MMC Serie

Compact Quick-Releasable Connector

**… for a robust and ergonomic
high speed data connexion !**

Release 1.0 - JUNE 2016
www.bernier.tm.fr

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MMC

◆ Description

Bernier designed the MMC connectors specially for system in small spaces or wearable equipments.
The design is tough in order to go over harsh environments
It exists today in the 24 contacts version to be used for high speed data transmissions.

◆ Applications

Radios

Accessories

Intercoms

Crypted data

Quick-releasable   **Compact**

Stainless steel   **EMI RFI protection**

Robust   **Watertight**

Optronic devices

Weapon systems

Rugged computers

Tactical equipements

Specific Designs

◆ The Right Solution for your projects

MMC connectors are appreciated for their flexibility to fit customer specifications.
Our Design team is able to propose versions answering to your needs. Reinforcements can be applied in case of use in harder climatic, ergonomic and electromagnetic conditions.
Caps and backshells can also be improved to bring a better ergonomics on your configuration.

Joint de panneau / *Panel Oring*
Rondelle / *Washer*
Ecrou / *nut*
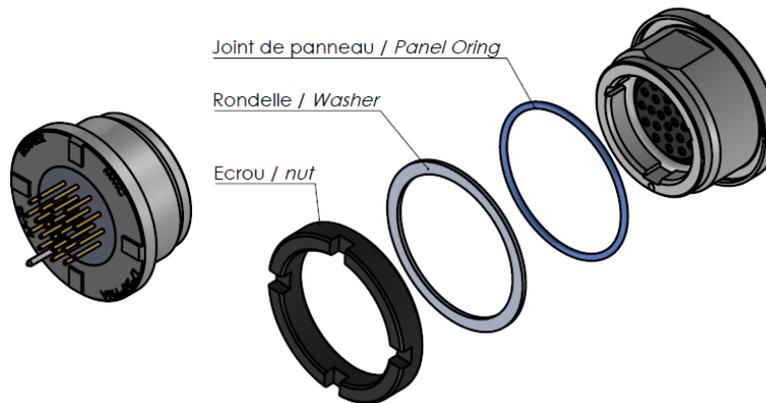
◆ EMC reinforcements

Conductive spring 360°

MMC standard receptacles are equipped with a ground ring giving a high EMC level. This function developed by Bernier brings a better continuity between the connectors shells and a protection on 360°

Conductive Orings

The receptacle Fluorosilicon Oring can be switched to a conductive version to establish a better conductivity between the connector and the panel.

Ground pins

One or several ground pins inserted in the connector shell can be set to link the chassis ground directly to the PCB.

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◆ Climatic and mechanical characteristics

	MMC
Unlocking system	Axial Force (40N ≤ F ≤ 70N)
Operating temperature range	-55°C to + 125°C
Endurance	5 000 Operations
Sealing performance	IP68 (connected and disconnected)
Corrosion resistance	Salt fog : 96 hours (Stainless steel)
Fluids resistance	Oils and hydrocarbons

◆ Electrical characteristics

	MMC Version (24 contacts)
Working voltage	60 V_{max}
Current rating per contact	2 A_{max}
Gauge (AWG)	24
Contact types	Soder cup / For PCB
Contact resistance	≤ 8 mOhms
Insulation resistance	>1000 MOhms
EMI RFI Protection	Yes

◆ Material and plating

	Matérial	Plating
Connector shell	Stainless steel	Sandblasting
Insulator	Thermoplastic	-
Contacts	Copper alloy	Gold over nickel
Backshell shell	Aluminium	Black chrome

RoHS 2 COMPLIANT

REACH COMPLIANT

Additional information

◆ **Weight**

Description	Weight (Max)
Receptacle	10 g
Plug	7 g
Extension	9 g
90° Elbow backshell	13 g

Standard material

◆ **Low Profile Dimensions**

25 mm
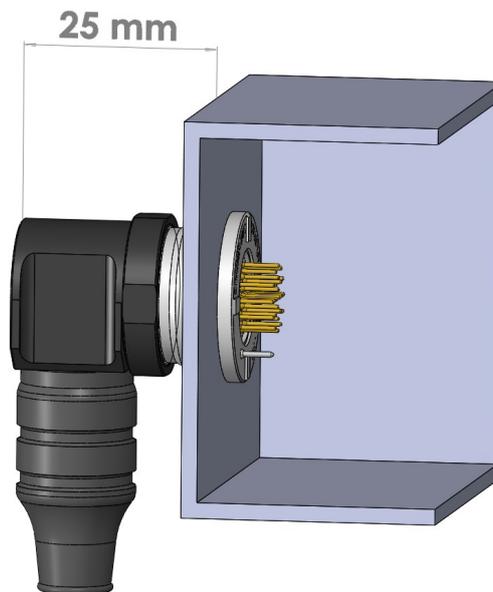
◆ **Keyway**

Keyway	Angle A	Color
K	70°	Orange
N	62°	Red
W	54°	White
X	46°	Green
Y	38°	Yellow
Z	30°	Blue
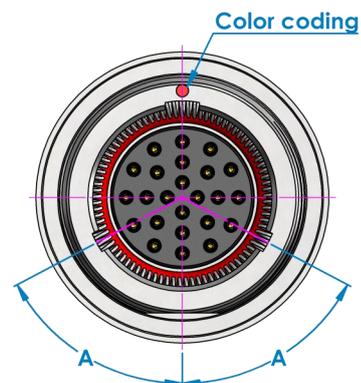
'T' tool version without keyway can mate all keyways.

Color coding

A   A

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◆ **Items mounted on cable**

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| **Sleeve** | **90° Elbow backshell** Fixing 'I' | **Plug** Type '5' | **Metallic or elastomer plug cap** |

Straight backshell Fixing 'C'

Extension Type '1'

Synoptic
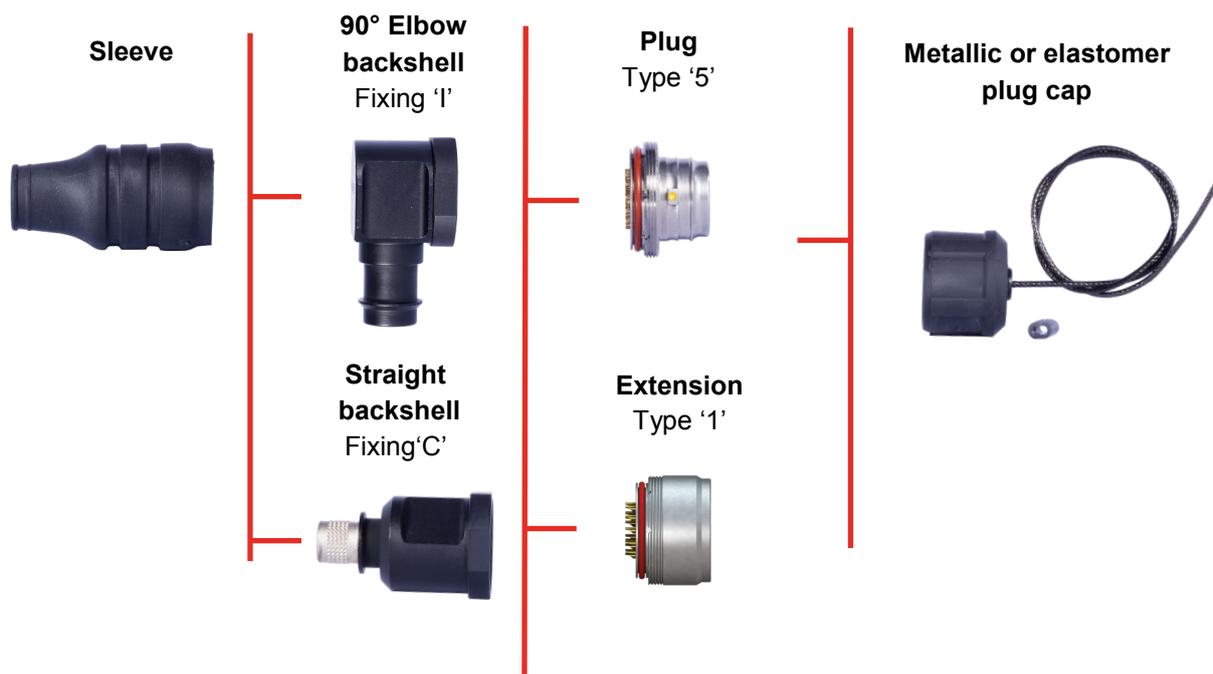
◆ **Items mounted on panel**

Thermoplastic or elastomer receptacle cap

Receptacle
Type '7'

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◆ Connectors

Description	Code
Serie	**MMC**
Locking (types '1' and '7') :	
Quick-releasable	**L**
Without locking spring	**SB**
Connector type :	
Extension	**1**
Plug	**5**
Receptacle	**7**
Keyway	**K, N, W, X, Y, Z, T**
Contact number	**24**
Contact types :	
Solder cup	**FS**
Contact for PCB	**P1**
Ground pin (type '7' only)	**PM**
Material :	
Stainless steel	**A**
Navy bronze	**BM**
Aluminium	**AL**

MMC	L	7	K	24	P1	PM	A

◆ Backshells

Description	Code
Serie	**MMC**
Type	**R**
Backshell type :	
Straight	**D**
90° Elbow	**C**
Type of tightening	**B**
Type of cable shield fixing :	
Metallic clamp	**C**
Crimping operation	**I**
Size (For type 'C' cable shield fixing)	**45,55,65**

MMC	R	D	B	C	-	45

◆ Backshell ends (On backshells with the 'I' type of cable shield fixing)

Description	Code
Serie	**MMC**
Type	**MAI**
Size	**45, 55, 65**

MMC	MAI	-	55

Part numbers

◆ Caps

Description	Code
Serie	MMC
Version : Simple Double Triple	**1** **2** **3**
Type : For plug For receptacle and extension	**A** **B**
Material : Stainless steel Aluminium Elastomer Thermoplastic	**A** **AL** **E** **T**
Attachment : Black covered stainless steel microcable	**MC**
Length (mm)	**See chapter « caps »**
Fixing : Metallic ring under the nut Crimped eyelet for M3 screw Ferule	**EM** **M3** **FER**
Heat-shrink sleeve on ferule	**M**

MMC	1	B	A	MC	-	200	FER	M

◆ Type '7' with contacts for PCB
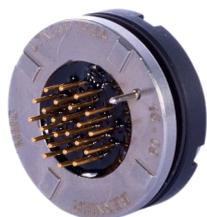
Key	Color
K	Orange
N	Red
W	White
X	Green
Y	Yellow
Z	Blue
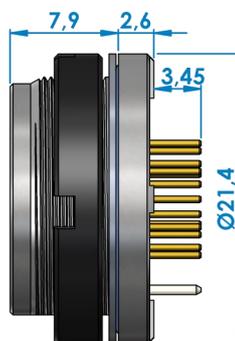
Connector delivered without
Nut-Oring-washer, see page accessories

Ex: MMC L 7N24P1PMA

Version '7' with solder cup contacts possible

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PCB holing and panel cuts

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◆ **PCB holing, connector side, through pins**

24 Contacts with Ground pin (PM)

⊕ 0.05
● GROUND

4,1
2,6
1,84
3,55
1,84
2,6
4,1
1,1
2,05
6,7

24 x Ø0,6 $^{+0,1}_{0}$

1,1
2,05
3,55
3,85

Ø0,8 $^{+0,1}_{0}$

◆ **Panel cut for type '7'**

Ø18,1 $^{+0,1}_{0}$

17,6 $^{+0,1}_{0}$

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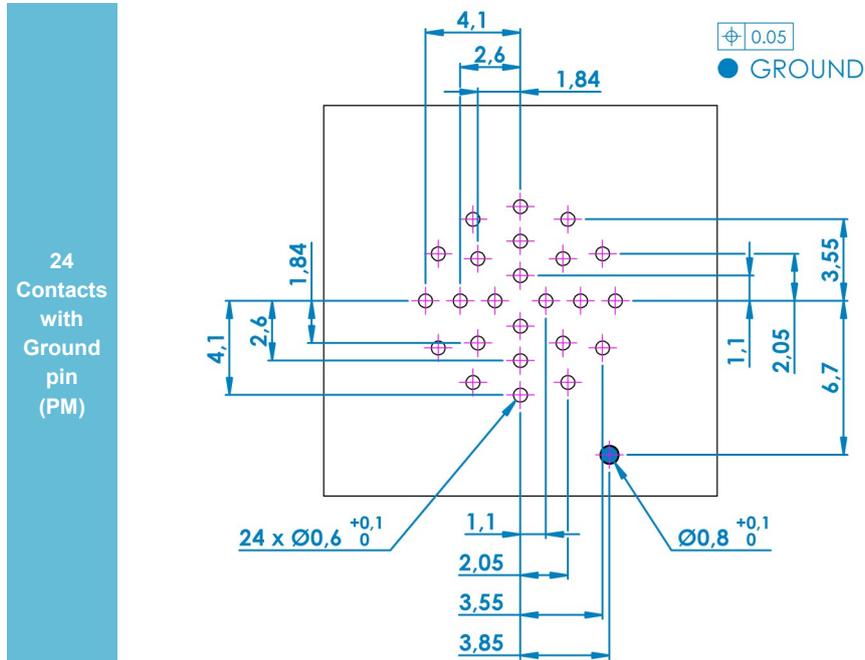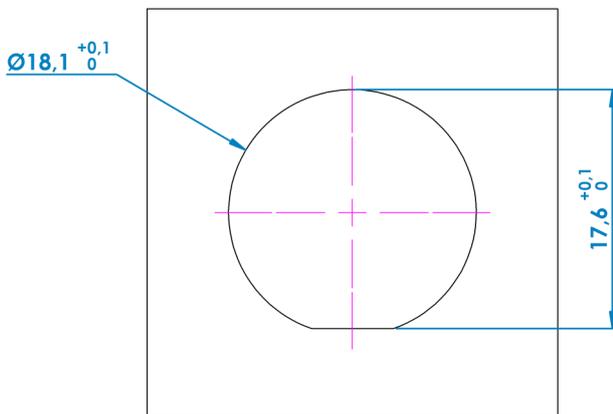
◆ Type '5' with solder cup contacts

Key	Color
K	Orange
N	Red
W	White
X	Green
Y	Yellow
Z	Blue

Insulator can be removed from the shell for cabling (fixing due to backshell tightening)

Ex: MMC 5N24FSA

12,6
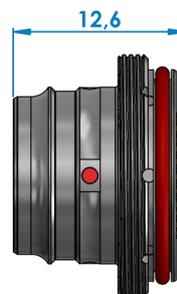
◆ Type '1' with solder cup contacts

Key	Color
K	Orange
N	Red
W	White
X	Green
Y	Yellow
Z	Blue

Ex: MMC 1N24FSA

14

10,2

Ø18

Ø0.73
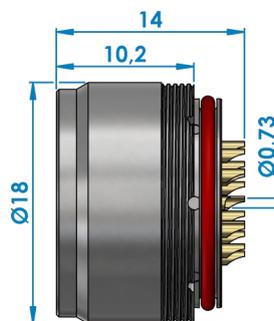
Backshells and Backshell ends

◆ Straight backshell with knurling

| Size	ØA	ØB	ØC	ØD
35	3.5	6.1	9.9	7.5
45	4.5	7.1	10.9	8.5
55	5.5	8.1	11.9	9.5
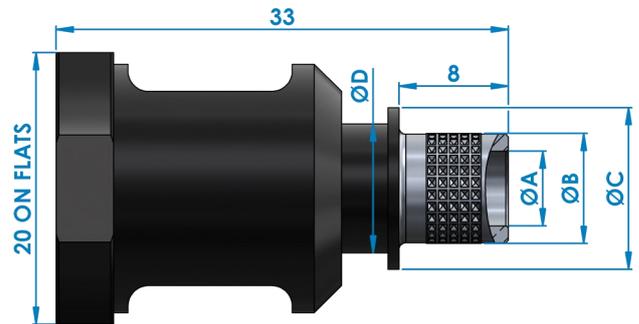
Ex : MMC RDBC-XX
Backshell for cable assembling with metallic collar and heat-shrink boot (not included)
Backshell also available in 90° elbow version

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◆ Elbow backshell with crimping operation
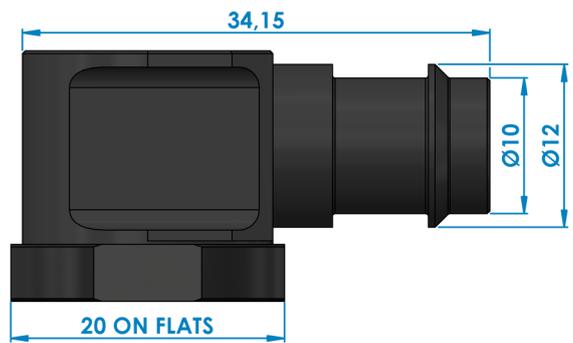
Ex : MMC RCBI
Backshell end MMC MAI –XX necessary to make the crimping operation.
Backshell also available in straight version

◆ Backshell ends

Size	ØA
45	4.5
55	5.5
65	6.5

Ex : MMC MAI-XX

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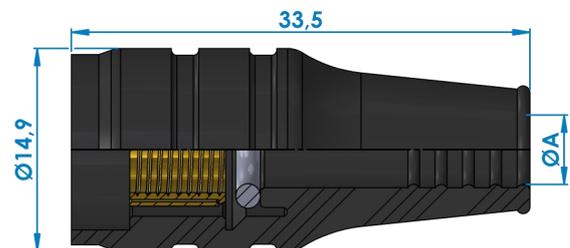
◆ Caps for plugs

| With...	Elastomer *Watertight IP68*	Metallic black *Watertight IP68/*
Ferule*	MMC 1AEMC-200FER	MMC 1AAMC-200FER
Stock cap	Contact us	Contact us

* Ferule is delivered separately to fix with the better length during assembling

Ex: MMC 1AEMC-200FER

◆ Caps for receptacles and extensions

With...	Thermoplastic *Watertightness IP67*		Metallic *Watertightness IP68/EMC*	
	Simple	**Triple**	**Simple**	**Triple**
Ferule*	MMC 1BTMC-200FER	MMC 3BTMC-200FER	MMC 1BAMC-200FER	MMC 3BAMC-200FER
Metallic ring	MMC 1BTMC-200EM	MMC 3BTMC-200EM	MMC 1BAMC-200EM	MMC 3BAMC-200EM
Crimped eyelet for M3 screw	MMC 1BTMC-200M3	MMC 3BTMC-200M3	MMC 1BAMC-200M3	MMC 3BAMC-200M3
Stock cap	Contact us		Contact us	

* Ferule is delivered separately to fix with the better length during assembling

MMC 3BTMC-75-45EM

Terminations

◆ **Terminations**

Some terminations can accept several lanyards

Plastic clamp	Ferule	Metallic ring

Eyelet for M3 screw	Crimped eyelet for M3 screw	90° crimped eyelet for M3 screw

◆ Accessories

| Type	Part number
Fluorosilicon Oring (standard)	MMC JBFS01
Conductive Oring (Fluorosilicon charged with Nickel and Graphite)	MMC JBFS02
Conductive Oring (Fluorosilicon charged with Silver and Aluminium)	MMC JBFS03
Aluminium receptacle washer	MMC RNAL01
Aluminium receptacle nut	MMC ENAL01

Ø21,4
Ep 0.5

Ø21,4
Ep 3.5

MMC JBFS01   **MMC RNAL01**   **MMC JBFS01**

Metallic clamp for backshell type C	Part number	L (mm)	h (mm)	l1 (mm)	l2 (mm)	Ep. (mm)
Metallic clamp width 6.1mm	B593	362.1	1.88	8.9	6.1	0.51
Metallic clamp width 3.17mm	B452	206.4	1.35	5	3.1	0.4

L

h

Ep.

Repère longueur

51,59

l1

3,96

l2

Tooling
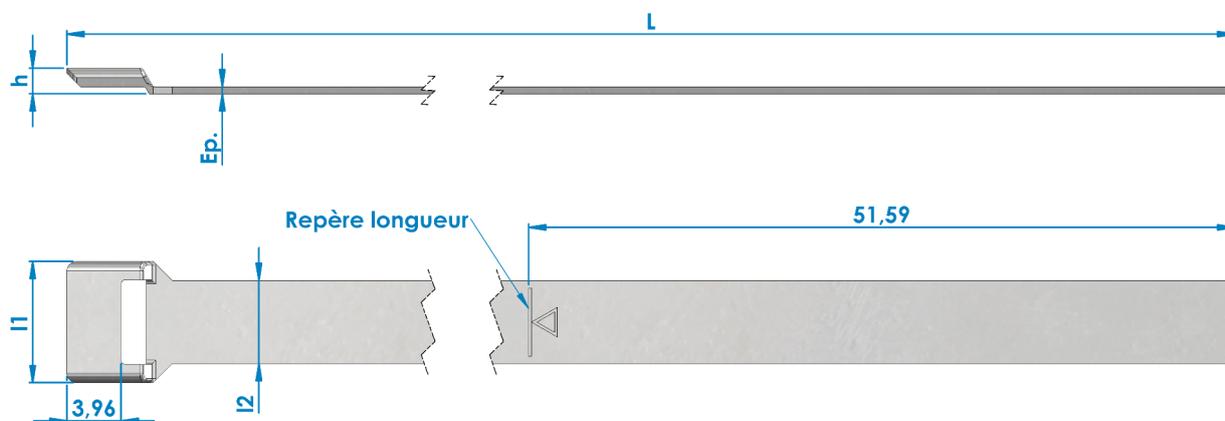
◆ Tools for receptacle

Description	Part number
Tightening key	MMC CGA001

MMC CGA001

◆ Tightening torque

Connector material	Torque
Stainless steel	9 N.m
Aluminium	6 N.m

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◆ Cabling tools

Tools for backshell mounting	Part number
Crimping jaws for backshell MMC type 'I'	MMC MNA001
Metallic clamp crimping tool for backshells type 'C'	BOU000MESE02 or 03
Key for the tightening of the backshell ring	MMC CGA02

MMC MNA001

BOU00MESE02

MMC CGA02

Cabling

◆ **Assembly of backshell MMC RDBI + backshell end MMC MAI-XX on cable**

1

-Prepare cable and backshell items
-Solder the cable wires on the connector contacts

2

-Tighten (with the recommanded torque) the backshell on the connector.
-Bring the assembly 'Ferule-shield-cable ' in position inside the backshell pulling on the cable.
-Proceed the crimping operation following the datasheet and the recommended tools.

3

-Bring the Orings and the elastomer sleeve in position.

◆ **Assembly of backshell MMC RDBC-XX**

1

-Prepare cable and backshell items (metallic clamp and heat shrink boot not included in the backshell part number)
-Solder the cable wires on the connector contacts

2

-Tighten (with the recommanded torque) the backshell on the connector.
-Tighten the metallic clamp to fix the cable shield on the backshell knurled area.
-Cover with a heat shrink boot, a molded part or proceed an overmolding operation.

Catalogs

Ask for our other catalogs :

afaq
ISO 9001
Qualité
AFNOR CERTIFICATION

CMA Serie
Push-Pull / Quick-Releasable Connector
... For an optimum data transfer in harsh environments !
Catalog

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Push-Pull Connector
... Toughness and reliable high speed data transfer in small dimensions !
Catalog

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... Toughness and Ergonomics allied with a high contact density configuration !
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