

## MC3 MKII Fiber Optic Multiway Connectors

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#### Product Facts

- **Insert-to-insert keying assists precision alignment**
- **Individually rear insertable/removable optical contacts enable easy assembly**
- **Backshells and adaptors available for most single and multifiber cable types**

#### General Specifications

**Fiber type** – Multi and Singlemode fiber

Ranging from 5 to 200µm core diameters

**Channels** – 5, 8 and 12 Optical channels

**Cable size** – 1.5 mm to 3.0 mm outer jacket

#### Materials

**Shell** – Aluminium; nickel plated  
Aluminium; cadmium plate olive drab  
Aluminium bronze (special order)

#### Contact body

**Arcap** – Titanium

**Ferrule** – Zirconia

**Alignment sleeve** – Zirconia

**Seals** – Fluorosilicone or nitrile

**Plating** – Aluminium, nickel plated  
Aluminium, cadmium plate olive drab  
Aluminium bronze (special order)

#### Optical Performance

**Insertion loss** - 0.25dB typical\*

**Return loss** - 40dB typical\*

**Repeatability** - Typically better than 0.1db with 50/125µm fiber

#### Environmental Specification

##### Temperature

**High temperature endurance** - +155°C\*

**Low temperature endurance** - 65°C\*

**Durability** - Greater than 500 mating cycles

##### Vibration

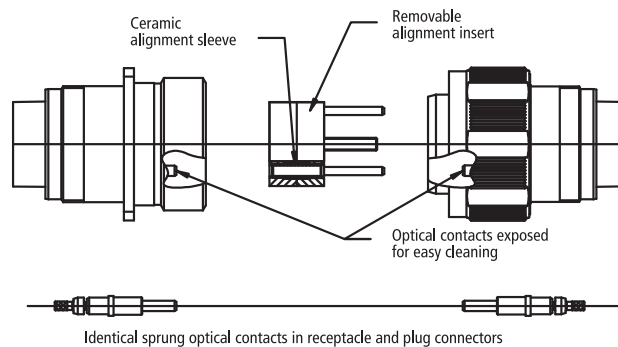
**Sinusoidal** - 5-3000Hz, 30g

**Bump** - 4000 bumps, 40g

The MC3 range of high performance connectors incorporates individual optical contacts inserted from the rear.

The removable socket insert allows for easy access to the optical faces to aid cleaning and maintenance.

The MC3 MkII range has the same removable alignment insert feature as the MC3 for easy cleaning (which can be specified in either receptacle or plug), and is suitable for use with most single-mode and multimode optical fibres with core diameters from 5 to 200µm. 5, 8 and 12 optical channels are accommodated in the MIL-C-38999 Series III style connector shells. The MC3 MkII connector range has been tested and approved for use in severe environments.



#### Key Features

- Precision Zirconia ceramic ferrules and alignment sleeves ensure superior, repeatable optical performance with physical contact polishing techniques
- Insert-to-insert keying assists precision alignment
- Individually rear insertable/removable optical contacts enable easy assembly
- Easily removable alignment sleeve insert facilitates simple cleaning and maintenance
- Colored band indicates full mating
- Identical optical contacts are spring loaded in both plug and receptacle to maintain physical contact even under severe shock or vibration conditions (rigid contact option available for receptacle)
- Simple termination process and tooling
- Backshells and adaptors available for most single and multifiber cable types
- MIL-C-38999 Series III anti-vibration coupling mechanism and tri-start thread
- Alternative shell keyway orientations provide protection from inadvertent mis-mating
- Dynamic 'O' ring seal between mating shells provides water submersion capability

\*fiber and polishing process dependent

**MC3 MKII Fiber Optic Multiway Connectors** (Continued)

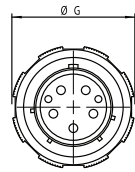
**Insert Arrangement**

Size - Arrangement	A	B1	B2	C1	C2	D	Thread E	Thread F tri-start dimensions (inches)	ØG	ØH	ØJ	ØK	ØL
19-5	36.58	29.35	26.98	5	3.5	27.84	M28 x 1.0	1.250	37.92	27.7	35.4	36.92	29.46
23-8	42.98	34.92	31.75	6.23	4	33.84	M34 x 1.0	1.500	44.12	33.7	41.75	43.12	35.81
25-12	46.02	38.11	34.92	6.23	4	36.84	M37 x 1.0	1.625	47.35	36.7	44.93	46.35	38.99

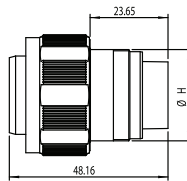
**Dimensional Information**

All dimensions in inches (except threads). To complete part number for ordering see 'ordering information'

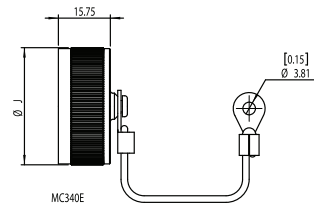
**Plug**



MC306E2

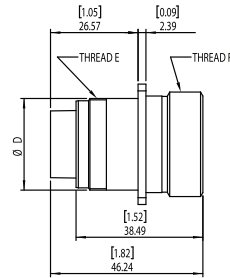


**Procap**

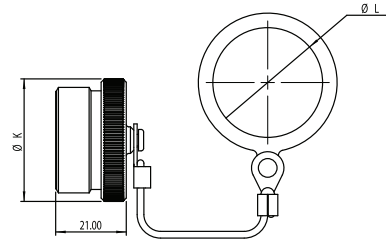
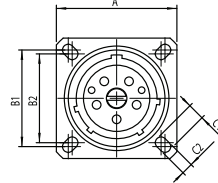


MC340E

**Receptacle**

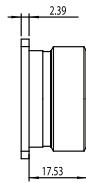


MC300E2

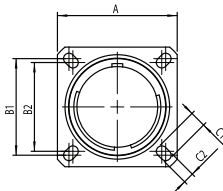


MC320E

**Dummy Receptacle**



MC330E



**MC3 MKII Fiber Optic Multiway Connectors** (Continued)

**Optical Contacts (ordered separately)**

Optical contacts are supplied with a profile formed optical end face and are available for singlemode or multimode fibers. Contacts are available in either sprung or rigid versions, depending upon application (rigid contacts should be used in bulkhead receptacles only).



Optical Contacts (ordered separately)

Options are as follows:

\*\*\*1 Optical hole Ø 'A' fiber size (see table 1)

\*\*2 Cable type (see table 2)

Please note: for type 00 (\*\*2) the cable crimp sleeve is not supplied i.e. for terminating buffered fiber.

**Table 1 (\*\*\*)**

Rigid Contact		Sprung Contact	
Part number (multimode) 455***-***1-**2	Part number (singlemode) 455***-***1-**2	Part number (multimode) 455***-***1-**2	Part number (singlemode) 455***-***1-**2
455494-128-**2	455617-126-**2	455500-128-**2	455500-128-**2
455494-145-**2	455617-127-**2	455500-145-**2	455500-145-**2
455494-162-**2		455500-162-**2	
455494-176-**2		455500-176-**2	
455494-232-**2		455500-232-**2	
455494-283-**2		455500-283-**2	
455737-232-**2		455500-1MM-**2	
		455738-232-**2	

**Table 2 (\*\*\*)**

Contact Type		Cable Type		Crimp Dies (see note)		
Rigid	Sprung	Plain buffer	Tight jacket cable	Crimp Sleeve	Part number	A / F
455494-***1-00	455500-***1-00	900µm-	-	-	455608	1.64 / 1.74
455617-***1-00	455616-***1-00	900µm	-	-	455608	1.64 / 1.74
455494-***1-01	455500-***1-01	-	Ø2.5 OD	455610-01	455608	3.10 / 3.12
455617-***1-01	455616-***1-01	-	Ø2.5 OD	455610-01	455608	3.10 / 3.12
455494-***1-02	455500-***1-02	-	Ø1.8 OD	455610-02	455608	3.10 / 3.12
455617-***1-02	455616-***1-02	-	Ø1.8 OD	455610-02	455608	3.10 / 3.12
455494-***1-03	455500-***1-03	-	Ø3.0 OD	455610-03	455608	3.56 / 3.48
455617-***1-03	455616-***1-03	-	Ø3.0 OD	455610-03	455608	3.56 / 3.48
455494-***1-04	455500-***1-04	-	Ø2.1 OD	455610-04	455608	3.10 / 3.12
455617-***1-04	455616-***1-04	-	Ø2.1 OD	455610-04	455608	3.10 / 3.12
-	455500-1MM-00	-	Ø2.2 OD	-	455697	2.62 / 2.72
455737-***1-00	455738-***1-00	-	Ø1.5 OD	-	455478	2.27 / 2.37

Please note: for alternative sizes, please consult technical sales.

Cable Type / Description	Cable Ø O/D mm
Multiway cable, with 900µm buffered fiber and peripheral strain relief	3.5
	4.5
	5.0
	5.5
	6.0
Multiway cable, various constructions - e.g. central strain relief	7.0
	Backshells are available for a range of multiway cables, please consult technical sales

Please note: Crimp dies are used with crimp tool 451716 (Erma 29020).

**MC3 MKII Fiber Optic Multiway Connectors** (Continued)

**Ordering Information**

**Series:**

**Style:**

- 00 = Bulkhead receptacle
- 06 = Plug
- 07 = Jam nut receptacle
- 20 = Protective plug
- 30 = Dummy receptacle
- 40 = Protective cap receptacle

**MkII:**

2 for 00 Bulkhead receptacle, 06 plug and 07 Jam nut Receptacle only. Otherwise omitted

**Shell finish:**

- N = Nickel plated
- C = Cadmium plated olive drab

**Shell size - no. of channels:**

19-5, 23-8, 25-12

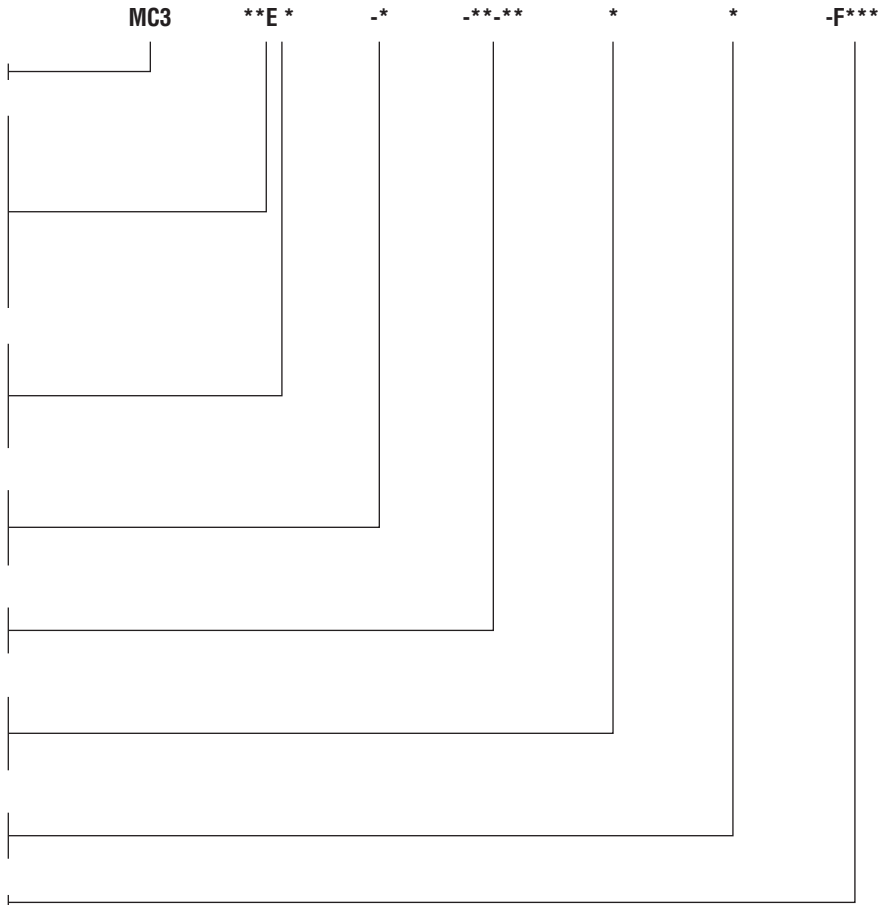
**Insert type**

P, S (S type includes the removable alignment insert)

**Shell orientation:**

N, B, C, E, F and 'U' Universal

**Modification code:**



**Example part numbers:**

- Connector MC300E2-N-19-5SN
- Protective cap MC340E-N-19
- Dummy receptacle MC330E-N-19

**Accessories / Essential Tooling Information**

For comprehensive tooling and consumable listing refer to technical sales.

**Quality Approvals**

- Civil Aviation Authority A8-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- BS9000 and CECC
- Underwriters Laboratories
- BS EN ISO9001:2000 (BSI)
- BS/EN 9100:2003 (BSI)
- AS9100 Rev B (BSI)
- AS9120:2002 (BSI)
- EASA Part 21 Subpart G (CAA)
- BS9000 (BSI)
- Underwriters Laboratories (UL)
- Military Spec Approvals 38999 (DSCC)