



## CONNECTORS MC5 RANGE

The MC5 high density range is the very latest in high performance multi-channel fibre optic connectors, capable of sustained performance over a wide range of environmental conditions.

The MC5 utilises the most recent developments in high performance telecommunications ceramic ferrules and lightweight composite MIL-C-38999 shell materials, combined with purpose designed optical inserts to ensure optimum performance in demanding, high reliability environments.

Precision optical contacts can be individually inserted and removed using a standard size 16 contact insertion/extraction tool for maximum flexibility and ease of assembly.

The removable front insert allows access to the contacts in the socket section of the connector (available in either receptacle or plug) for inspection of the optical faces, cleaning and maintenance.

The MC5 is suitable for most single or multimode optical fibres with core diameters from 5 to 200µm.

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

## HIGH DENSITY FIBRE OPTIC MULTIWAY CONNECTORS

### ADVANTAGES

- Extensive range including 2, 4, 6, 8, 10 and 30 way connectors.
- Standard 1.25mm Zirconia ferrules and alignment sleeves ensure superior and repeatable optical performance with high packing density.
- Lightweight, corrosion resistant metal plated composite shells provide high strength and durability combined with EMC shielding.
- Easily removable alignment insert allows simple access to optical contacts for cleaning and maintenance without removal from the connector.
- MIL-C-38999 III anti-vibration coupling, tri-start thread and hole mounting configuration.
- Individually rear insertable/removable contacts enable easy assembly with standard tools.
- Identical sprung optical contacts for both the plug and receptacle maintain physical contact even under severe shock and vibration. (A rigid contact is available as an option).
- Simple termination process and tooling.
- Colour band indicates full mating.
- Available in both plug socket/receptacle pin and plug pin/receptacle socket configurations.

## APPLICATIONS

- Airframe fit
- Ships, Submarines, Land Vehicles, Rail Transportation
- Deployable Ground Systems
- Industrial Control Systems

## OPTICAL PERFORMANCE

Insertion loss: 0.25dB typical  
(fibre and polishing process dependent)

Return loss: 0.40dB typical  
(fibre and polishing process dependent)

Repeatability: Typically better than 0.1dB  
(with 50/125µm fibre)

## ENVIRONMENTAL SPECIFICATION

(Further detail available on request. Figures stated are those of specific tests, and may not represent the limits of performance).

Temperature shock/cycling: -65° to +150°C  
28 cycles (1 hr soak)

High temperature endurance: +150°C, 760 hrs

Low temperature endurance: -65°C, 500 hrs

Vibration: Sinusoidal; 5-3000Hz, 40g, 10 hrs  
Random; 25-2000Hz, 5g2/Hz  
(50grms), 16 hrs

Bump: 4000 bumps, 40g

Mechanical endurance: >1500 mating cycles  
Repeatability better than 0.2dB

## MATERIALS

Ferrules/Alignment sleeves: Zirconia

Seals: Fluorosilicone

Shell materials:

Composite (Qualified to MIL-C-38999)

## DUMMY RECEPTACLE & PROTECTIVE COVERS

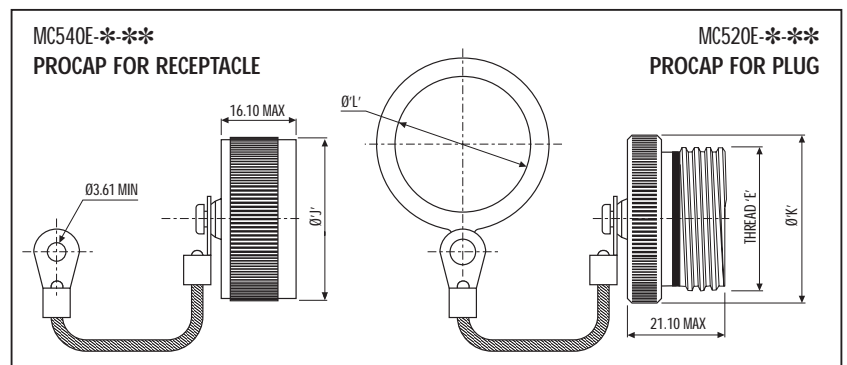
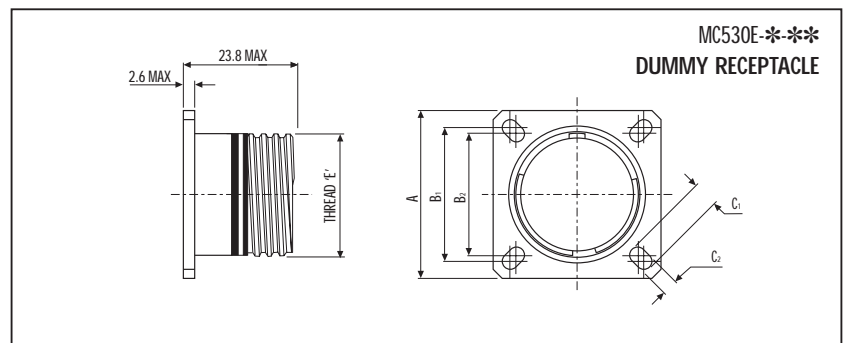
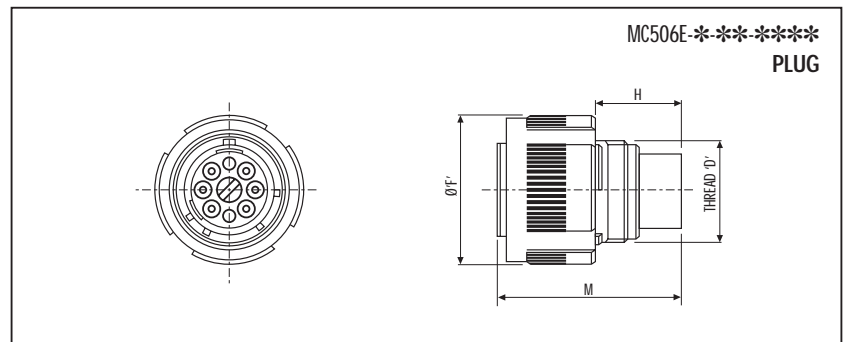
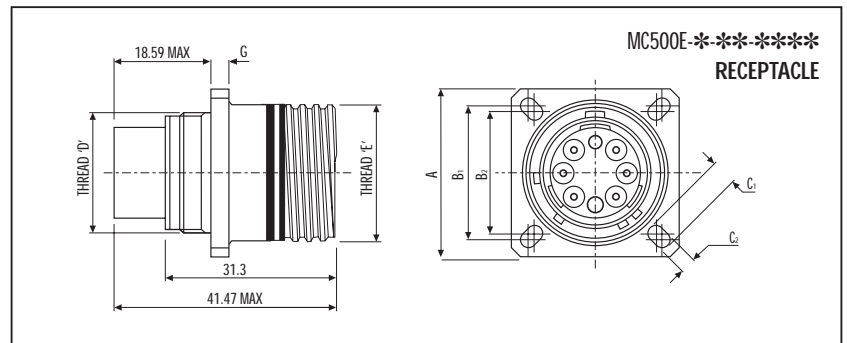
Material: Composite/Aluminium

Finish: Nickel plate

## DIMENSIONAL SPECIFICATIONS

All dimensions in millimetres (unless otherwise stated).

To complete part number for ordering see back page "How to order".



SIZE-ARRANGEMENT	A MAX	B <sub>1</sub>	B <sub>2</sub>	C <sub>1</sub> MIN	C <sub>2</sub> MIN	THREAD 'D'	THREAD 'E' TRI-START DIM INCHES	ØF' MAX	G MAX	H MAX	M MAX	ØJ' MAX	ØK' MAX	ØL' MIN
11 - 2	26.40	20.62	18.26	4.84	3.16	M15 X 1.0	0.7500"	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	31.20	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	38.10	34.93	6.06	3.83	M37 X 1.0	1.6250"	47.98	4.33	19.7	40.86	45.16	46.60	38.74

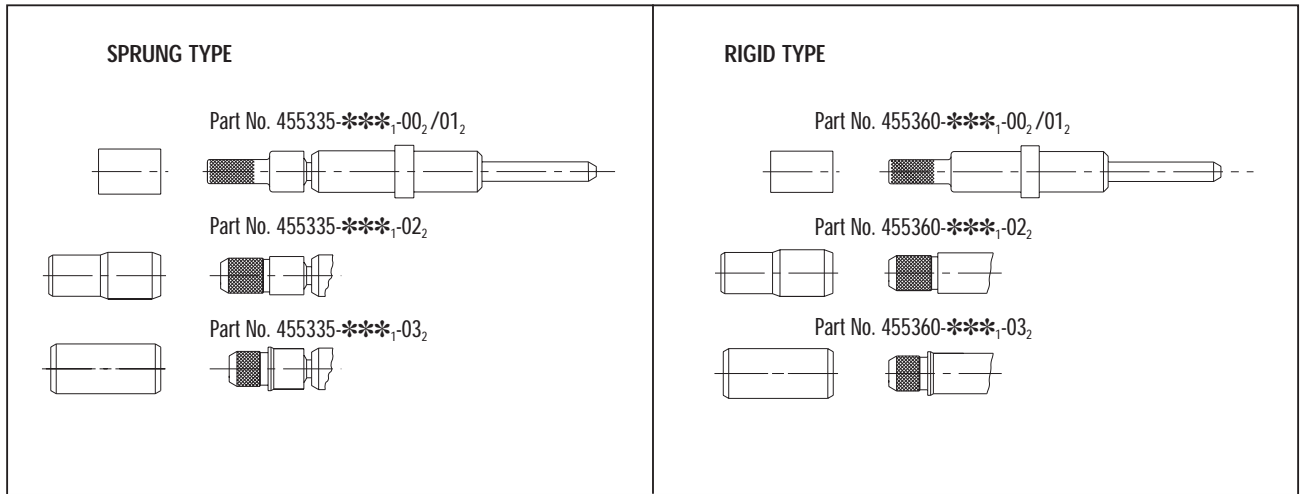
MC5 OPTICAL CONTACTS (ordered separately)

Optical contacts are supplied with a profile formed optical end face and are available for multimode or singlemode fibres. 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:

\*\*\*<sub>1</sub> = Optical hole Ø 'A' (fibre size) (see Table 1)

\*\*<sub>2</sub> = Cable Type (see Table 2)

Note: for type 00 (\*\*<sub>2</sub>) the cable crimp sleeve is not supplied ie for terminating buffered fibre.



SPRUNG CONTACT
Part No. 455335-*** <sub>1</sub> -** <sub>2</sub>
455335-125-** <sub>2</sub>
455335-126-** <sub>2</sub>
455335-127-** <sub>2</sub>
455335-128-** <sub>2</sub>
455335-144-** <sub>2</sub>
455335-159-** <sub>2</sub>
455335-172-** <sub>2</sub>
455335-175-** <sub>2</sub>

RIGID CONTACT
Part No. 455360-*** <sub>1</sub> -** <sub>2</sub>
455360-125-** <sub>2</sub>
455360-126-** <sub>2</sub>
455360-127-** <sub>2</sub>
455360-128-** <sub>2</sub>
455360-144-** <sub>2</sub>
455360-159-** <sub>2</sub>
455360-172-** <sub>2</sub>
455360-175-** <sub>2</sub>

TABLE 1 (\*\*\*<sub>1</sub>) Note: for alternative sizes, consult technical sales

CONTACT TYPE		CABLE TYPE	CRIMP DIES (See Note)	
Sprung	Rigid		Part No.	A/F
455335-*** <sub>1</sub> -00	455360-*** <sub>1</sub> -00	Plain Buffer 900µm	457440	1.25/1.35
455335-*** <sub>1</sub> -01	455360-*** <sub>1</sub> -01	Ø2.1 OD Tight Jacket Cable	457440	2.27/2.37
455335-*** <sub>1</sub> -02	455360-*** <sub>1</sub> -02	Ø1.8 OD Tight Jacket Cable	457440	2.62/2.52 & 2.37/2.27
455335-*** <sub>1</sub> -03	455360-*** <sub>1</sub> -03	Ø2.5 OD Tight Jacket Cable	457440	2.74/2.84

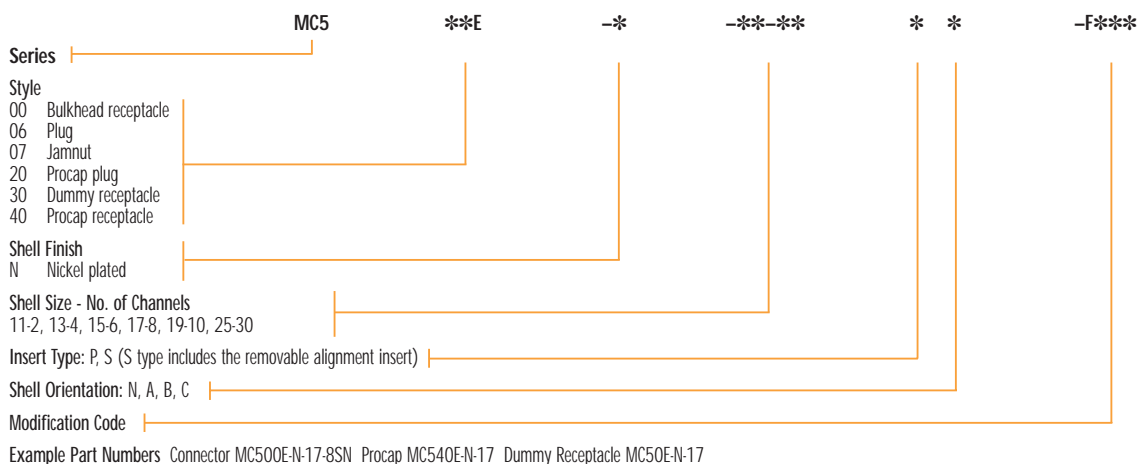
TABLE 2 (\*\*<sub>2</sub>) Note: Crimp dies are used with Deutsch crimp tool 451716 (Erma 29020)

CABLE TYPE/DESCRIPTION	Cable Ø O/D mm
Multiway cable, with 900µm buffered fibre and peripheral strain relief	3.5
Multiway cable, with 900µm buffered fibre and peripheral strain relief	4.5
Multiway cable, with 900µm buffered fibre and peripheral strain relief	5.0
Multiway cable, with 900µm buffered fibre and peripheral strain relief	5.5
Multiway cable, with 900µm buffered fibre and peripheral strain relief	6.0
Multiway cable, with 900µm buffered fibre and peripheral strain relief	7.0
Multiway cable, various constructions - eg central strain relief	*

MC5 Backshells for Multiway Cables (ordered separately)

Note: \*Backshells are available for a range of multiway cables (consult technical sales)

## HOW TO ORDER



### MC5 Essential Termination Tooling

Part No.	Description and Use	Notes		
	<b>PC Polishing Tools and Materials</b>			
455367	Polishing Dolly			
455801	Rubber Polishing Pads (2 off required)			For profile formed polishing
454483	1 off DM Diamond Medium Disc			Used on all ferrule polishing
455170	10 off AF5D Final Polish Disc			For ultra fine polished finish
455574	20 off Strips 30µm A1. Ox. Lapping Film			To remove fibre sprig and epoxy
	20 off Strips 9µm A1. Ox. Lapping Film			To remove fibre sprig and epoxy
	<b>Connector Assembly Tooling</b>			
453936	Multicure Heater (24 Ports)			Epoxy Curing
455820-2	Bushes 24 off (Multicure Heater)			Epoxy Curing
451716	Crimp Tool Body 29020			Used with crimp dies
		A/F mm	Cable OD mm	Type of Cable
457440	Crimp Dies for MC5	1.25/1.35	.900	Buffered fibre
		2.27/2.37	1.8	Tight jacket/strength members
		2.27/2.37	2.1	Tight jacket/strength members
		2.74/2.84	2.5	Tight jacket/strength members
453228	Fibre Cleaving Tool			
454355-335	Stripping Tool			For stripping fibre buffer
454355	Stripping Tool			For stripping outer sheath
M15570-16	Contact Insertion/Extraction Tool			1 off supplied with each connector
	<b>Consumable Materials</b>			
454802	Epoxy Kit Type 353ND (4 gram sachet)			Temperature curing
453855	Epoxy Kit Epoxy-Patch (0151 clear)			Air or temperature curing
454297	Syringe and Needle Kit			6 off each kit
455178	Loctite Type 932 (50ml)			Used for backshells
454167	Omnifit 230L (Contact Adhesive)			For Kevlar retention
454712	Adhesive Type S1125 (2 x 10g kit)			For backshell potting
454299	Scalpel Kit			

Note: \*Additional tooling may be required specific to cable types (consult technical sales)

\*For comprehensive tooling and consumable listing refer to technical sales

*Deutsch Limited reserves the right to alter specification without notice*



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