



CONNECTORS **MC3 MKII RANGE**

The high performance MC3 MkII multiway connectors incorporate individually insertable/removable optical contacts for easy assembly/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 singlemode and multimode optical fibres with core diameters from 5 to 200µm. 5, 8 and 12 optical channels are accommodated in the MIL-C-38999 III style connector shells. The MC3 connector range has been tested and approved for use in severe environments.

THE MC3 IS USED ON THE FOLLOWING PROGRAMMES:

- Eurofighter, Laser Warner System (BAE SYSTEMS)
- 757, In Flight In Service Programme (Boeing Commercial Airplane)
- Space Shuttle (Boeing)
- X.33 (Lockheed Martin)
- Fibre Optic Towed Decoys (IDECM)
- B1-B, F-15, FA-18 (US Airforce)
- Phalanx, Shipboard Weapons System (US Navy)
- AWACS, (US and NATO Airforces)
- ECIT - Electronic Countermeasures Integrated Test (USAF)
- E FOG M Electronic Fibre Optic Guided Missile (US Army)

FIBRE OPTIC MULTIWAY CONNECTORS

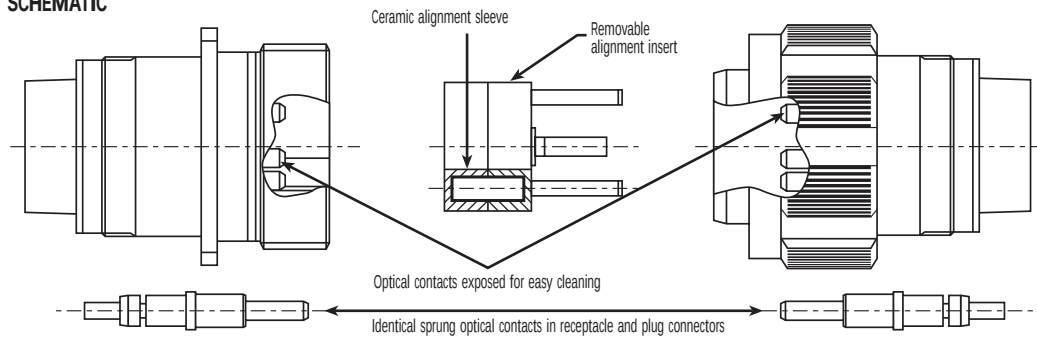
ADVANTAGES

- 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
- Colour band indicates full mate condition
- Identical optical contacts are spring loaded in both plug and receptacle to maintain physical contact even under severe shock or vibration conditions (fixed contact option available for receptacle)
- Simple termination process and tooling
- Backshells and adaptors available for most single fibre and multi-fibre cable types
- MIL-C-38999 III anti-vibration coupling mechanism, and tri-start thread
- Alternative shell keyway orientations provide protection from inadvertent mismatching
- Dynamic 'O' ring seal between mating shells provides water submersion capability
- Available with actively aligned contacts for ultimate performance in single mode applications.



DEUTSCH
FIBRE OPTICS LTD

MC3 MKII SCHEMATIC



APPLICATIONS

- Airframe Fit: Databus, In flight Entertainment, Engine Control, Weapons and Defensive Aid Systems, Fly-by-Light
- Ships, Submarines, Land Vehicles, Rail Transportation
- Deployable Systems: Military Ground Communications, Telecomms, Weapons Systems, Outside Broadcast & CCTV
- Industrial Control Systems: Process Control, Offshore, Heavy Industry Manufacturing, Sensor Systems

OPTICAL PERFORMANCE

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

Return Loss: -40dB typical
(fibre and polishing process dependent)

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

ENVIRONMENTAL SPECIFICATION

(Further detail available on request)

Temperature Range: -65° to +155°C
(fibre and cable dependent)

Vibration: 5-3000Hz, 30g sinusoidal

Bump: 4000 bumps, 40g

Mechanical Endurance: >500 mating cycles

MATERIALS

Ferrules: Zirconia

Alignment Sleeves: Zirconia

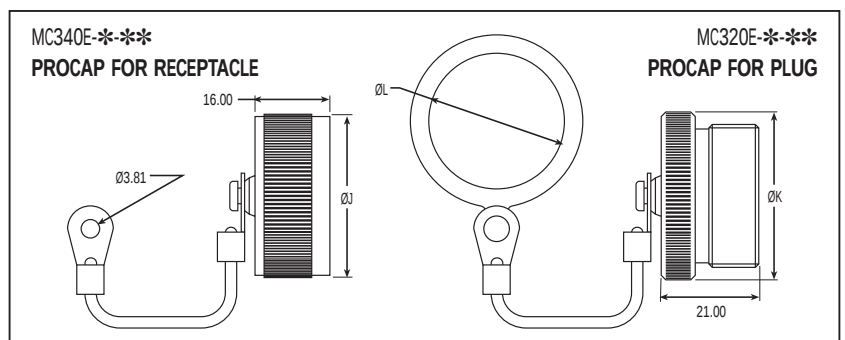
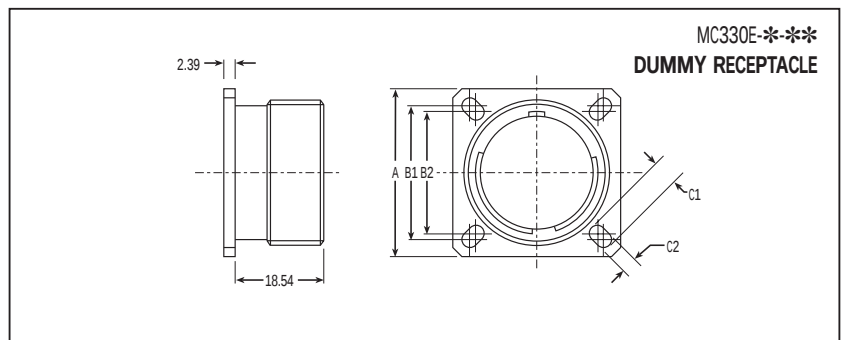
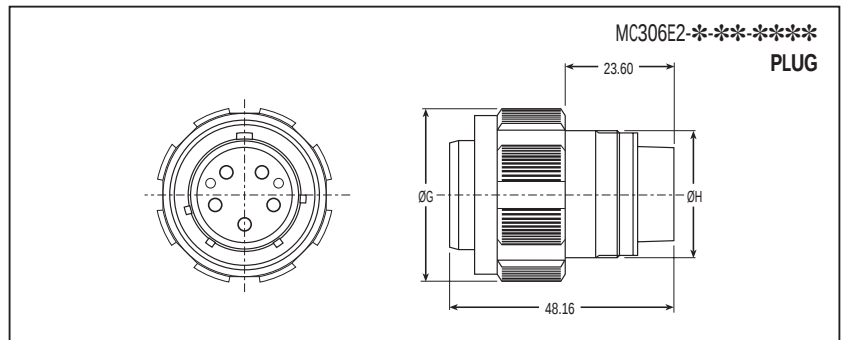
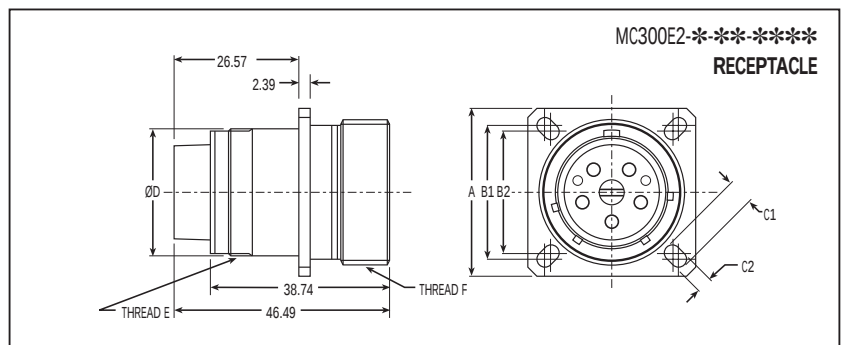
Seals: Fluorosilicone or nitrile

Shell Materials:

- Aluminium; Nickel plated
- Aluminium; Cadmium plate olive drab
- Aluminium bronze (to special order)

DIMENSIONAL SPECIFICATIONS

All dimensions in millimetres (unless otherwise stated).
To complete part number for ordering see back page "How to order"



SIZE/ARRGT	A	B1	B2	C1	C2	ØD	THREAD E	THREAD F TRI-START DIM INS	ØG	ØH	ØJ	ØK	ØL
SIZE 19 - 5	36.58	29.35	26.98	5.00	3.50	27.84	M28 x 1.0	1.250	37.92	27.70	35.40	36.92	29.46
SIZE 23 - 8	42.98	34.92	31.75	6.23	4.00	33.84	M34 x 1.0	1.500	44.12	33.70	41.75	43.12	35.81
SIZE 25 - 12	46.02	38.11	34.92	6.23	4.00	36.84	M37 x 1.0	1.625	47.35	36.70	44.93	46.35	38.99

MC3 Mk II Optical contacts (ordered separately)

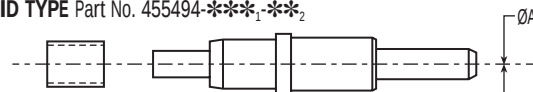
Optical contacts are supplied with a profile formed optical end face and are available for multimode or singlemode fibres. Contacts are available in either sprung or rigid versions, depending upon application. (Rigid contacts should be used in bulkhead receptacles only). Options are as follows:

***₁ = Optical hole Ø "A" (fibre optical hole) (see Table 1)

***₂ = Cable Type (see Table 2)

Note: for type 00 (***) the cable crimp sleeve is not supplied ie for terminating buffered fibre.

RIGID TYPE Part No. 455494-***₁-***₂



SPRUNG TYPE Part No. 455500-***₁-***₂

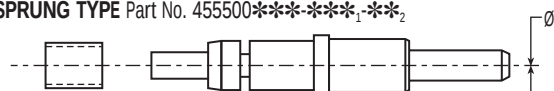


TABLE 1 (***₁) Note: for alternative fibre sizes, consult technical sales

RIGID CONTACT	
Part No. (Multimode) 455***-*** ₁ -*** ₂	Part No. (Singlemode) 455***-*** ₁ -*** ₂
455494-128-*** ₂	455617-126-*** ₂
455494-145-*** ₂	455617-127-*** ₂
455494-162-*** ₂	
455494-176-*** ₂	
455494-232-*** ₂	
455494-283-*** ₂	
455737-232-*** ₂	

SPRUNG CONTACT	
Part No. (Multimode) 455***-*** ₁ -*** ₂	Part No. (Singlemode) 455***-*** ₁ -*** ₂
455500-128-*** ₂	455616-126-*** ₂
455500-145-*** ₂	455616-127-*** ₂
455500-162-*** ₂	
455500-176-*** ₂	
455500-232-*** ₂	
455500-283-*** ₂	
455500-1MM-*** ₂	
455738-232-*** ₂	

TABLE 2 (***) Note: Crimp dies are used with Deutsch crimp tool 451716 (Erma 29020)

FERRULE TYPE		CABLE TYPE	CRIMP SLEEVE	CRIMP DIES (See Note)	
Rigid	Sprung			Part No.	A/F
455494-*** ₁ -00	455500-*** ₁ -00	Plain Buffer 900µm	—	455608	1.64/1.74
455617-*** ₁ -00	455616-*** ₁ -00	Plain Buffer 900µm	—	455608	1.64/1.74
455494-*** ₁ -01	455500-*** ₁ -01	Ø2.5 OD Tight Jacket Cable	455610-01	455608	3.10/3.12
455617-*** ₁ -01	455616-*** ₁ -01	Ø2.5 OD Tight Jacket Cable	455610-01	455608	3.10/3.12
455494-*** ₁ -02	455500-*** ₁ -02	Ø1.8 OD Tight Jacket Cable	455610-02	455608	3.10/3.12
455617-*** ₁ -02	455616-*** ₁ -02	Ø1.8 OD Tight Jacket Cable	455610-02	455608	3.10/3.12
455494-*** ₁ -03	455500-*** ₁ -03	Ø3.0 OD Tight Jacket Cable	455610-03	455608	3.56/3.48
455617-*** ₁ -03	455616-*** ₁ -03	Ø3.0 OD Tight Jacket Cable	455610-03	455608	3.56/3.48
455494-*** ₁ -04	455500-*** ₁ -04	Ø2.1 OD Tight Jacket Cable	455610-04	455608	3.10/3.12
455617-*** ₁ -04	455616-*** ₁ -04	Ø2.1 OD Tight Jacket Cable	455610-04	455608	3.10/3.12
—	455500-1MM-00	Ø2.2 OD Tight Jacket Cable	—	455697	2.62/2.72
455737-*** ₁ -00	455738-*** ₁ -00	Ø1.5 OD Tight Jacket Cable	—	455478	2.27/2.37

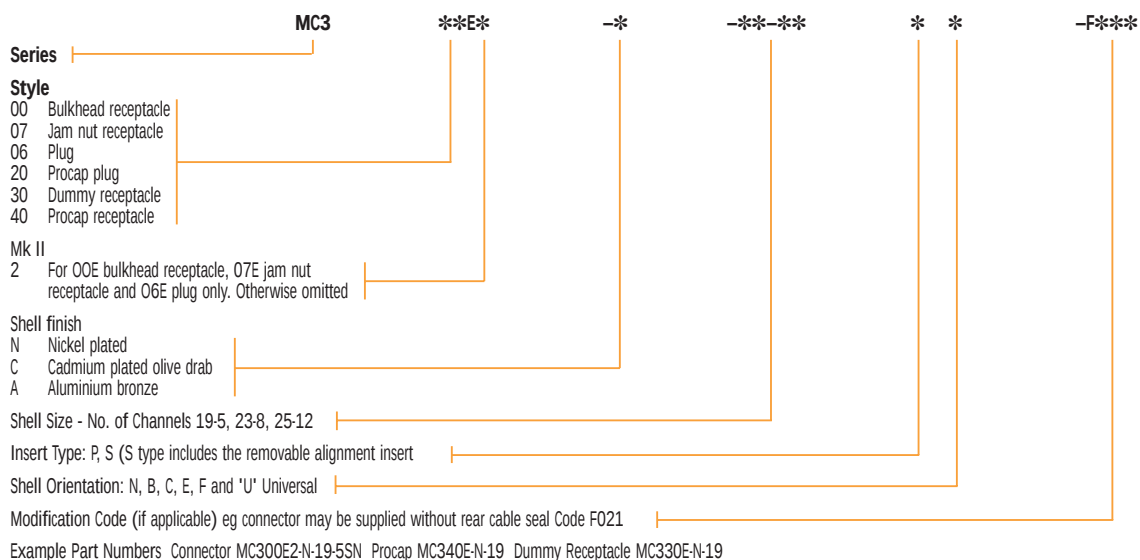
MC3 MkII Backshells for Multiway Cables (ordered separately)

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	*

* Backshells are available for a range of multiway cables

* Consult Technical Sales

HOW TO ORDER



MC3 MkII Essential Termination Tooling

Part No.	Description and Use	Notes		
	PC Polishing Tools and Materials			
455575	Polishing Dolly	For use with ceramic ferrules		
455801	Rubber Polishing Pads (2 off required)	For profile formed polishing		
454483	1 off DM Diamond Medium Disc	For profile formed polishing		
455170	10 off AF5D Final Polish Disc	For profile formed polishing		
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		
	Flat Polishing Tools and Materials for Plastic Fibre			
455699	Polishing Dolly	For use with metal ferrules		
452039	Lapping Film Set (A1. Ox.)	For use with metal ferrules		
454089	Polishing Base	For use with metal ferrules		
	Connector Assembly Tooling			
453936	Multicure Heater (24 Ports)	Epoxy curing		
455820-1	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
455608	Crimp Dies for MC3 Mk II	1.64/1.74	.900	Buffered fibre
		3.10/3.12	1.8, 2.1 and 2.5	Tight jacket/strength members
		3.56/3.48	3.0	Tight jacket/strength members
455478	Crimp Dies for MC3 Mk II	2.27/2.37	1.5	Tight jacket
455697	Crimp Dies for MC3 Mk II	2.62/2.72	2.2	Tight jacket (plastic fibre)
453228	Fibre Cleaving Tool			
454355-335	Stripping Tool	For stripping fibre buffer		
454355	Stripping Tool	For stripping outer sheath		
	Consumable Materials			
454257-2	Epoxy Kit Type 353ND (2 gram Sachet)	Temperature curing		
453855	Epoxy Kit Epoxy-Patch (0151 clear)	Air and temperature curing		
454297	Syringe and Needle Kit	6 off each kit		
454178	Loctite Type 932 (50ml)	For use with backshells		
455167	Omnifit 230L (Contact Adhesive)	For strength member retention		
454712	Adhesive Type S1125 (2 x 10 gram 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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