MRC FR

Flame Retardant 50Ω Cables

Application

The radio-frequency cables described in this chapter are used in transmitter and receiver installations in radio communications as well as in the entire field of commercial radio-frequency technology and electronics. Due to the selection of the materiel these cables can be used where best fire performance is needed

Standards

EN 50117-1, IEC 61196-1

Flame resistance

EN 60332-3-24

Construction

		MRC 195 FR (0.94/2.79)	MRC 200 FR (1.12/2.95)	MRC 240 FR (1.42/3.81)	MRC 400 FR (2.74/7.24)	MRC 600 FR (4.47/11.56)
Inner conductor	copper wire, bare*	0.94 mm ± 0.01	1.12 mm ± 0.01	1.42 mm ± 0.01	2.74 mm ± 0.03	4.47 mm ± 0.03
Insulation	Foam-PE	2.79 mm ± 0.1	2.95 mm ± 0.1	3.81 mm ± 0.1	7.24 mm ± 0.1	11.56 mm ± 0.1
Outer conductor		Al-PET Foil, bonded to the dielectric + Copper braid, tinned				
Sheath	FRNC-C, UV stabilized	4.95 mm ± 0.3	4.95 mm ± 0.3	6.1 mm ± 0.3	10.3 mm ± 0.3	15.0 mm ± 0.3
Printing		DRAKA MRC 195 FR + batch number + meter marking	DRAKA MRC 200 FR + batch number + meter marking	DRAKA MRC 240 FR + batch number + meter marking	DRAKA MRC 400 FR + batch number + meter marking	DRAKA MRC 600 FR + batch number + meter marking

* MRC 600 = Copper Clad Aluminium (CCA)

Mechanical properties

Minimum bending radius	without load	5 x D (D= outer diameter)
	with load	10 x D (D= outer diameter)
Temperature range	during operation	- 40° C to + 85° C
	during installation	- 15° C to + 55° C
Corrosivity		acc. to IEC 60754-1/2

MRC FR

Electrical properties

nominal — at 20°C

		MRC 195 FR (0.94/2.79)	MRC 200 FR (1.12/2.95)	MRC 240 FR (1.42/3.81)	MRC 400 FR (2.74/7.24)	MRC 600 FR (4.47/11.56)
DC resistance	Inner conductor	25.3	17.6	10.5	3.0	1.7
(Ω/km)	Outer conductor	17,3	17,4	12,3	7,55	3,9
Mutual capacitance	pF/m	84	80	79.5	79.5	77
Velocity ratio	%	80	83	84	85	86
Characteristic impedance	at 200 MHz	50 Ω ± 2	50 Ω ± 2	50 Ω ± 2	50 Ω ± 2	50 Ω ± 2
Transfer impedance	at 10 MHz	≤ 5 mΩ/m	≤ 5 mΩ/m	≤ 5 mΩ/m	≤ 5 mΩ/m	≤ 5 mΩ/m
Screening factor	at 100-1000 MHz	90 dB	90 dB	90 dB	90 dB	90 dB
Operating voltage		0.7 kV_{rms}	0.8 kV_{rms}	1.0 kV_{rms}	1.2 kV_{rms}	1.5 kV_{rms}
Test voltage	Inner/Outer conductor	1.4 kV_{rms}	1.6 kV_{rms}	2.0 kV_{rms}	3.0 kV_{rms}	3.5 kV_{rms}
Insulation resistance		≥ 10 GΩ*km	≥ 10 GΩ*km	≥ 10 GΩ*km	≥ 10 GΩ*km	≥ 10 GΩ*km

Attenuation (dB/100m)

nominal — at 20°C

Frequency (MHz)	MRC 195 FR (0.94/2.79)	MRC 200 FR (1.12/2.95)	MRC 240 FR (1.42/3.81)	MRC 400 FR (2.74/7.24)	MRC 600 FR (4.47/11.56)
30	6.5	5.8	4.4	2.2	1.4
150	14.6	13.1	9.9	5.0	3.2
220	17.7	15.9	12.0	6.1	3.9
450	25.5	22.8	17.3	8.9	5.6
900	36.5	32.6	24.8	12.8	8.2
1800	52.5	46.6	35.6	18.6	12.1
2500	62.4	55.4	42.4	22.3	15.5
5200	92.9	81.9	63.3	33.6	21.9
5800	98.1	86.5	66.8	35.5	23.8

Max. power rating (Watts)

Ambient temperature 40°C and max. inner conductor temperature 100°C

Frequency (MHz)	MRC 195 FR (0.94/2.79)	MRC 200 FR (1.12/2.95)	MRC 240 FR (1.42/3.81)	MRC 400 FR (2.74/7.24)	MRC 600 FR (4.47/11.56)
30	890	1020	1140	3330	5510
150	380	450	660	1470	2410
220	300	370	540	1200	1970
450	220	260	380	830	1350
900	160	180	260	580	930
1800	110	130	180	400	630
2500	90	110	150	330	520
5200	63	74	105	222	338
5800	60	70	100	210	320

MRC FR

Return loss (dB)

Several peaks are allowed

at 20°C

Frequency (MHz)	MRC 195 FR (0.94/2.79)	MRC 200 FR (1.12/2.95)	MRC 240 FR (1.42/3.81)	MRC 400 FR (2.74/7.24)	MRC 600 FR (4.47/11.56)
50-450	≥ 26	≥ 26	≥ 26	≥ 26	≥ 26
450-1000	≥ 23	≥ 23	≥ 23	≥ 23	≥ 23
1000-2500	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15

Technical data

Product code	Desig-nation	Type	Brand name	Outer diameter mm	Weight kg/km	Standard delivery length m	Drum size **PWD	Copper content Kg/km	Tensile force N
1025637	02Y(St) CH	0.94/2.29 AFB FRNC-C	MRC 195 FR	4.95	34	1000	400/120/ 330	17.7	88
1025638	02Y(St) CH	1.12/2.95 AFB FRNC-C	MRC 200 FR	4.95	36	1000	400/120/ 330	20.0	100
1025639	02Y(St) CH	1.42/3.81 AFB FRNC-C	MRC 240 FR	6.1	54	1000	500/200/ 360	32.6	163
1025640	02Y(St) CH	2.74/7.24 AFB FRNC-C	MRC 400 FR	10.3	147	1000	760/470/ 500	90.4	452
1025641	02Y(St) CH	4.47/11.56 FRNC-C	MRC 600 FR	15.0	233	1000	1100/800 /694	89.6	448

**PWD (plywood drum)