

Application Note

MC4 vs MC4-EVO2 Connectors

Introduction

The MC4 and the MC4-EVO-2 are both manufactured by Stäubli, they are of the same type MC4 and compatible for connection. The requirements of the clause (same type from same manufacturer) are met when mating these plug connectors. The other similarity is, they are both for low-voltage DC applications up to 100A. Please ensure adherence to low voltage installation standards SANS 10142-1.

- The material, manufacturer and overall function are identical.
- The clipping mechanism is also identical, allowing both Genuine and EVO2 connectors to combine seamlessly.
- The crimping tools for these connectors are different, MC4 crimping tool is not suitable for MC4-EVO2 connector.
- The EVO2 has a different design, encompassing more polished features and rib-cage structure on the outside. See pictures below



2. Feature Comparison

Both connectors are of the same family and have similar features and functions. The following table shows the basic features provided:

Technical Characteristics	MC4	MC4-EVO2
Rated voltage	1000V DC	1500V DC
Rated Current (30°C)	2.5mm ² /14 AWG: 39A 4.0mm ² /12 AWG: 51A 6.0mm ² /10 AWG: 65A 10.0mm ² /8 AWG: 104A	2.5mm ² /14 AWG: 39A 4.0mm ² /12 AWG: 51A 6.0mm ² /10 AWG: 65A 10.0mm ² /8 AWG: 90A
Rated surge voltage	12KV	16KV
Ambient temperature range	-40°C...+85°C	-40°C...+85°C
Upper limit temperature	105°C	115°C
Mating cycles	100	100
Degree of protection, mated	IP65	IP65
Unmated	IP2X	IP2X
Overvoltage category/ Pollution degree	CATIII/3	CATIII/3
Contact resistance of plug connectors	≤0.35mΩ	≤0.35mΩ
Locking system	Snap-in/locking type	Snap-in/locking type
Safety class	II	II
Contact system	MULTILAM	MULTILAM
Type of termination	Crimping	Crimping
Contact material	Tin-plated copper	Tin-plated copper
Warning	Do not disconnect under load	Do not disconnect under load
Insulation material	PC/PA	PA
Flame class	UL94-V0	UL94-V0

3. Cable insulation-outer diameter ranges (regarding the cable gland)

The following table shows the outer diameter ranges for connectable cables as well as the respective sealing element of the connector.

	MC4	MC4-EVO2
Cable outer diameter range	DZER6: 4.7mm - 6.2mm DZER7: 5.7mm - 7.4mm DZER9: 6.0mm - 8.8mm	Seal DI: 4.7mm - 6.4mm Seal DII: 6.4mm - 8.4mm

Note:

1. The MC4-EVO2 is designed to handle higher voltage module ratings than the Genuine MC4, managing the more modern 1500 Volts commercial modules.
2. If the connectors on the solar module are Stäubli MC4, the connectors on the installation wiring are Stäubli MC4 and the system voltage is less than 1000V on the module, both the Genuine and EVO2 can be wired together.