

## MC5 - High Density Fiber Optic Multiway

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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** – Suitable for fibres with core diameters 5-200um

**Channels** – 2, 4, 6, 8, 10, 18, and 30 channels

**Cable size** – 1.8 mm, 2.1 mm and 2.5 mm jacket

#### Materials

**Shell** – Composite (qualified to MIL-C-38999)

**Contact body** – Arcap

**Ferrule** – Zirconia

**Alignment sleeve** – Zirconia

**Seals** – Fluorosilicone

**Plating** – Nickel plate

#### Optical Performance

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

**Return loss** -40 dB typical

**Repeatability** - Typically better than 0.1dB (with 50/125µm fiber)

#### Environmental Specification

##### Temperature

**High temperature endurance** - +150°C, 760 hours

**Low temperature endurance** -65°C, 500 hours

**Durability** - >1500 mating cycles

##### Vibration

**Sinusoidal** - 5-3000Hz, 40g, 10 hours

**Random** - 25-2000Hz, 5g2/Hz (50g rms), 16 hrs

The MC5 high density range is the very latest advance in high performance multi-channel fiber optic connectors, capable of sustained performance over a wide range of environmental conditions. The MC5 uses the most recent developments in precision ceramic ferrules and lightweight

MIL-C-38999 Series III connector shell materials, combined with purpose designed inserts to ensure the optical performance meets the requirements of high reliability optical systems. Compact sprung loaded, precision optical contacts are individually insertable / removable for

ease of assembly. Extensive testing has confirmed excellent performance under the most demanding environmental conditions with the MC5 chosen as the standard multiway fiber optic connector for the European Fighter Aircraft, Typhoon.



#### Key Features

- Compact 1.25mm precision zirconia ceramic ferrules
- Alignment sleeves ensure superior, repeatable optical performance with physical contact polishing techniques
- Purpose designed inserts, and insert-to-insert keying assist precision alignment
- Individually rear insertable / removable optical contacts enable easy assembly and maintenance
- Easily removable alignment sleeve insert facilitates simple cleaning and maintenance
- Color band indicates full mate condition
- Identical optical contacts are sprung 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
- Composite lightweight, high strength, corrosion resistant connector shells
- MIL-C-38999 Series III anti-vibration coupling mechanism, and tri-start thread
- Extensive range including 1,2,4,6,8,10 and 30 way connectors
- Available in both plug socket / receptacle pin and plug pin / receptacle socket configurations

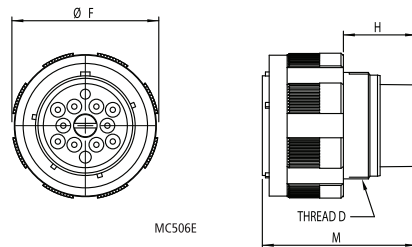
\*fiber and polishing process dependent

**MC5 - High Density Fiber Optic Multiway (Continued)**

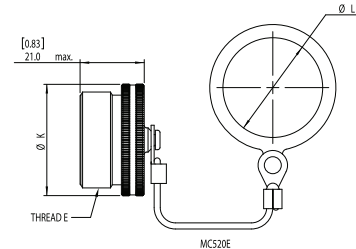
**Dimensional Information**

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

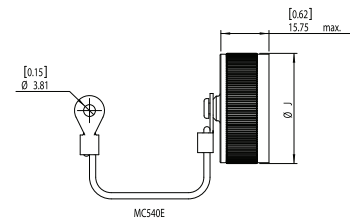
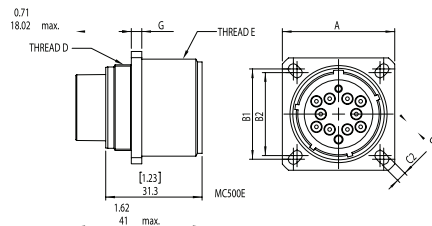
**Plug**



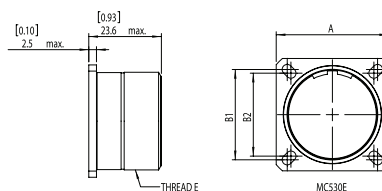
**Procap**



**Receptacle**



**Dummy Receptacle**



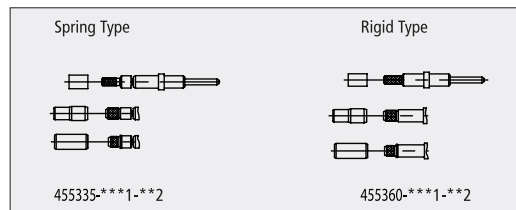
**Dimensional Information (cont)**

Size - Arrangement	A Max	B1	B2	C1 Min	C2 Min	Thread D	Thread E tri-start dimensions (inches)	ØF Max	G Max	H Max	M Max	ØJ Max	ØK Max	ØL Min
11-2	26.4	20.62	18.26	4.84	3.16	M15 X 1.0	0.75000	24.94	3.52	19.9	40.86	N/D	N/D	16.51
13-4	28.81	23.01	20.62	4.84	3.16	M18 X 1.0	0.8750	29.34	3.52	19.9	40.86	26.06	27.56	19.56
15-6	31.2	24.61	23.01	4.31	3.16	M22 X 1.0	1.0000	32.46	3.52	19.9	40.86	N/D	N/D	22.86
17-8	33.51	26.97	24.61	4.84	3.16	M25 X 1.0	1.1875	35.66	3.52	19.9	40.86	34.16	35.46	26.04
19-10	36.71	29.36	26.97	4.84	3.16	M28 X 1.0	1.2500	38.46	3.52	19.7	40.86	35.66	37.16	29.21
21-18	39.91	31.75	29.36	4.84	3.16	M31 X 1.0	1.3750	41.66	4.33	19.7	40.86	N/D	N/D	32.39
23-24	43.11	34.93	31.75	6.06	3.83	M34 X 1.0	1.5000	44.86	4.33	19.7	40.86	42.06	43.36	35.56
25-30	46.21	38.1	34.93	6.06	3.83	M37 X 1.0	1.6250	47.98	4.33	19.7	40.86	45.16	46.6	38.74

## MC5 - High Density Fiber Optic Multiway

### MC5 Optical Termini (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).



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 (\*\*\*)**

Sprung contact part number	Rigid contact part number
455335-***1-**2	455360-***1-**2
455335-125-**2	455360-125-**2
455335-126-**2	455360-126-**2
455335-127-**2	455360-127-**2
455335-128-**2	455360-128-**2
455335-144-**2	455360-144-**2
455335-159-**2	455360-159-**2
455335-172-**2	455360-172-**2
455335-175-**2	455360-175-**2

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

Contact		Contact		Crimp Dies (see note)	
Sprung	Rigid	Plain buffer	Tight jacket cable	Part number	A / F
455335-***1-00	455360-***1-00	900µm	-	457440	1.25 / 1.35
455335-***1-01	455360-***1-01	-	Ø2.1 OD	457440	2.27 / 2.37
455335-***1-02	455360-***1-02	-	Ø1.8 OD	457440	2.62 / 2.52 and 2.37 / 2.27
455335-***1-0	455360-***1-03	-	Ø2.5 OD	457440	2.74 / 2.84

Please note: for alternative sizes, consult technical sales.

### MC5 Backshells for Multiway Cables (ordered separately)

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
	7.0
Multiway cable, various constructions - e.g. central strain relief	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).

**MC5 - High Density Fiber Optic Multiway** (Continued)

**Ordering Information**

**Series:**

**Style:**

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

**Shell finish:**

N Nickel plated

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

- 11-2, 13-4, 15-6, 17-8, 19-10, 21-18,
- 23-24, 25-30

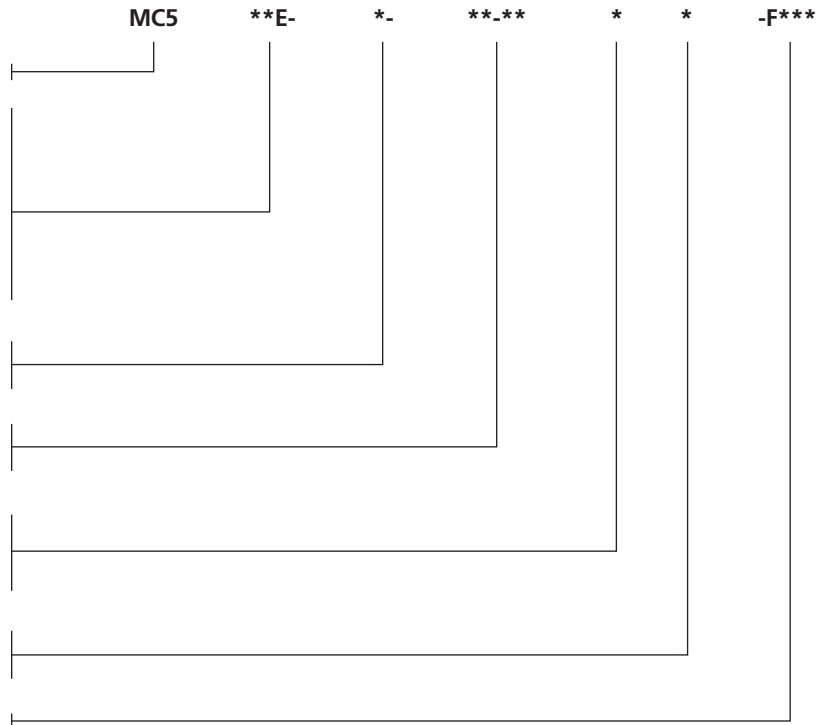
**Insert type**

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

**Shell orientation:**

N, A, B, C

**Modification code:**



**Example part numbers:**

- Connector MC500E-N-17-8SN
- Protective cap MC540E-N-17
- Dummy receptacle MC530E-N-17

**Accessories / Essential Tooling Information**

MC5 Fiber Optic Module for DMC-M Connectors

The MC5 DMC-M high performance fiber optic modules are manufactured from a high performance material for corrosion resistance and features a rugged construction. The common MC5 optical contact is rigid or sprung loaded and common to both plug and receptacle to maintain physical contact even under severe shock or vibration.

**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)