 mm
Minimum bend radius, multiple bends	30 mm
Weight	13 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance	10 ⁵ Gy

Connectors

Compatible with all standard connector types for M17/113-RG316 (RG 316 U) and M17/172-00001 and M17/138/00001.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	33
220	40
450	57
900	83
1500	113
1800	126
2000	135
2500	152

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	70
220	55
450	40
900	30
1500	21
1800	19
2000	18
2500	15

Additional Information

Speedflex 316 UL 1375

UL version in accordance with AWM style 1375.

Working voltage	30 V
Operating temperature.....	-40 to +60°C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 316 XL

Cross-linked version	
Operating temperature.....	-40 to +100°C

Dimensional Equivalents:

MIL-C-17/113 - RG 316 (RG 316 U)
M17/172-00001 & M17/138-00001
low-smoke, flame-retardant, non-magnetic

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Speedflex® 316d

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre cond	silver-plated copper, stranded (7/33) 0.54
Dielectric	low-foamed polyethylene 1.52
Outer conductor.....a)	silver-plated copper wire braid
.....	coverage min 90%
.....b)	silver-plated copper wire braid
.....	coverage min 90% 2.45
Jacket.....	Low-smoke, zero-halogen, black 3.10
Marking	Habia Cable Speedflex 316d,
.....	and date of manufacture
.....	(plus optional blue longitudinal stripe)

Electrical Data

Impedance.....	50 ± 2 Ω
Capacitance	95 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.7 ns/m
Working voltage, maximum	1000V
Shielding effectiveness.....	>90 dB
Attenuation, typical values.....	see table
Power, typical values	see table
DC resistance, inner conductor	234 Ω/km
DC resistance, outer conductor.....	17 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	9 mm
Minimum bend radius, multiple bends	30 mm
Weight.....	20 kg/km
Operating temperature	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance	10 ⁵ Gy

Connectors

Compatible with all standard connector types for M17/152/00001.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	33
220	40
450	57
900	83
1500	113
1800	126
2000	135
2500	152

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	70
220	55
450	40
900	30
1500	21
1800	19
2000	18
2500	15

Additional Information

Speedflex 316d UL 1375

UL version in accordance with AWM style 1375.

Working voltage	30 V
Operating temperature.....	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 316d XL

Cross-linked version	
Operating temperature.....	-40 to +100 °C

Dimensional Equivalents:

M17/152-00001
low-smoke, flame-retardant, non-magnetic

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Speedflex[®] 393

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre condsilver-plated copper, stranded (7/20)	2.43
Dielectriclow-foamed polyethylene	7.24
Outer conda) silver-plated copper wire braid	
.....coverage min 90%	
.....b) silver-plated copper wire braid	
.....coverage min 90%	8.70
Jacketlow-smoke, zero-halogen, black	10.10
MarkingHabia Cable Speedflex 393,	
.....and date of manufacture	
.....(plus optional blue longitudinal stripe)	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	95 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.7 ns/m
Working voltage, maximum	4400V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see table
Power, typical values.....	see table
DC resistance, inner conductor.....	5 Ω/km
DC resistance, outer conductor.....	4 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	50 mm
Minimum bend radius, multiple bends	100 mm
Weight	180 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance.....	10 ⁵ Gy

Connectors

Compatible with all standard connector types
M17/127- RG393 (RG 393 U) and M17/174-00001.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	10
220	13
450	17
900	26
1500	34
1800	38
2000	41
2500	50

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	700
220	570
450	390
900	265
1500	200
1800	180
2000	170
2500	150

Additional Information

Speedflex 393 UL 1375

UL version in accordance with AWM style 1375.	
Working voltage	30 V
Operating temperature.....	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 393 XL

Cross-linked version	
Operating temperature.....	-40 to +100 °C

Dimensional Equivalents:

MIL-C-17/127 - RG 393 (RG 393 U)
M17/174-00001
low-smoke, flame-retardant, non-magnetic

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Emailinfo@habia.se
International Telephone+46 (0) 293 22000

Speedflex[®] 400

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre condsilver-plated copper, stranded (19/32)	0.98
Dielectric low-foamed polyethylene	2.95
Outer conductor.....a) silver-plated copper wire braid	
.....coverage min 90%	
.....b) silver-plated copper wire braid	
.....coverage min 90%	4.10
Jacket.....Low-smoke, zero-halogen, black	5.10
MarkingHabia Cable Speedflex 400,	
.....and date of manufacture	
.....(plus optional blue longitudinal stripe)	

Electrical Data

Impedance.....	50 ± 2 Ω
Capacitance.....	95 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.7 ns/m
Working voltage, maximum.....	1500V
Shielding effectiveness.....	>90 dB
Attenuation, typical values.....	see table
Power, typical values.....	see table
DC resistance, inner conductor.....	30 Ω/km
DC resistance, outer conductor.....	8 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	25 mm
Minimum bend radius, multiple bends.....	50 mm
Weight.....	55 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes.....	IEC 60332-1, UL1581 VW-1
Smoke, passes.....	IEC 61034-2
Halogens, passes.....	IEC 60754-2
Radiation resistance.....	10 ⁵ Gy

Connectors

Compatible with all standard connector types
M17/28-RG400 (RG 400 /U) and M17/175-00001.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	20
220	25
450	36
900	53
1500	71
1800	79
2000	84
2500	96

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	200
220	165
450	115
900	80
1500	60
1800	55
2000	50
2500	45

Additional Information

Speedflex 400 UL 1375

UL version in accordance with AWM style 1375.

Working voltage.....	30 V
Operating temperature.....	-40 to +60 °C
Flame rating.....	UL 1581 VW-1
Our file no.....	E75929

Speedflex 400 XL

Cross-linked version	
Operating temperature.....	-40 to +100 °C

Dimensional Equivalents:

M17/28-RG400 (RG 400/U)

M17/175-00001

low-smoke, flame-retardant, non-magnetic

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Speedflex[®] 295

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre cond	solid silver-plated copper 1.12
Dielectric	high-foamed polyethylene 2.95
Outer conductor.....a)	silver-plated copper wire braid
.....	coverage min 90%
.....b)	silver-plated copper wire braid
.....	coverage min 90% 4.10
Jacket.....	Low-smoke, zero-halogen, black 5.10
Marking	Habia Cable Speedflex 295,
.....	and date of manufacture
.....	(plus optional blue longitudinal stripe)

Electrical Data

Impedance.....	50 ± 2 Ω
Capacitance	82 pF/m
Velocity of signal propagation	82 %
Signal delay	4 ns/m
Working voltage, maximum	00V
Shielding effectiveness	>90 dB
Attenuation, typical values.....	see table
Power, typical values.....	see table
DC resistance, inner conductor	17.6 Ω/km
DC resistance, outer conductor.....	8 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	25 mm
Minimum bend radius, multiple bends	75 mm
Weight.....	54 kg/km
Operating temperature	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance	10 ⁵ Gy

Connectors

Please ask for details

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	14
220	17
450	25
900	36
1500	48
1800	53
2000	57
2500	65

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	230
220	185
450	125
900	85
1500	65
1800	60
2000	55
2500	50

Additional Information

Speedflex 295 UL 1375

UL version in accordance with AWM style 1375.	
Working voltage	30 V
Operating temperature.....	-40 to +60°C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 295 XL

Cross-linked version	
Operating temperature.....	-40 to +100°C

Features & Benefits

*low-smoke, flame-retardant, non-magnetic
halogen-free, low-loss version*

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Speedflex® 375

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre condsolid silver-plated copper	1.40
Dielectrichigh-foamed polyethylene	3.75
Outer conductora) silver-plated copper wire braid	
.....coverage min 90%	
.....b) silver-plated copper wire braid	4.70
.....coverage min 90%	
Jacketlow-smoke, zero-halogen, black	5.70
MarkingHabia Cable Speedflex 375,	
.....and date of manufacture	
.....(plus optional blue longitudinal stripe)	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	82 pF/m
Velocity of signal propagation.....	82 %
Signal delay.....	4 ns/m
Working voltage, maximum	500V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see table
Power, typical values.....	see table
DC resistance, inner conductor	11.4 Ω/km
DC resistance, outer conductor.....	8 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	29 mm
Minimum bend radius, multiple bends	85 mm
Weight	64 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance	10 ⁵ Gy

Connectors

Please ask for details.

Additional Information

Speedflex 375 UL 1375

UL version in accordance with AWM style 1375.

Working voltage	30 V
Operating temperature.....	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 375 XL

Cross-linked version

Operating temperature.....	-40 to +100 °C
----------------------------	----------------

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	11.5
220	14
450	20
900	29
1500	38.5
1800	42.5
2000	46
2500	52

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	305
220	250
450	165
900	110
1500	85
1800	75
2000	70
2500	60

Features & Benefits

*low-smoke, flame-retardant, non-magnetic
halogen-free, low-loss version*

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Speedflex[®] 585

Halogen-Free Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre cond	2.22
Dielectric	5.85
Outer conductor	
.....a) silver-plated copper wire braid	
.....coverage min 90%	
.....b) silver-plated copper wire braid	
.....coverage min 90%	7.25
Jacket	9.00
Marking	
.....Habia Cable Speedflex 585,	
.....and date of manufacture	
.....(plus optional blue longitudinal stripe)	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	82 pF/m
Velocity of signal propagation	82 %
Signal delay	4 ns/m
Working voltage, maximum	750V
Shielding effectiveness	>90 dB
Attenuation, typical values	see table
Power, typical values	see table
DC resistance, inner conductor	4.5 Ω/km
DC resistance, outer conductor	4 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	45 mm
Minimum bend radius, multiple bends	135 mm
Weight	144 kg/km
Operating temperature	-40 to +80 °C
Flame resistance, passes	IEC 60332-1, UL1581 VW-1
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2
Radiation resistance	10 ⁵ Gy

Connectors

Please ask for details.

Cable Attenuation

Nominal values @ +25°C ambient temperature

Frequency MHz	Attenuation dB/100m
150	8
220	10
450	15
900	21
1500	29
1800	33
2000	36
2500	42

Average Power

Ambient temperature 40°C at sea level & VSWR1.0

Frequency MHz	Power W
150	570
220	455
450	300
900	195
1500	140
1800	125
2000	115
2500	100

Additional Information

Speedflex 585 UL 1375

UL version in accordance with AWM style 1375.	
Working voltage	30 V
Operating temperature	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Speedflex 585 XL

Cross-linked version	
Operating temperature	-40 to +100 °C

Features & Benefits

*low-smoke, flame-retardant, non-magnetic
halogen-free, low-loss version*

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Habia Cable

Speedfoam[®]

**Low loss flexible
communications cable**



www.habia.com

Speedfoam[®]

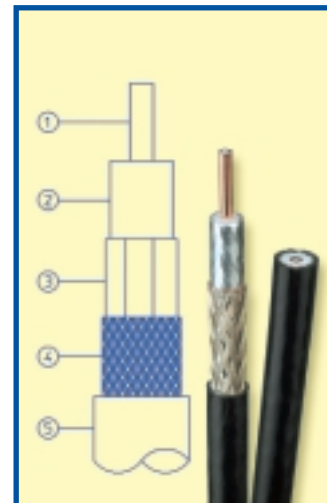
Low-loss Flexible Communications Cable

Speedfoam can be used in most applications where high performance coaxial cables are used.

Engineering Data

Habia Ref	Material	Speedfoam 300 Diameter (mm) (in)		Speedfoam 400 Diameter (mm) (in)		Speedfoam 500 Diameter (mm) (in)		Speedfoam 700 Diameter (mm) (in)		Speedfoam 900 Diameter (mm) (in)	
① Conductor	Solid bare copper or Solid copper covered aluminium	1.12	0.044	1.42	0.056	1.78	0.070	2.75	0.108	3.61	0.142
② Dielectric	Foamed polyethylene	2.95	0.116	3.81	0.150	4.83	0.190	7.24	0.285	9.40	0.370
③ Outer Conductor (a)	Aluminium/Mylar tape, bonded to dielectric	3.07	0.121	3.94	0.155	4.98	0.196	7.40	0.291	9.55	0.376
④ Outer Conductor (b)	Braid of tin plated copper	3.66	0.144	4.52	0.178	5.72	0.225	8.10	0.320	10.30	0.405
⑤ Jacket	Low smoke, zero halogen, black	4.95	0.195	6.10	0.240	7.62	0.300	10.30	0.406	12.70	0.500

Note: all figures are nominal unless otherwise specified



Introduction

Over a number of years, Habia Cable has developed, together with our worldwide telecommunications customers, a complete range of RF cables to meet their demands in an industry where product innovation is moving ahead at a tremendous pace. To further enhance these products we have developed our Speedfoam range of cables.

The Speedfoam range consists of low loss communications cables specifically designed to meet the increasing demands of the Telecommunications Industry. Speedfoam is a halogen free series of cables using highly foamed, closed-cell PE dielectric with a screen of tightly bonded, overlapped aluminium tape and an overall braid. This results in cables with excellent shielding properties and phase stability.

The jacket is of flame retardant PE with resulting cables being totally halogen-free, low-smoke and flame retardant to IEC 60332-3C. The cables have a lower loss than their equivalent sized, solid dielectric cables and at a lower cost.

Features & Benefits

Outstanding shielding properties
Good phase stability
Up to 2.5 GHz operating frequency
Good flexibility
Improved attenuation
Excellent against cross-talk
Halogen-free, low-smoke & flame retardant
Light weight
UV sunlight resistance 720h, passes UL 1581

Custom Design

Variations on our standard versions are available on request

- * Cross-linked versions to increase operating temperature
- * UL versions to meet the requirements of the US market
- * Versions with improved properties for outdoor usage with increased resistance to moisture, UV and the elements
- * Radiation tolerant version available

Typical applications

Drop-in, jumper assemblies
Short antenna feeders
Internal cabinet wiring
System interconnects
Inter-cabinet jumper leads
Base station external jumpers
Satellite terminals
Antenna applications
In-building applications

Photographic credits:

Cover topAllgon
Cover BottomAllgon
Back pageEricsson

Custom Design

Cross-linking
UL- standards
Outdoor usage types
Radiation tolerant

Connectors

Details of compatible types can be provided on request.

Cable Marking

Jackets of all cables are marked with type and date of manufacture

www.habia.com

Internet ...<http://www.habia.com>
Emailinfo@habia.se
Int. Tel+46 (0) 293 22000

Speedfoam[®] 300

Low-loss Flexible Communications Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor	solid bare copper 1.12
Dielectric	foamed polyethylene 2.95
Outer conductor	al/mylar tape, bonded to dielectric 3.07
.....	braid of tin plated copper 3.66
.....	overall coverage 100 %
Jacket	LS0H, black 4.95
Marking	Habia Cable Speedfoam 300,and date of manufacture

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	80 pF/m
Velocity of signal propagation	83 %
Signal delay	4 ns/m
Working voltage, maximum	500V
Shielding effectiveness	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph
DC resistance, inner conductor	17.6 Ω/km
DC resistance, outer conductor	16.1 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	13 mm
Minimum bend radius, multiple bends	50 mm
Weight	35 kg/km
Operating temperature	-40 to +80 °C
Flame resistance, passes	IEC 60332-3C, IEEE 383
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2

Connectors

Information can be provided on request.

Additional Information

Speedfoam 300 UL 1375

UL version in accordance with AWM style 1375.	
Specification	As Speedfoam 300
Working voltage	30 V
Operating temperature	+60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

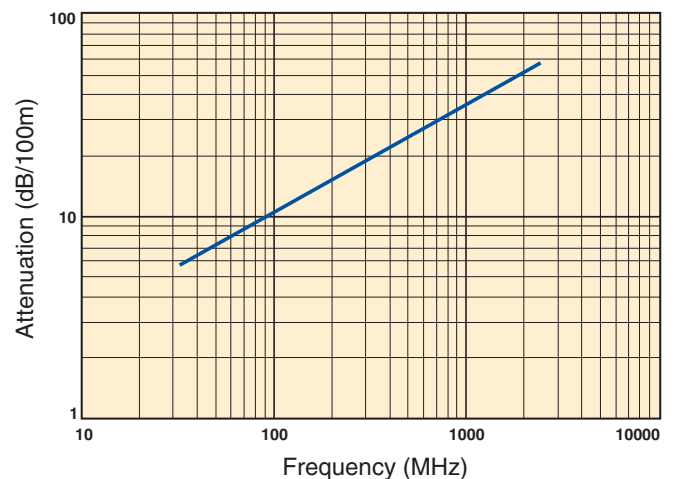
Speedfoam 300 XL

Cross-linked version	
Specification	As Speedfoam 300
Operating temperature	+100 °C

Note: all figures are nominal unless otherwise specified

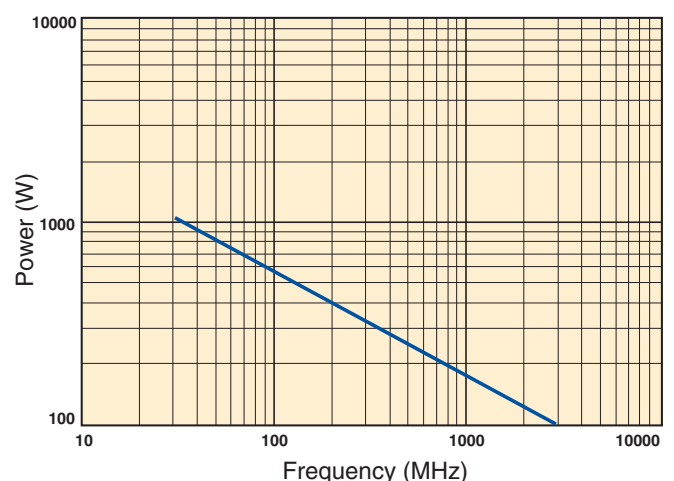
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom Design

A radiation resistant version can be manufactured with a copper foil (10⁶ Gy)
Different types of jacket available
Please ask for details

All Speedfoam types are Low-Smoke, Zero-Halogen

Internet.....<http://www.habia.com>
Email.....info@habia.se
International Telephone.....+46 (0) 293 22000

Speedfoam[®] 400

Low-loss Flexible Communications Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor	solid bare copper 1.42
Dielectric	foamed polyethylene 3.81
Outer conductor	al/mylar tape, bonded to dielectric 3.94
.....	braid of tin plated copper 4.52
.....	overall coverage 100%
Jacket	LSOH, black 6.10
Marking	Habia Cable Speedfoam 400,and date of manufacture

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	79 pF/m
Velocity of signal propagation	84 %
Signal delay	4 ns/m
Working voltage, maximum	500V
Shielding effectiveness	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph
DC resistance, inner conductor	10.5 Ω/km
DC resistance, outer conductor	12.8 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	20 mm
Minimum bend radius, multiple bends	60 mm
Weight	59 kg/km
Operating temperature	-40 to +80 °C
Flame resistance, passes	IEC 60332-3C, IEEE 383
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2

Connectors

Information can be provided on request.

Additional Information

Speedfoam 400 UL 1375

UL version in accordance with AWM style 1375.	
Specification	As Speedfoam 400
Working voltage	30 V
Operating temperature	+60°C
Flame rating	UL 1581 VW-1
Our file no	E75929

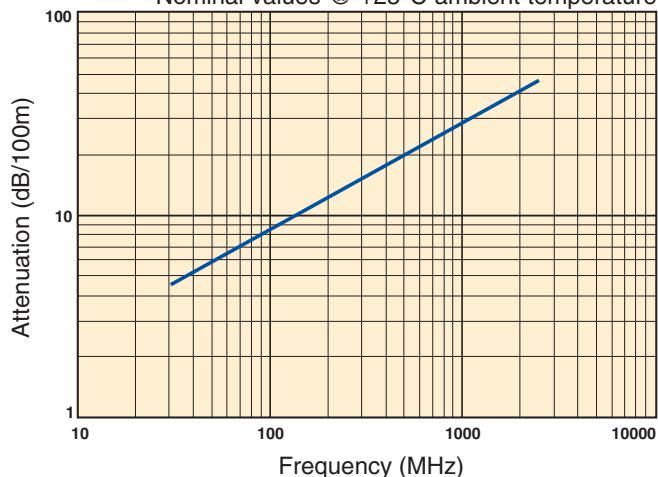
Speedfoam 400 XL

Cross-linked version	
Specification	As Speedfoam 400
Operating temperature	+100°C

Note: all figures are nominal unless otherwise specified

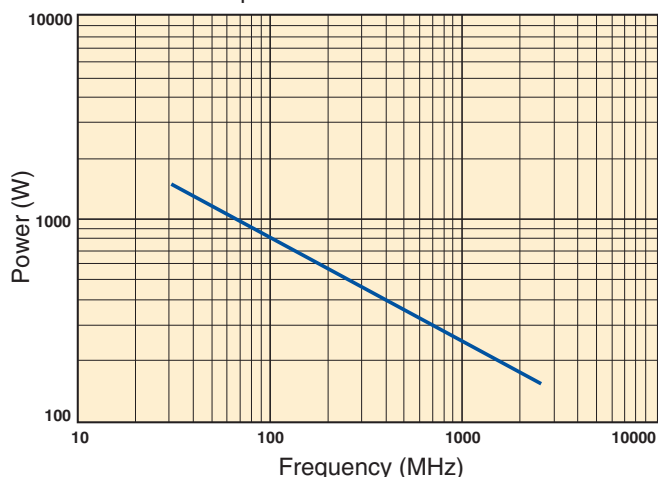
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom Design

A radiation resistant version can be
manufactured with a copper foil (10⁶ Gy)
Different types of jacket available
Please ask for details

All Speedfoam types are Low-Smoke, Zero-Halogen

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International Telephone +46 (0) 293 22000

Speedfoam[®] 500

Low-loss Flexible Communications Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor.....solid bare copper	1.78
Dielectric.....foamed polyethylene	4.83
Outer conductor.....al/mylar tape, bonded to dielectri	4.98
.....braid of tin plated copper	5.72
.....overall coverage 100%	
Jacket.....LSOH, black	7.62
Marking.....Habia Cable Speedfoam 500,and date of manufacture	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	79 pF/m
Velocity of signal propagation.....	85 %
Signal delay.....	4 ns/m
Working voltage, maximum	500V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph
DC resistance, inner conductor.....	7.0 Ω/km
DC resistance, outer conductor.....	7.5 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend	23 mm
Minimum bend radius, multiple bends	75 mm
Weight	94 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes.....	IEC 60332-3C, IEEE 383
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2

Connectors

Information can be provided on request.

Additional Information

Speedfoam 500 UL 1375

UL version in accordance with AWM style 1375.	
Specification	As Speedfoam 500
Working voltage	30 V
Operating temperature	+60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

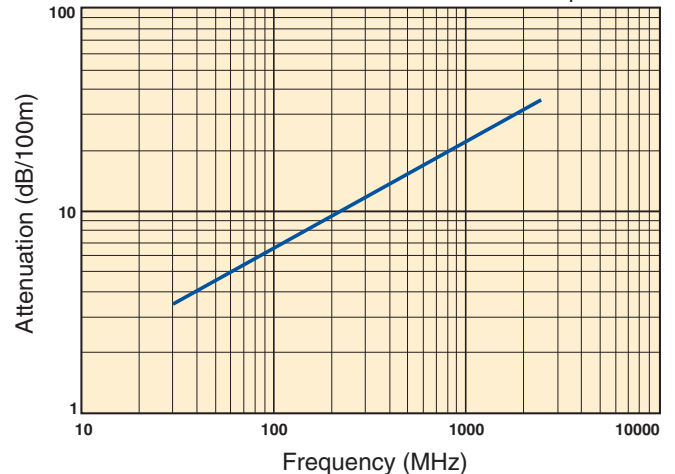
Speedfoam 500 XL

Cross-linked version	
Specification	As Speedfoam 500
Operating temperature	+100 °C

Note: all figures are nominal unless otherwise specified

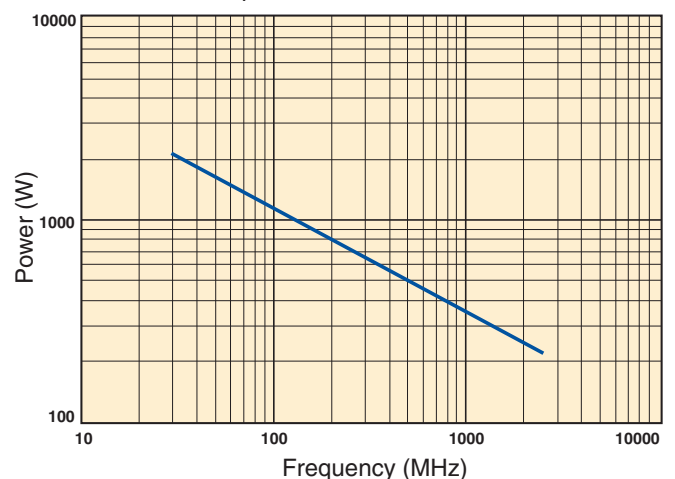
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom Design

A radiation resistant version can be manufactured with a copper foil (10⁶ Gy)
Different types of jacket available
Please ask for details

All Speedfoam types are Low-Smoke, Zero-Halogen

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International Telephone +46 (0) 293 22000

www.habia.com

Speedfoam[®] 700

Low-loss Flexible Communications Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor.....solid copper covered aluminium	2.75
Dielectric foamed polyethylene	7.24
Outer conductoral/mylar tape, bonded to dielectric	7.40
.....braid of tin plated copper	8.10
.....overall coverage 100%	
JacketLSOH, black	10.30
MarkingHabia Cable Speedfoam 700,and date of manufacture	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance.....	79 pF/m
Velocity of signal propagation.....	84 %
Signal delay.....	4 ns/m
Working voltage, maximum	500V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph
DC resistance, inner conductor.....	4.5 Ω/km
DC resistance, outer conductor.....	5.6 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	25 mm
Minimum bend radius, multiple bends	100 mm
Weight	94 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes.....	IEC 60332-3C, IEEE 383
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2

Connectors

Information can be provided on request.

Additional Information

Speedfoam 700 UL 1375

UL version in accordance with AWM style 1375.	
Specification	As Speedfoam 700
Working voltage	30 V
Operating temperature	+60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

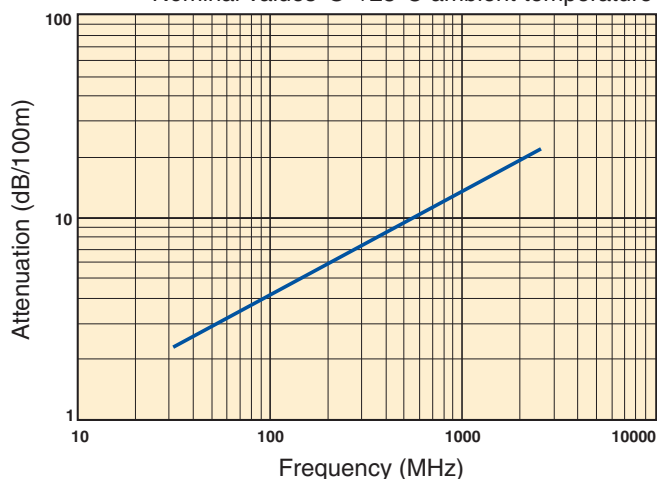
Speedfoam 700 XL

Cross-linked version	
Specification	As Speedfoam 700
Operating temperature.....	+100 °C

Note: all figures are nominal unless otherwise specified

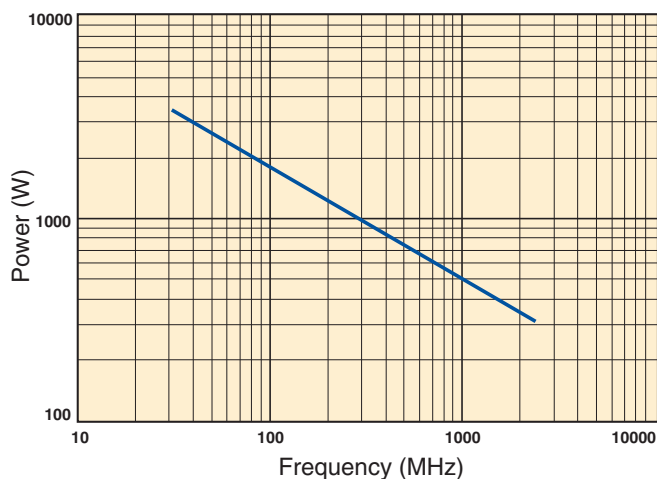
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom Design

A radiation resistant version can be manufactured with a copper foil (10⁶ Gy)
Different types of jacket available
Please ask for details

All Speedfoam types are Low-Smoke, Zero-Halogen

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Speedfoam[®] 900

Low-loss Flexible Communications Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor	solid copper covered aluminium 3.61
Dielectric	foamed polyethylene 9.40
Outer conductor.....	al/mylar tape, bonded to dielectric 9.55
.....	braid of tin plated copper 10.30
.....	overall coverage 100%
Jacket.....	LS0H, black 12.70
Marking.....	Habia Cable Speedfoam 900,and date of manufacture

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	.79 pF/m
Velocity of signal propagation.....	.85 %
Signal delay.....	.4 ns/m
Working voltage, maximum	500V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph
DC resistance, inner conductor.....	2.7 Ω/km
DC resistance, outer conductor.....	4.2 Ω/km

Environmental & Mechanical

Minimum bend radius, single bend.....	32 mm
Minimum bend radius, multiple bends	130 mm
Weight	150 kg/km
Operating temperature.....	-40 to +80 °C
Flame resistance, passes	IEC 60332-3C, IEEE 383
Smoke, passes	IEC 61034-2
Halogens, passes	IEC 60754-2

Connectors

Information can be provided on request.

Additional Information

Speedfoam 900 UL 1375

UL version in accordance with AWM style 1375.	
Specification	As Speedfoam 900
Working voltage	30 V
Operating temperature	+60°C
Flame rating	UL 1581 VW-1
Our file no	E75929

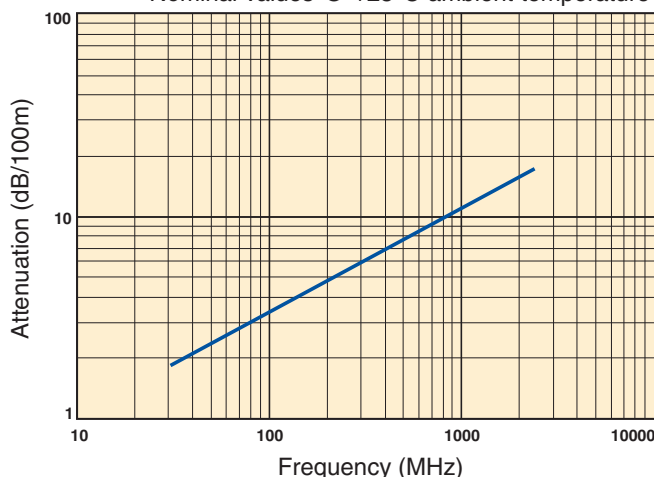
Speedfoam 900 XL

Cross-linked version	
Specification	As Speedfoam 900
Operating temperature	+100 °C

Note: all figures are nominal unless otherwise specified

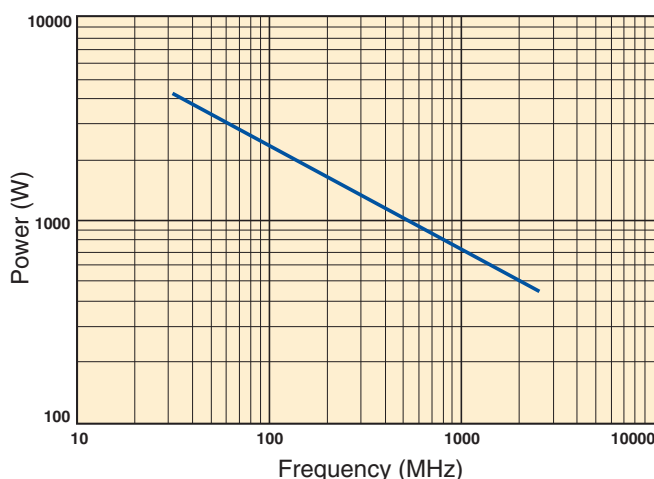
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom Design

A radiation resistant version can be manufactured with a copper foil (10⁶ Gy)
Different types of jacket available
Please ask for details

All Speedfoam types are Low-Smoke, Zero-Halogen

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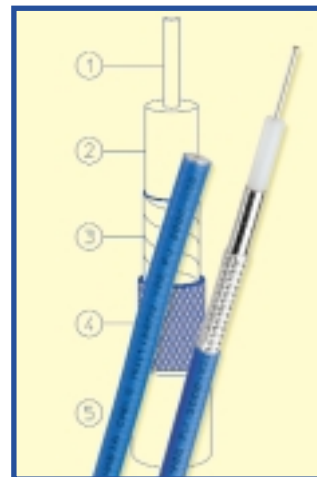
By replacing the solid copper tube with a wrapped silver-plated copper foil and a braid, a combination of a semi-rigid coaxial cable and one with a flexible braid is achieved.

The Flexible Alternative to Semi-Rigid Coaxial Cables

Engineering data

Habia ref	① Inner conductor material OD (mm)	② Dielectric PTFE OD (mm)	③ ④ Outer Conductor OD (mm)/[in]	⑤ Multibend FJ with FEP Outer Jacket OD (mm)	⑤ Multibend HFJ with Zero-Halogen Outer Jacket OD (mm)	Variant of
Multibend 401	SPC 1,6	5,3	6,4 [0,250]	7,2	7,6	M17/129-00001 M17/129-RG401
Multibend 402	SCW 0,92	3,0	3,6 [0,141]	4,1	4,6	M17/130-00001 M17/130-RG402
Multibend 405	SCW 0,51	1,7	2,2 [0,086]	2,6	3,2	M17/133-00001 M17/133-RG405

Note: All figures are nominal unless otherwise specified
SPC = Silver Plated Copper, SCW = Silver Plated Copper Weld.



Additional information

- Excellent electrical properties
- Good attenuation
- Outstanding flexibility
- Simple mounting
- Utilise standard cut and strip machinery
- Up to 20 GHz - high operating frequency
- Excellent against cross-talk
- Usage of standard semi-rigid connectors
- Excellent shielding properties

Ease of use

Multibend is highly flexible, at the same time maintaining a level of performance almost the same as a traditional semi-rigid coaxial, without any of the associated problems.

Handling is very similar to standard coaxes.

Eliminates many factors associated with pre-made assemblies.

Cost effective

Delivered on standard spools in long lengths, giving less scrap than semi-rigids.

Offers significant cost advantages over semi-rigid coax - with minimal performance penalty

Utilise standard forming tools.

No additional assembly costs.

No special packaging or shipping requirements.

Custom design

Jacket options include fluoropolymer or halogen-free, cross-linked or flame-retardant.

Standard jacket colour is blue.

All other coaxial types can be manufactured using the same process (ie Multibend 179)

All types can be supplied with non-magnetic (SPC) conductor, if required.

Alternatively a completely halogen-free option is available for all types.

Please ask for details.

Connectors

Standard semi-rigid connectors (solder or crimp) can be used on all types above.

Typical Applications

Cabinet systems
Antenna applications
Combiners
Satellite equipment
Medical equipment
Military equipment

Custom Design

A completely
halogen-free version is
available for all types

Note: All figures are nominal unless otherwise specified

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Multibend®

The Flexible Alternative to Semi-Rigid Coaxial Cables

Type: Multibend 401

Engineering data

Cable design

Centre conductor silver-plated copper wire, non magnetic
Dielectric solid extruded PTFE
Outer conductor spiral strip of silver plated copper
. & round wire silver plated copper braid, coverage 100%
Jacket material FEP, Flame-retardent, Blue

Electrical data

Impedance 50 Ohms
Capacitance 94 pF/m
Velocity of signal propagation 70%
Signal delay 4,8 ns/m
Working voltage, maximum 3000V RMS
Attenuation, nominal see graph right
Power, nominal see graph right
Suitable for frequencies up to 20 GHz
Shielding effectiveness typically <-100 dB/m

General data

Flammability, passes IEC 60 332-3
Minimum bend radius
single bend 40mm
multiple bends 80mm

Connectors

Connector as semi-rigid M17/129-RG401

Additional information

Multibend 401 FJ (Standard):

Jacket FEP, Blue
OD 7,2mm
Weight, nominal 130kg/km
Operating temperature -55 to +165°C

Multibend 401 HFJ

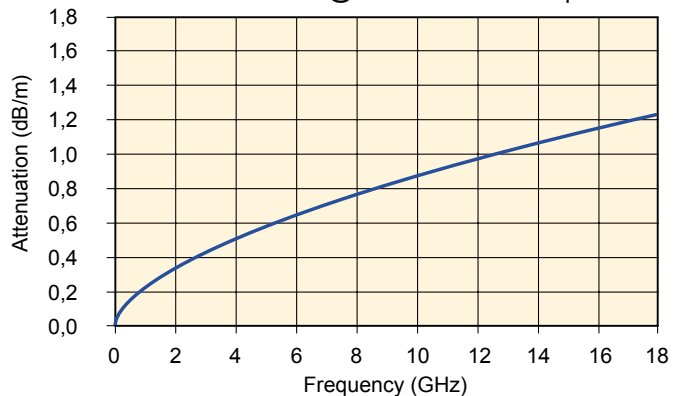
Jacket halogen-free, flame-retardent, Blue
OD 7,6mm
Weight, nominal 130kg/km
Operating temperature -30 to +80°C

Delivered on standard spools in long lengths, giving less waste than semi-rigids.

Note: All figures are nominal unless otherwise specified

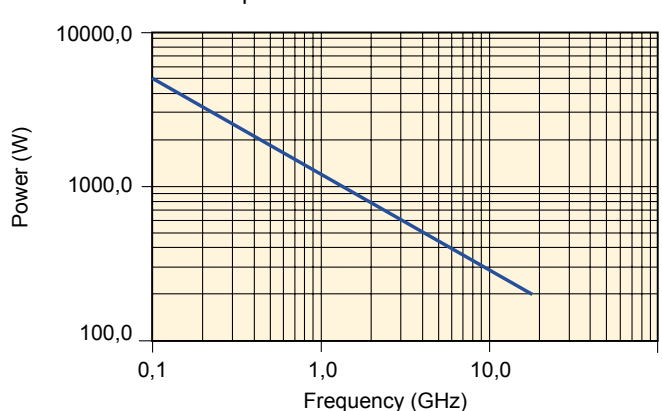
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom design

All MIL types of coaxial cables can be manufactured using the Multibend method or process.

We can also manufacture a completely halogen-free version.

Different types of outer jacket are also available.
Please ask for details.

*A completely halogen-free version is
available for all types.*

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Type: Multibend 402

The Flexible Alternative
to Semi-Rigid Coaxial Cables

Engineering data

Cable design

Centre conductor silver-plated copper-clad steel wire
Dielectric solid extruded PTFE
Outer conductor spiral strip of silver plated copper
. & round wire silver plated copper braid, coverage 100%
Jacket material FEP, Flame-retardent, Blue

Electrical data

Impedance 50 Ohms
Capacitance 94 pF/m
Velocity of signal propagation 70%
Signal delay 4,8 ns/m
Working voltage, maximum 1900V RMS
Attenuation, nominal see graph right
Power, nominal see graph right
Suitable for frequencies up to 20 GHz
Shielding effectiveness typically <-100 dB/m

General data

Flammability, passes IEC 60 332-3
Minimum bend radius
single bend 10mm
multiple bends 40mm

Connectors

Connector as semi-rigid M17/130-RG402

Additional information

Multibend 402 FJ (Standard):

Jacket FEP, Blue
OD 4,1mm
Weight, nominal 43kg/km
Operating temperature -55 to +165°C

Multibend 402 HFJ

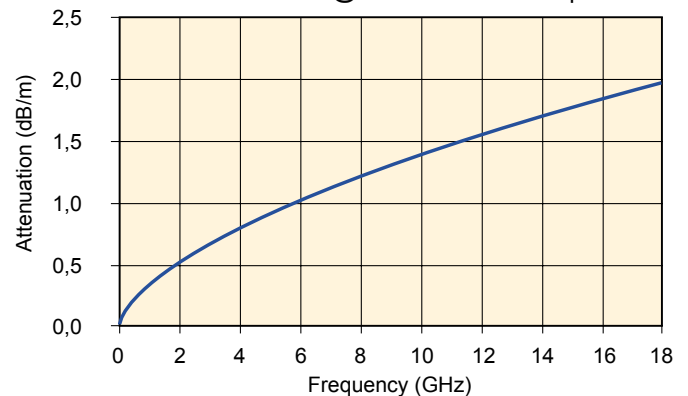
Jacket halogen-free, flame-retardent, Blue
OD 4,6mm
Weight, nominal 46kg/km
Operating temperature -30 to +80°C

Delivered on standard spools in long lengths, giving less waste than semi-rigids.

Note: All figures are nominal unless otherwise specified

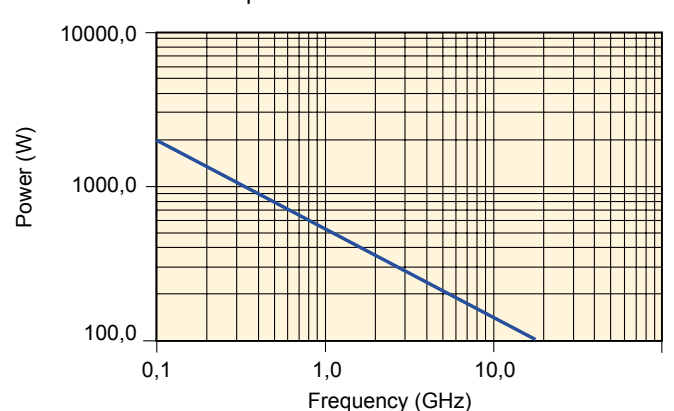
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom design

All MIL types of coaxial cables can be manufactured using the Multibend method or process.

Multibend can be manufactured with a non-magnetic SPC conductor if required.

We can also manufacture a completely halogen-free version.

Different types of outer jacket are also available.
Please ask for details.

A completely halogen-free version is available for all types.

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Multibend®

The Flexible Alternative
to Semi-Rigid Coaxial Cables

Type:
Multibend 405

Engineering data

Cable design

Centre conductor silver-plated copper-clad steel wire
Dielectric solid extruded PTFE
Outer conductor spiral strip of silver plated copper
. & round wire silver plated copper braid, coverage 100%
Jacket material FEP, Flame-retardent, Blue

Electrical data

Impedance 50 Ohms
Capacitance 94 pF/m
Velocity of signal propagation 70%
Signal delay 4,8 ns/m
Working voltage, maximum 1500V RMS
Attenuation, nominal see graph right
Power, nominal see graph right
Suitable for frequencies up to 20 GHz
Shielding effectiveness typically <-100 dB/m

General data

Flammability, passes IEC 60 332-3
Minimum bend radius
single bend 6mm
multiple bends 25mm

Connectors

Connector as semi-rigid M17/133-RG405

Additional information

Multibend 405 FJ (Standard):

Jacket FEP, Blue
OD 2,6mm
Weight, nominal 19kg/km
Operating temperature -55 to +165°C

Multibend 405 HFJ

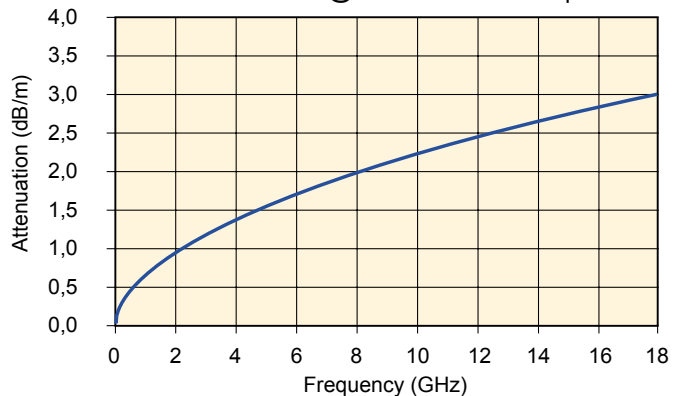
Jacket halogen-free, flame-retardent, Blue
OD 3,2mm
Weight, nominal 21kg/km
Operating temperature -30 to +80°C

Delivered on standard spools in long lengths, giving less waste than semi-rigids.

Note: All figures are nominal unless otherwise specified

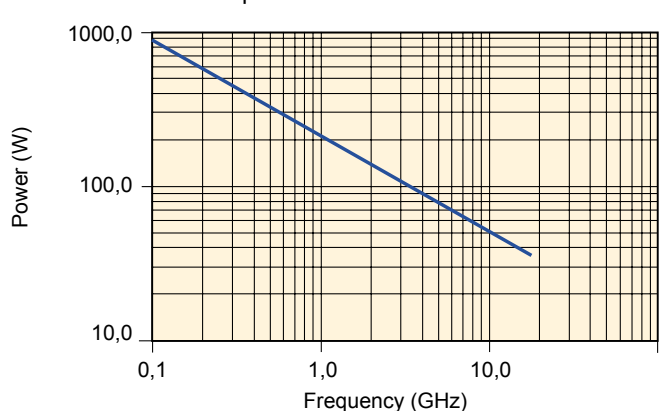
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Custom design

All MIL types of coaxial cables can be manufactured using the Multibend method or process.

Multibend can be manufactured with a non-magnetic SPC conductor.

We can also manufacture a completely halogen-free version. Different types of outer jacket are also available.

Please ask for details.

A completely halogen-free version is available for all types.

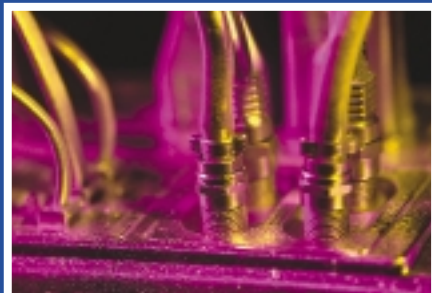
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Habia Cable

Maxishield®

**High-performance
Low-loss Coaxial Cable**



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Maxishield®

High-performance, Low-loss Coaxial Cable

Maxishield is a high performance, low loss alternative to standard RG coaxial cables.

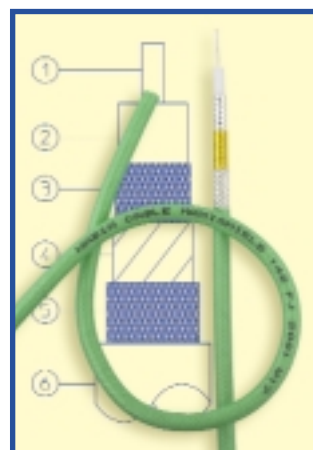
Engineering Data

Item	Material	Maxishield 316		Maxishield 142		Maxishield 400		Maxishield 393	
		Diam		Diam		Diam		Diam	
		(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
1 Conductor	Stranded SPC					0.98	0.038	2.39	0.094
or	Solid or stranded, SCW	0.51	0.0201	0.94	0.037				
2 Dielectric Solid	PTFE	1.52	0.060	2.95	0.116	2.95	0.116	7.24	0.285
3 Flat Braid Flat	SPC strip	1.70	0.067	3.40	0.134	3.40	0.134	7.60	0.299
4 Tape Inter-layer	Aluminium/polyimide tape	1.90	0.075	3.60	0.142	3.60	0.142	7.80	0.307
5 Braid	SPC Wires	2.40	0.094	4.05	0.159	4.05	0.159	8.50	0.334
6 Jacket	FEP, green	2.80	0.11	4.65	0.183	4.65	0.183	9.70	0.381

SPC = Silver Plated Copper

SCW = Silver Plated Copper Weld

Note: all figures are nominal unless otherwise specified



Introduction

The new range of Maxishield cables have been primarily designed to provide high-performance coaxial cables with dimensions similar to their MIL-C-17 counterparts but with lower attenuation and also to operate at higher frequencies.

The high performance is achieved through the use of an inner screen made up of flat strips of silver plated copper, braided over the PTFE dielectric core. This is overlaid with a kapton/aluminium foil and an outer round wire braid.

The resulting cables have very stable SRL and attenuation, due to ageing and flexing, especially at frequencies above 12 GHz.

Standard types use FEP as a jacket material but a variation with a halogen free jacket is also available. The standard jacket colour is green.

Features & Benefits

Lower loss than MIL-C-17 versions

Use standard RG connectors

Excellent shielding effectiveness

Stable loss and SRL against flexing

Use up to 18 GHz

Excellent temperature range

Connectors

Compatible with standard connectors for dimensionally equivalent RG styles.

Cable Marking

Jackets of all cables are marked with type and date of manufacture.

Custom Design

Variations available

on request:-

Halogen-free jacket

Different coaxial types

Other jacket colours

Typical applications

Base station interconnects

Antenna applications

Radar Systems

Wireless Communications

Microwave Links

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Maxishield® 316

High-performance, Low-loss Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor	Stranded SCW (7/0.17mm) 0.51
Dielectric	Solid PTFE 1.52
Flat braid	SPC
Tape Interlayer	aluminium/polyimide
Braid	SPC Wires 2.40
Jacket	FEP, green 2.80
Marking	Habia Cable Maxishield 316 FJ,and date of manufacture

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.8 ns/m
Working voltage, maximum	1000V
Shielding effectiveness	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph

Environmental & Mechanical

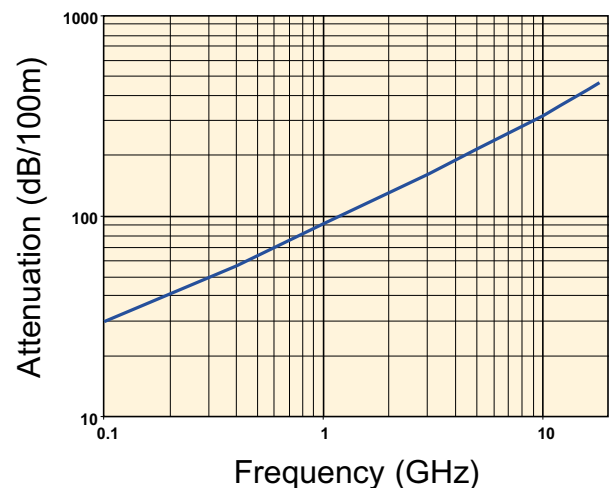
Minimum bend radius, single bend	10 mm
Minimum bend radius, multiple bends	25 mm
Weight	14 kg/km
Operating temperature	-55 to +200 °C
Flame resistance, passes	IEC 60332-3
Smoke, passes	IEC 61034-2

Connectors

Compatible with all standard connector types for M17/152-00001.

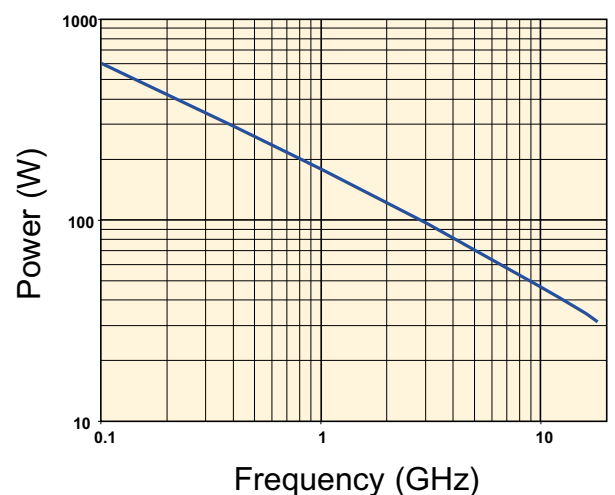
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Additional Information

Maxishield 316 UL 1375

UL version in accordance with AWM style 1375.	
Working voltage	30 V
Operating temperature	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

Dimensional Equivalents:

M17/152-00001
low-smoke, flame-retardant

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Maxishield® 142

High-performance, Low-loss Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor	Solid SCW 0.94
Dielectric	Solid PTFE 2.95
Flat braid	SPC
Tape Interlayer	aluminium/polyimide
Braid	SPC Wires 4.05
Jacket	FEP, green 4.65
Marking	Habia Cable Maxishield 142 FJ,and date of manufacture

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	.94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.8 ns/m
Working voltage, maximum	1900 V
Shielding effectiveness	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph

Environmental & Mechanical

Minimum bend radius, single bend	25 mm
Minimum bend radius, multiple bends	50 mm
Weight	54 kg/km
Operating temperature	-55 to +200 °C
Flame resistance, passes	IEC 60332-3
Smoke, passes	IEC 61034-2

Connectors

Compatible with all standard connector types for M17/60-RG142 (RG142 B/U) and M17/158-00001.

Additional Information

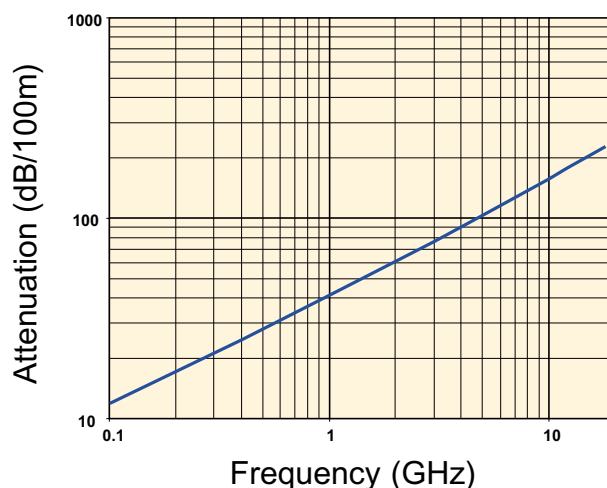
Maxishield 142 UL 1375

UL version in accordance with AWM style 1375.

Working voltage	30 V
Operating temperature	-40 to +60°C
Flame rating	UL 1581 VW-1
Our file no	E75929

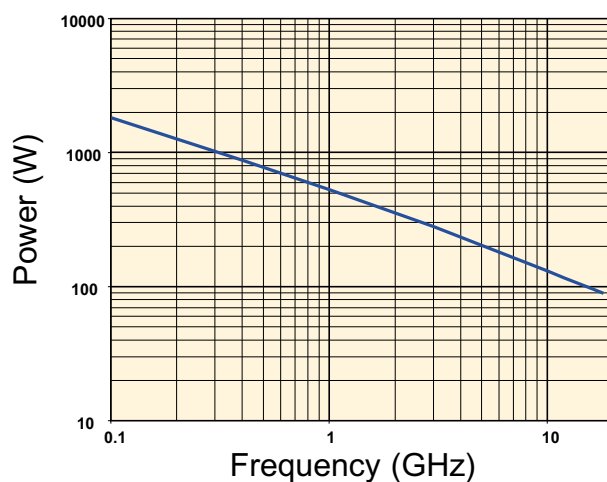
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Dimensional Equivalents:

MIL-C-17/60 - RG142 (RG142 B/U)

M17/158-00001

low-smoke, flame-retardant

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Maxishield® 400

High-performance, Low-loss Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor.....Stranded SPC (19/0.20)	0.98
Dielectric.....Solid PTFE	2.95
Flat braid.....SPC	
Tape Interlayer.....aluminium/polyimide	
Braid.....SPC Wires	4.05
Jacket.....FEP, green	4.65
Marking.....Habia Cable Maxishield 400 FJ,and date of manufacture	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	94 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.8 ns/m
Working voltage, maximum	1900 V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph

Environmental & Mechanical

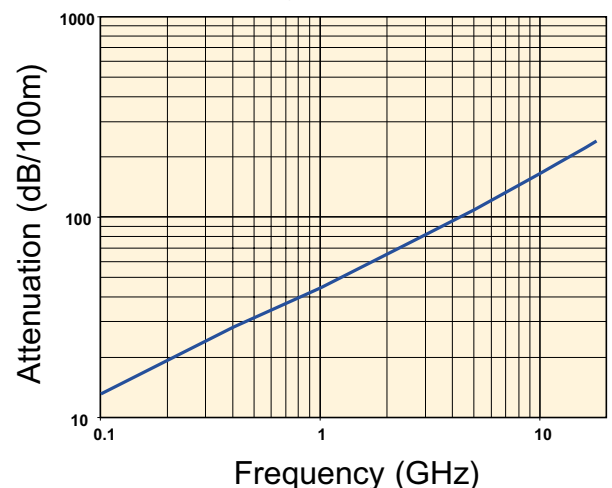
Minimum bend radius, single bend.....	25 mm
Minimum bend radius, multiple bends	50 mm
Weight	53 kg/km
Operating temperature.....	-55 to +200 °C
Flame resistance, passes	IEC 60332-3
Smoke, passes	IEC 61034-2

Connectors

Compatible with all standard connector types for M17/28-RG400 (RG400 /U) and M17/175-00001.

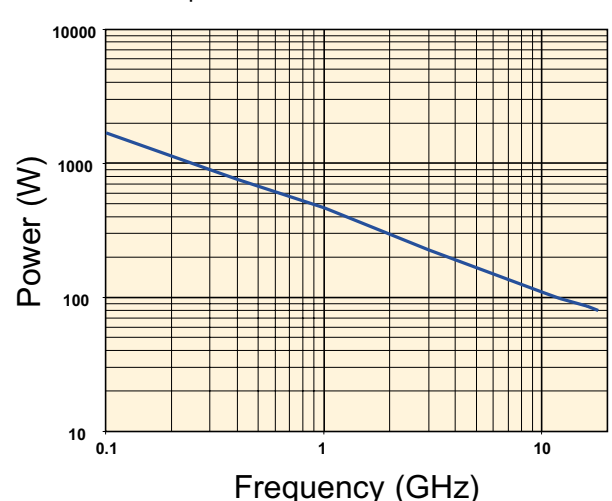
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Additional Information

Maxishield 400 UL 1375

UL version in accordance with AWM style 1375.

Working voltage	30 V
Operating temperature	-40 to +60°C
Flame rating	UL 1581 VW-1
Our file no	E75929

Dimensional Equivalents:

MIL-C-17/28-RG400 (RG400 /U)

M17/175-00001

low-smoke, flame-retardant

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Maxishield® 393

High-performance, Low-loss Coaxial Cable

Engineering Data

Cable Design

	Ø (mm)
Centre conductor.....Stranded SPC (7/0.80)	2.39
Dielectric.....Solid PTFE	7.24
Flat braid.....SPC	
Tape Interlayer.....aluminium/polyimide	
Braid.....SPC Wires	8.50
Jacket.....FEP, green	9.70
Marking.....Habia Cable Maxishield 393 FJ,and date of manufacture	

Electrical Data

Impedance	50 ± 2 Ω
Capacitance	94 pF/m
Velocity of signal propagation.....	70 %
Signal delay.....	4.8 ns/m
Working voltage, maximum	4600 V
Shielding effectiveness.....	>90 dB
Attenuation, typical values	see graph
Power, typical values	see graph

Environmental & Mechanical

Minimum bend radius, single bend	50 mm
Minimum bend radius, multiple bends	100 mm
Weight	227 kg/km
Operating temperature.....	-55 to +200 °C
Flame resistance, passes	IEC 60332-3
Smoke, passes	IEC 61034-2

Connectors

Compatible with all standard connector types for M17/127-RG393 (RG393 U) and M17/174-00001.

Additional Information

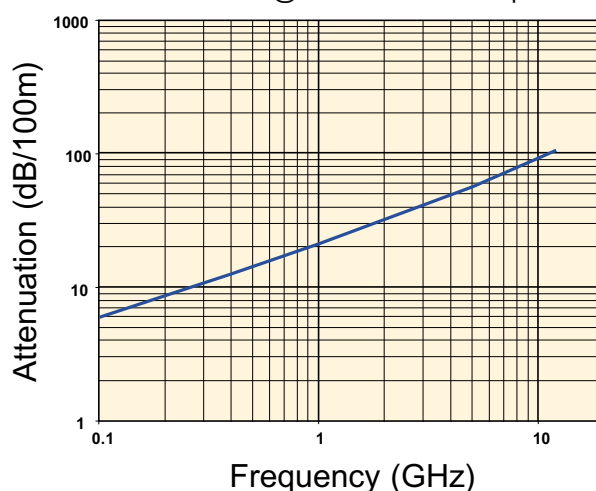
Maxishield 393 UL 1375

UL version in accordance with AWM style 1375.

Working voltage	30 V
Operating temperature.....	-40 to +60 °C
Flame rating	UL 1581 VW-1
Our file no	E75929

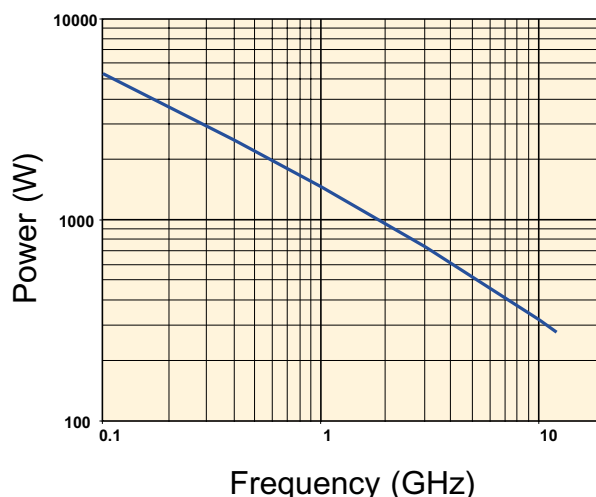
Cable Attenuation

Nominal values @ +25°C ambient temperature



Average Power

Ambient temperature 40°C at sea level & VSWR1.0



Dimensional Equivalents:

MIL-C-17/127 - RG393 (RG393 U)
M17/174-00001
low-smoke, flame-retardant

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RG 142 B/U

50 Ohm Coaxial Cable

Construction:

Alternatives:

Acc. to M17/60-RG 144

No change to construction
Specified SRL limits

Speedflex 142

Low Smoke Zero Halogen

Alternative jacket colours
also available

Construction:

		Ø (mm)
Conductor	Silver plated copper covered steel (1x0,94)	0,94
Dielectric	Solid PTFE	2,95
Braid	2x Silver plated copper (0,13)	4,15
Jacket	FEP, Transparent	4,95
Weight		64 kg/km



Technical Data:

Electrical:

Impedance	50 ± 2 Ohms
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.7 ns/m
Working voltage (AC r.m.s.)	2000 max
Working voltage (DC)	4000 max
Attenuation, typical values	see table
(nominal values at an air temperature of +20°C)	
Power, typical values	see table
(ambient temperature of 40°C at sea level and VSWR 1.0)	
Suitable for frequencies	up to 2,5 GHz
Shielding effectiveness	typically <- 130 dB/m

Attenuation:

(MHz)	(dB/100m)
100	13
200	18
400	26
900	40
1200	46
1500	52
1800	57
2000	61
2500	69

Environmental & Mechanical:

Minimum bend radius (MBR)	single bend: 25mm
Minimum bend radius (MBR)	multiple bends: 50mm
Operating temperature (°C)	-55 / +200
Flame resistance	passes IEC 60332-3-24
Flammability	passes UL 94 V-0
Connectors	compatible with all standard types

Average Power:

(MHz)	(W)
100	1300
200	919
400	650
900	433
1200	375
1500	336
1800	307
2000	291
2500	260

Data provided indicates nominal values unless stated otherwise and is only valid for reference purposes at the time of publication and is subject to change without prior notice.

RG 178 B/U

50 Ohm Coaxial Cable

Construction:

Alternatives:

Acc. to M17/93-00001

PFA jacket
No change to
performance

Acc. to M17/93-RG 178

No change to construction
Specified SRL limits

Alternative jacket colours
also available

Construction:

		Ø (mm)
Conductor	Silver plated copper covered steel (7x0,10)	0,30
Dielectric	Solid PTFE	0,84
Braid	Silver plated copper (0,10)	1,37
Jacket	FEP, Transparent	1,80
Weight		7,8 kg/km



Technical Data:

Electrical:

Impedance	50 ± 2 Ohms
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.7 ns/m
Working voltage (AC r.m.s.)	500 max
Working voltage (DC)	1000 max
Attenuation, typical values	see table
(nominal values at an air temperature of +20°C)	
Power, typical values	see table
(ambient temperature of 40°C at sea level and VSWR 1.0)	
Suitable for frequencies	up to 2,5 GHz
Shielding effectiveness	typically <- 130 dB/m

Attenuation:

(MHz)	(dB/100m)
100	46
200	65
400	93
900	140
1200	162
1500	182
1800	200
2000	211
2500	236

Environmental & Mechanical:

Minimum bend radius (MBR)	single bend: 10mm
Minimum bend radius (MBR)	multiple bends: 20mm
Operating temperature (°C)	-55 / +200
Flame resistance	passes IEC 60332-3-24
Flammability	passes UL 94 V-0
Connectors	compatible with all standard types

Average Power:

(MHz)	(W)
100	150
200	106
400	75
900	50
1200	43
1500	39
1800	35
2000	34
2500	30

Data provided indicates nominal values unless stated otherwise and is only valid for reference purposes at the time of publication and is subject to change without prior notice.

RG 316 /U

50 Ohm Coaxial Cable

Construction:

Alternatives:

Acc. to M17/138-00001

PFA jacket
Specified SRL limits

Acc. to M17/113-RG 316

FEP jacket (Transparent)
Specified SRL limits

Speedflex 316

Low Smoke Zero Halogen

Alternative jacket colours
also available

Construction:

		Ø (mm)
Conductor	Silver plated copper covered steel (7x0,17)	0,51
Dielectric	Solid PTFE	1,52
Braid	Silver plated copper (0,10)	2,05
Jacket	FEP, White	2,50
Weight		15 kg/km



Technical Data:

Electrical:

Impedance	50 ± 2 Ohms
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.7 ns/m
Working voltage (AC r.m.s.)	1000 max
Working voltage (DC)	2000 max
Attenuation, typical values	see table
(nominal values at an air temperature of +20°C)	
Power, typical values	see table
(ambient temperature of 40°C at sea level and VSWR 1.0)	
Suitable for frequencies	up to 2,5 GHz
Shielding effectiveness	typically <- 130 dB/m

Attenuation:

(MHz)	(dB/100m)
100	27
200	38
400	54
900	82
1200	95
1500	106
1800	117
2000	124
2500	139

Environmental & Mechanical:

Minimum bend radius (MBR)	single bend: 15mm
Minimum bend radius (MBR)	multiple bends: 30mm
Operating temperature (°C)	-55 / +200
Flame resistance	passes IEC 60332-3-24
Flammability	passes UL 94 V-0
Connectors	compatible with all standard types

Average Power:

(MHz)	(W)
100	340
200	240
400	170
900	113
1200	98
1500	88
1800	80
2000	76
2500	68

Data provided indicates nominal values unless stated otherwise and is only valid for reference purposes at the time of publication and is subject to change without prior notice.

RG 393 /U

50 Ohm Coaxial Cable

Construction:

Alternatives:

Acc. to M17/127-RG 393
No change to construction
Specified SRL limits

Speedflex 393

Low Smoke Zero Halogen

Alternative jacket colours
also available

Construction:

		Ø (mm)
Conductor	Silver plated copper (7x0,80)	2,40
Dielectric	Solid PTFE	7,25
Braid	2x Silver plated copper (0,16)	8,65
Jacket	FEP, Transparent	9,90
Weight		240 kg/km



Technical Data:

Electrical:

Impedance	50 ± 2 Ohms
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.7 ns/m
Working voltage (AC r.m.s.)	4400 max
Working voltage (DC)	8800 max
Attenuation, typical values	see table
(nominal values at an air temperature of +20°C)	
Power, typical values	see table
(ambient temperature of 40°C at sea level and VSWR 1.0)	
Suitable for frequencies	up to 2,5 GHz
Shielding effectiveness	typically <- 130 dB/m

Attenuation:

(MHz)	(dB/100m)
100	7
200	10
400	14
900	22
1200	25
1500	29
1800	32
2000	34
2500	39

Environmental & Mechanical:

Minimum bend radius (MBR)	single bend: 50mm
Minimum bend radius (MBR)	multiple bends: 100mm
Operating temperature (°C)	-55 / +200
Flame resistance	passes IEC 60332-3-24
Flammability	passes UL 94 V-0
Connectors	compatible with all standard types

Average Power:

(MHz)	(W)
100	3600
200	2546
400	1800
900	1200
1200	1039
1500	930
1800	849
2000	805
2500	720

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RG 400 /U

50 Ohm Coaxial Cable

Construction:

Alternatives:

Acc. to M17/128-RG 400
No change to construction
Specified SRL limits

Speedflex 400

Low Smoke Zero Halogen

Alternative jacket colours
also available

Construction:

		Ø (mm)
Conductor	Silver plated copper (19x0,20)	0,98
Dielectric	Solid PTFE	2,95
Braid	2x Silver plated copper (0,13)	4,15
Jacket	FEP, Transparent	4,95
Weight		64 kg/km



Technical Data:

Electrical:

Impedance	50 ± 2 Ohms
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.7 ns/m
Working voltage (AC r.m.s.)	1800 max
Working voltage (DC)	3600 max
Attenuation, typical values	see table
(nominal values at an air temperature of +20°C)	
Power, typical values	see table
(ambient temperature of 40°C at sea level and VSWR 1.0)	
Suitable for frequencies	up to 2,5 GHz
Shielding effectiveness	typically <- 130 dB/m

Attenuation:

(MHz)	(dB/100m)
100	15
200	22
400	31
900	47
1200	55
1500	62
1800	68
2000	72
2500	81

Environmental & Mechanical:

Minimum bend radius (MBR)	single bend: 25mm
Minimum bend radius (MBR)	multiple bends: 50mm
Operating temperature (°C)	-55 / +200
Flame resistance	passes IEC 60332-3-24
Flammability	passes UL 94 V-0
Connectors	compatible with all standard types

Average Power:

(MHz)	(W)
100	1100
200	778
400	550
900	367
1200	318
1500	284
1800	259
2000	246
2500	220

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