

MMC – Low Profile Circular Connectors & Harnesses

50% smaller than MIL-38999 • Applications requiring a Rugged 38999 style, but smaller size



We supply the low profile rugged MMC series which is similar in performance to MIL-38999 Series III, but provides 50% size and weight reduction. These are available in a variety of shell sizes and insert arrangements. We provide harnesses based on this low profile circular rugged connector in conjunction with other connectors like MIL-38999, MIL-83513 Micro-D, MIL-24308 D-Sub amongst others. Harnesses include single branch or complex multi-branches. A hi-quality process and test setup from renowned vendors ensures reliability for military applications.

APPLICATIONS

- Handheld communication, ECM
- Man-Portable Military Equipments
- Missiles, Radar systems
- GPS, Navigation systems

FEATURES

- 100% tested for voltage, insulation resistance and continuity
- Temperature range upto 200C.
- Complex harnesses with Micro-D, MMMC series, D-sub or any other MIL connectors
- Single branch or complex multi-branch harnesses



MIL-38999
6 contacts

**50% size &
Weight reduction**



MMC Series
7 contact

Specifications of MMC Connectors

Electrical Data

Current Rating	5 A max (with size 23 contacts)	
Contact Resistance	8 Milliohms maximum	MIL-STD-202 Method 307
Insulation Resistance	5000 MΩ min.	
Voltage Rating	500 VAC at sea level	

Mechanical

Mating Life (min.)	2000 mating cycles	
Operating Temp.	-55°C ~ +150°C	
Vibration	40 g's	MIL-STD-1344 Method 2005, Condition IV
Shock	300 g's	MIL-STD-1344 Method 2004, Condition E

Materials and Platings

	Materials	Plating
Contacts	Cu alloy per ASTM B140	Au Plated over Nickel
Metal Shell	Aluminium Alloy	
Insulator	Thermostatic	
Seal	Fluorosilicone elastomer	
Insulated Wire	PTFE, per MIL-W-22579 White or Color Coded per MIL-STD-681, System 1	

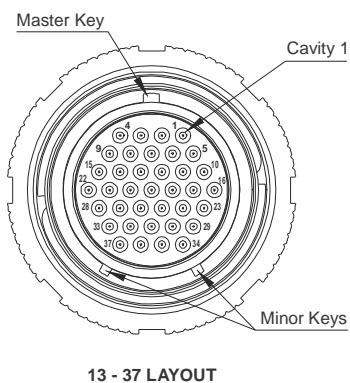
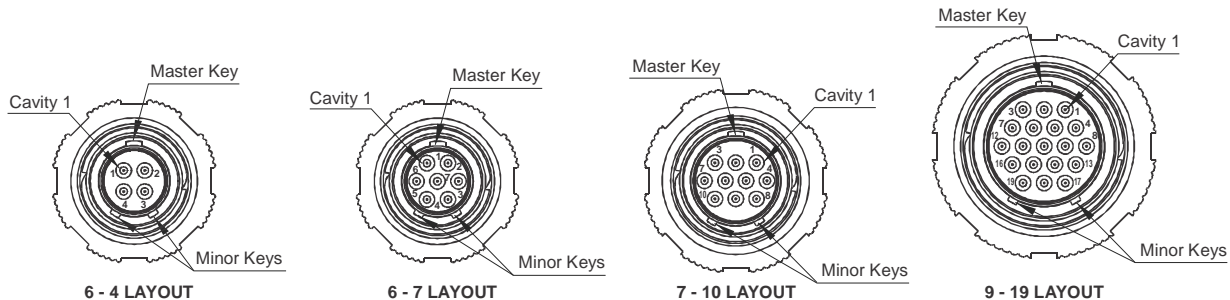
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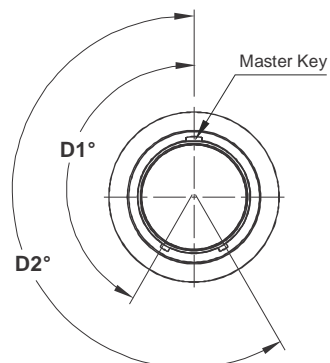
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Shell Styles and Insert Patterns



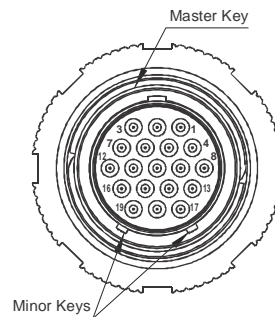
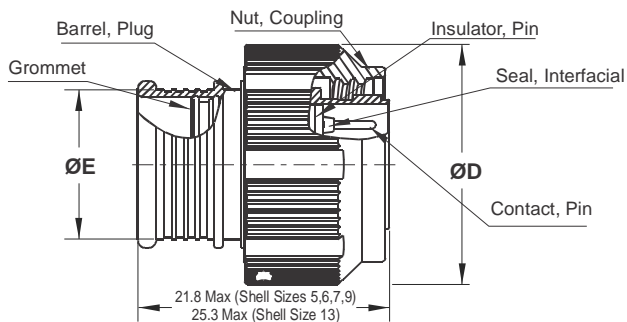
Keyway Positions

Barrel Clocking		
Position	D1°	D2°
A (Normal)	150°	210°
B	75°	210°
C	95°	230°
D	140°	275°



Picture shows Position A, Master key is stationary on top for all positions

Mechanical Details for MMC Series - Plugs

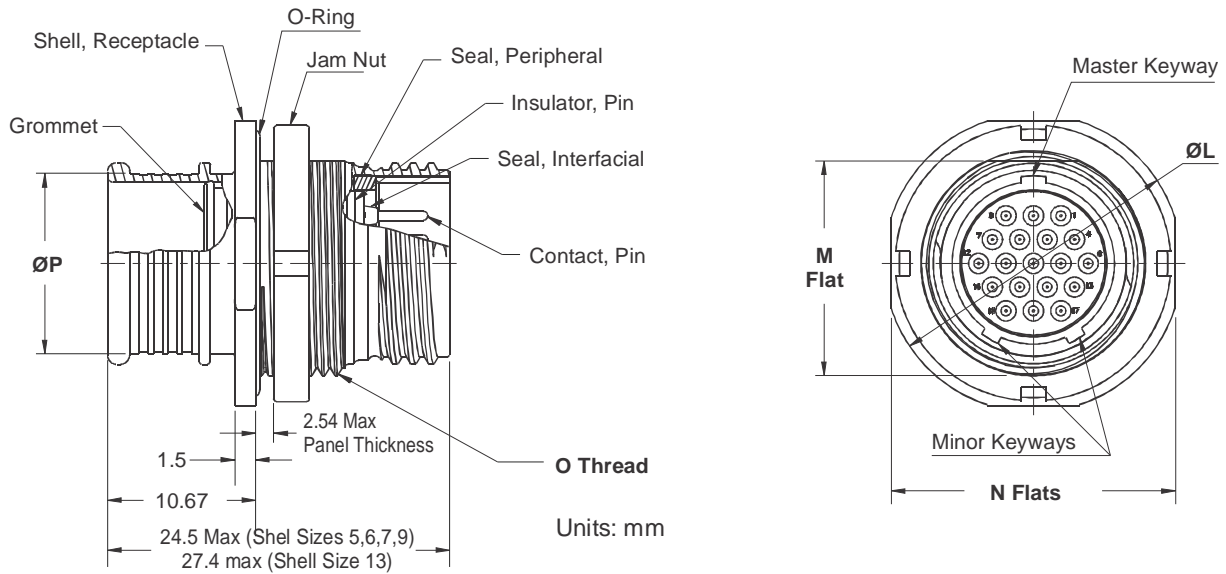


Order Code	Layout	Ø D	Ø E	Type	Weight (grams) max.
MMC1A6W6-4PA	6-4	15.2	7.4	Pin	5
MMC1A6W6-6PA	6-7	15.2	7.4	Pin	5.1
MMC1A6W7-10PA	7-10	17.3	9.9	Pin	6.9
MMC1A6W9-19PA	9-19	20.5	12.7	Pin	9.4
MMC1A6W13-37PA	13-37	26.6	16.5	Pin	18.9
MMC1A6W6-4SA	6-4	15.2	7.4	Socket	5.5
MMC1A6W6-6SA	6-7	15.2	7.4	Socket	5.5
MMC1A6W7-10SA	7-10	17.3	9.9	Socket	7.7
MMC1A6W9-19SA	9-19	20.5	12.7	Socket	10.9
MMC1A6W13-37SA	13-37	26.6	16.5	Socket	21.7

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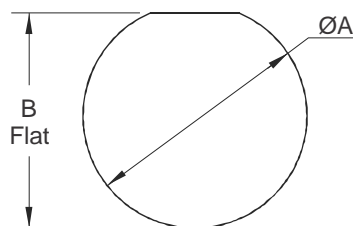
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Mechanical Details for MMC Series - Panel Receptacles



Order Code	Layout	Ø L Flange Dia	M Flats	N Flats	O Thread	Ø P	Type	Weight (g) max.
MMC1A7W6-4PA	6-4	16.1	10.4	15.1	11.1	7.3	Pin	4.1
MMC1A7W6-6PA	6-7	16.1	10.4	15.1	11.1	7.3	Pin	4.2
MMC1A7W7-10PA	7-10	19.1	13.6	18.3	14.3	9.9	Pin	6.2
MMC1A7W9-19PA	9-19	21.1	15.1	20.1	15.8	12.7	Pin	7.8
MMC1A7W13-37PA	13-37	27.4	21.4	26.5	22.2	16.5	Pin	14.6
MMC1A7W6-4SA	6-4	16.1	10.4	15.1	11.1	7.3	Socket	4.6
MMC1A7W6-6SA	6-7	16.1	10.4	15.1	11.1	7.3	Socket	4.6
MMC1A7W7-10SA	7-10	19.1	13.6	18.3	14.3	9.9	Socket	7
MMC1A7W9-19SA	9-19	21.1	15.1	20.1	15.8	12.7	Socket	9.3
MMC1A7W13-37SA	13-37	27.4	21.4	26.5	22.2	16.5	Socket	17.3

Panel Cutout



Layout	ØA Flange Dia	B Flat
6-4	10.7	11.4
6-7	10.7	11.4
7-10	14.1	14.6
9-19	15.4	16.1
13-37	21.8	22.4

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MMC – Low Profile Circular Connectors & Harnesses

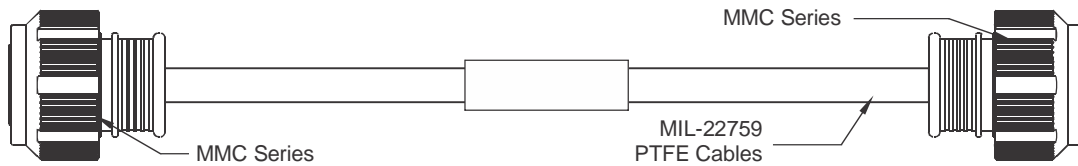
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Ordering Codes Description

(Connector 1) (Connector 2) (Length) (Cable)
 MID - □□□□□ - □□□□□ - □□ - □□□ - □ - □□
A 1 2 B C A 1 2 B C L U G H I J K K

	A	Connector Type Code	Micro-D MIL83513 = M ; MIL38999 Series III = D3 ; Open = O ; D-Sub MIL24308 = DS ; MMC = MMC
Codes for MMC	1&2	MMC Shell Type	Jamnut Receptacle = 7 ; Plug = 6
	B	Material & Plating	olive drab Cd over electroless Ni = W
	C	MMC shell size & arrangement	6-4 = Size 6, 4 contacts ; 6-7 = Size 6, 7 contacts ; 7-10 = Size 7, 10 contacts ; 9-19 = Size 9, 19 contacts ; 13-37 = Size 13, 37 contacts
	LU	Cable Length & Unit of Measure	Inch = I ; Centimeter = C; meter = M ; Feet = F 18 Inch = 18I; 40 cm = 40C; 2 meter = 2M
	G	Cable Type	PTFE MIL22579 = P; ETFE MIL22579 = E
	H	Cable AWG	AWG24 = 24; AWG26 = 26; AWG28 = 28; AWG30=30
	I	Cable Color	White = W ; 10 Color Repeat = R
	J	No. of Branches	1 Branch = 1 ; 2 Branches = 2 and so on
	KK	Internal customization	Used for Internal Purpose; Default = 00

MMC ~ MMC Cable Sets, 1 Branch



Our Part Number	Length Inches(cm)	Wires	Connector 1	Connector 2	Size	Cable Type	Cable Colour	AWG
MID- MMC6W6-7- MMC6W6-7-18I-E26W-1-00	18 (46)	7	MMC Plug	MMC Plug	6-7	ETFE	White	26
MID- MMC6W6-7- MMC6W6-7-36I-E26W-1-00	36 (92)	7	MMC Plug	MMC Plug	6-7	ETFE	White	26
MID- MMC6W6-7- MMC6W6-7-18I-E26R-1-00	18 (46)	7	MMC Plug	MMC Plug	6-7	ETFE	10 repeat	26
MID- MMC6W6-7- MMC6W6-7-36I-E26R-1-00	36 (92)	7	MMC Plug	MMC Plug	6-7	ETFE	10 repeat	26
MID-MMC6W9-19- MMC6W9-19-18I-P26W-1-00	18 (46)	19	MMC Plug	MMC Plug	9-19	ETFE	White	26
MID- MMC6W9-19- MMC6W9-19-36I-P26W-1-00	36 (92)	19	MMC Plug	MMC Plug	9-19	ETFE	White	26
MID- MMC6W9-19- MMC6W9-19-18I-P26R-1-00	18 (46)	19	MMC Plug	MMC Plug	9-19	ETFE	10 repeat	26
MID- MMC6W9-19- MMC6W9-19-36I-P26R-1-00	36 (92)	19	MMC Plug	MMC Plug	9-19	ETFE	10 repeat	26
MID-MMC6W13-37- MMC6W13-37-18I-P26W-1-00	18 (46)	37	MMC Plug	MMC Plug	13-37	ETFE	White	26
MID-MMC6W13-37- MMC6W13-37-36I-P26W-1-00	36 (92)	37	MMC Plug	MMC Plug	13-37	ETFE	White	26
MID- MMC6W13-37- MMC6W13-37-18I-P26R-1-00	18 (46)	37	MMC Plug	MMC Plug	13-37	ETFE	10 repeat	26
MID- MMC6W13-37- MMC6W13-37-36I-P26R-1-00	36 (92)	37	MMC Plug	MMC Plug	13-37	ETFE	10 repeat	26

Note: Custom designs as per customer asked lengths, different number of contacts, other MIL-22579 wires, wire colors, insert patterns, connector combinations and other customizations possible on request.

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MMC Series – Backshells



Order Code	Shell Size	Type
MMCBC-2-0-W	6	Clamp
MMCBC-4-0-W	7	Clamp
MMCBC-6-0-W	9	Clamp
MMCBC-8-0-W	13	Clamp

Order Code	Shell Size	Type
MMCBS-2-6-W	6	Straight
MMCBS-4-6-W	7	Straight
MMCBS-6-6-W	9	Straight
MMCBS-8-6-W	13	Straight

Order Code	Shell Size	Type
MMCBN-2-0-W	6	90 Degree
MMCBN-4-0-W	7	90 Degree
MMCBN-6-0-W	9	90 Degree
MMCBN-8-0-W	13	90 Degree

MMC Series – Heat Shrink Boots

Order Code	Shell Size	Type
MMC-2010-017	6,7	Straight
MMC-2010-018	9	Straight
MMC-2010-019	13	Straight

Order Code	Shell Size	Type
MMC-2010-020	6,7	90 degree
MMC-2010-021	9	90 degree
MMC-2010-022	13	90 degree

MMC Series – Dust Caps



Order Code	Shell Size	Type
MMCD1-6-P-W	6	Plug
MMCD1-7-P-W	7	Plug
MMCD1-9-P-W	9	Plug
MMCD1-13-P-W	13	Plug
MMCD1-6-R-W	6	Receptacle
MMCD1-7-R-W	7	Receptacle
MMCD1-9-R-W	9	Receptacle
MMCD1-13-R-W	13	Receptacle

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MIL-22759 Extruded-PTFE (ETFE) Cable - Technical Data



Construction	
Conductor	: Silver Plated Copper (SPC)
Insulation	: ETFE
Temperature rating	: -65 / +150°C
Voltage	: 600VAC
Test Voltage	: 3400VAC

Colour code:

● Black	: 00	● Green	: 55
● Brown	: 11	● Blue	: 66
● Red	: 22	● Violet	: 77
● Orange	: 33	● Grey	: 88
● Yellow	: 44	○ White	: 99

Type	Size		Conductor			Finished Wire			
	AWG	mm ²	Stranding	Wire Ø mm	DC Res @ 20°C (Ω/km)	Core Ømm	Tolerance	Weight Kg/Km	Amps @40°C
M-ZLA 2619	26	0.155	19 x 0.10	0.48	147	0.81	±0.05	1.9	6
M-ZLA 2419	24	0.241	19 x 0.13	0.60	93.1	0.91	+0.06 -0.05	2.8	9
M-ZLA 2219	22	0.382	19 x 0.16	0.76	57.4	1.09	+0.06 -0.05	4.2	12
M-ZLA 2019	20	0.597	19 x 0.20	0.96	35.1	1.30	+0.06 -0.05	6.4	16

Physical & Mechanical	Test Method	Conditions	Value
Operating temperature	IEC 60216	20000 hrs	155°C
Elongation at break	ASTM D638		300%
Flexural modulus	ASTM D790		1380 MPa
Hardness	ASTM D2240		67 D
Radiation resistance	IEC 60544		10 E5 Gy
Temperature range			-100 to 155°C
Tensile strength at break	ASTM D638		45 Mpa
Water absorption	ASTM D570	25°C	< 0.01%
Dielectric constant	ASTM D150	0.1 kHz / 10 MHz	2.6 / 2.6
Dissipation factor	ASTM D150	1.2 kHz / 10 MHz	0.001 / 0.004
Volume resistivity	ASTM D257		10 E16 ohms-cm
Combustion corrosivity	DIN 57472-813		pH 2.6 / 2700uS/cm
Flammability	UL 94	1.6mm	V-0
Oxygen index	ASTM D2863		31%
Smoke index	Def Stan 61-12 Pt 18/2	per m wire	1
Temperature index	NES 715		290°C
Toxicity index	Def Stan 61-12 Pt 18/2	per m wire	5
Acid, Fuels, Oils Resistance			Excellent

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Specifications for MIL Cable Harness (Micro Circular~Micro Circular)

Serial Number	Length Inches(cm)	Wires	Connector 1	Connector 2	Size	Cable Type	Cable Colour	AWG
1	18 (46)	7	Micro Circular Plug	Micro Circular Plug	6-7	ETFE	White	26

Harness Construction

- Cable is QPL'ed as per MIL -22759
- Connectors are of reputed make like ITT Canon or Equivalent
- Harness have heat shrink conforming to MIL-23053/4
- All items are provided as a set
- Harness is 100% tested for Pin-Pin high-Voltage isolation and test report with leakage current submitted for each pin-pin test

Connector Specifications

- Current Rating : 5 A max (with size 23 contacts)
- Contact Resistance : 8 Milliohms maximum, MIL-STD-202 Method 307
- Insulation Resistance : 5000 MΩ min.
- Voltage Rating : 500 VAC at sea level
- Mating Life (min.) : 2000 mating cycles
- Operating Temp. : -55°C ~ +150°C
- Vibration : 40 g's, MIL-STD-1344 Method 2005, Condition IV
- Shock : 300 g's, MIL-STD-1344 Method 2004, Condition E
- Contacts : Cu alloy per ASTM B140, Au Plated over Nickel
- Metal Shell : Aluminium Alloy
- Insulator : Thermostatic
- Seal : Fluorosilicone elastomer

Cable Specifications (Cable should be QPL'ed as per MIL -22759 (COC may be asked))

- Cable Size : AWG 26 (19 strands)
- Conductor : Silver Plated Copper (SPC)
- Insulation : ETFE
- Temperature rating : -65 / +150°C
- Voltage : 600VAC
- Test voltage : 3400VAC
- Hardness : 67 D, ASTM D2240
- Radiation resistance : 10 E5 Gy, IEC 60544
- Tensile strength at break : 45 Mpa, ASTM D638
- Water absorption : < 0.01%, ASTM D570
- Volume resistivity : 10 E16 ohms-cm, ASTM D257
- Flammability : UL 94V-O, 1.6mm
- Acid, Fuels, Oils Resistance : Excellent

Heat Shrink Tube Specifications

- MIL Specs : Should conform to MIL-23053/4
- Flame Retardent : Yes
- Type : Dual Walled
- Temperature Range : -55 to +110°C