

SYSTEM 1850 MI CABLE VS FIRE-RATED MC CABLE FACTS

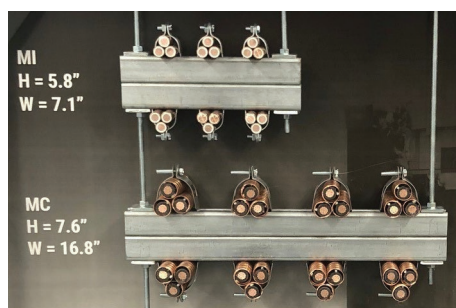
- nVent PYROTENAX System 1850 MI Cable and fire-rated MC Cable are both stand-alone systems and use the same labor rates. Fire-rated MC Cable is different than building wire MC Cable and should use a different labor rate. True building wire MC Cable is interlocked and forgiving when you pull it. Fire-rated MC Cable has a continuous corrugated copper sheath (more like a CLX cable) and is not forgiving when you pull it.
- System 1850 MI Cable is much smaller than fire-rated MC Cable. The OD of the 350kcmil MC Cable is over 50% larger (1.35 inches) than 350kcmil System 1850 MI Cable (.834 inches).
- System 1850 MI Cable is approximately 10% lighter than that of MC Cable.
- System 1850 MI Cable uses nearly 40% less supports for the same size of cable. MC Cable must be supported every 4 feet as compared to every 6 feet for System 1850 MI Cable. Additional supports are required where you bend the fire-rated MC Cable. All told MC Cable will routinely require at least 50% more cable than System 1850 MI Cable.
- The smaller diameter and smooth jacketing of System 1850 MI Cable makes for a much easier pull than the rough corrugated sheath of MC Cable.
- Stripping back the thick silicone rubber insulation on the MC Cable for terminations is difficult and time consuming. Their fittings are also expensive and hard to get.
- System 1850 MI Cable and MC Cable requires brass plates as per NEC Article 300.20 and nVent PYROTENAX is the only manufacturer that typically supplies them with the system.
- MC Cable typically has less than 10% of System 1850 MI Cable's mechanical strength and can easily be crushed.
- System 1850 MI Cable can be installed in low temperatures, even as low as -40°C/-40°F. MC Cable must be stored in a heated warehouse 24 hours prior to installation in order to not be damaged during installation.
- System 1850 MI Cable is completely inert and does not create any off gassing during a fire. MC Cable produces flammable gasses when exposed to fire. Tests have shown this off gassing can be ignited by an arcing device.
- MC Cable is very difficult to control during pulls, and requires rollers every 10-15 feet. Because of its more stable construction, System 1850 MI Cable is much easier to work with and control, only needing rollers every 35-40 feet.
- MC Cable cannot be used in hospitals due to the mechanical protection requirement of Article 517.31(C)(3) for emergency feeders.

KEY POINTS BETWEEN SYSTEM 1850 MI CABLE AND MC CABLE - CANADA

- System 1850 MI Cable uses completely inorganic materials which do not change during a fire, while MC will develop flammable smoke during a fire.
- System 1850 MI Cable allows larger spacing between supports (6 feet) vs fire-rated MC cable (4 feet).
- No 600v fire-rated splice is ULC approved for use with MC for any cable sizes. The fire-rated splice that is approved is only available for a maximum 480V application with conductors from 2 to 14 awg.
- System 1850 MI Cable is smaller and supports higher ampacity then equivalent size MC.

Example:

2160 amps requires 6 runs of 4/0 System 1850 MI Cable, while requiring 8 runs of 4/0 MC when bundled together to minimize Inductive heating. See visual comparison below:



NEC & CEC AMPACITNG RATINGS

• Ampacity Ratings are much better with System 1850 MI Cable (see charts below):

NEC

Cable ref #	AWG	Ampacity – 75°C			Ampacity – 90°C		
		Free Air		Multi Conductor	Free Air		Multi Conductor
		MI	MC ¹		MI	MC ¹	
1/2-449	2	170	151	115	190	158	130
1/1-496	1	195	177	130	220	185	145
1/1/0-512	1/0	230	206	150	260	214	170
1/2/0-580	2/0	265	239	175	300	247	195
1/3/0-621	3/0	310	276	200	350	287	225
1/4/0-684	4/0	360	324	230	405	335	260
1/250-746	250	405	361	255	455	374	290
1/350-834	350	505	448	310	570	464	350
1/500-1000	500	620	560	380	700	580	430

Notes:

1: Ampacities based on NEC (NFPA 70-2017) Article 330.80(B) and Table 310.15(B)(20) adjusted to 30°C ambient

CEC

Cable ref #	AWG	Ampacity – 75 deg			Ampacity – 90 deg		
		Free Air		Multi Conductor	Free Air		Multi Conductor
		MI ¹	MC ²		MI ¹	MC ²	
1/2-449	2	170	145	115	190	162	130
1/1-496	1	195	165	130	220	187	145
1/1/0-512	1/0	230	195	150	260	221	170
1/2/0-580	2/0	265	225	175	300	255	195
1/3/0-621	3/0	310	263	200	350	298	225
1/4/0-684	4/0	360	306	230	405	344	260
1/250-746	250	405	344	255	455	387	290
1/350-834	350	505	429	310	570	485	350
1/500-1000	500	620	527	380	700	595	430

Notes:

1: Ampacity per CEC Table 1 (without correction factors; as per CEC Table 1, Note 2 due to exception as noted in Rule 4-004, Note 11)

2: Ampacity per CEC Table 1 and correction factors as per CEC Table 1, Note 2

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PYROTENAX-AR-H60119-FireRatedMICablesMC-EN-2001