



## MFM CONNECTOR

# Amphenol



The Simplex MFM Fibre Optic range has been specifically designed to operate in Harsh Environments. The rugged, anti-vibration, corrosion resistant design ensures high environmental and optical performance in a variety of applications in the air, on land, and above / below sea.

The MFM series connector is designed for either singlemode or multimode applications and offers significant features for applications in difficult or harsh environments where mechanical protection is required or where circuit connectivity must be controlled by key-way configuration. Applications are wide and varied and a range of products are available to suit different levels of ruggedised cabling.

Key Features are:

- Ceramic PC ferrule and alignment sleeve providing optimum performance for Multimode and Singlemode
- Lightweight, minimal panel footprint
- Anti-vibration coupling mechanism
- Keyed shells and ferrules for optimum repeatability.
- Environmentally sealed
- Keyway polarisation.
- RFI Receptacle gasket
- Manufactured in ARCAP for corrosion resistance.

The MFM connector system is designed for coupling two cables together across a bulkhead or panel and a choice of key-ways allows dedicated connections to be

### Environmental

Temperature range	-65°C to +155°C
Temperature Endurance	1000hrs @ 150 °C as per EN2591 Test FC1 C1 Method B
Gunfire Vibration	As per pr EN2519 Test D3 Method A
Shock	As per EN2591 Test FD2 D2 Method A
Salt Mist	500hrs as per EN2591 Test FC7 C7
Sand & Dust	As per EN2591 Test C8
Humidity	95% RH for 6hrs as per EN2591 C21

### Mechanical

Durability	>500 matings	
Materials	Shell	ARCAP
	Ferrule	Zirconia ceramic
	Alignment Sleeve	Zirconia ceramic
	'O' ring (seals)	Silicone
	Boot	Silicone





## MFM CONNECTOR

# Amphenol



established. A mated pair comprises a Plug and Receptacle connector, with the receptacle being either a flange mount or jam nut style. The advantages of this style of connector include the removable inner assemblies for fibre cleaning, housings and inner assemblies supplied separately and a termination kit is available.

Connector variants are available for mounting on mini cordage (1.8mm diameter), standard 3.0mm cordage and a variety of military tactical style cables, including the 5.4mm diameter dual jacket military tactical cable. Tech Optics can provide MFM and MFM hybrid cable assemblies made to customer specifications.

Connector and Plug orientation must be specified at the time of ordering, either A, B, C, D, E, N or U. The 'U' key, or Universal, accepts any of the other 6 keyway types, and is therefore useful for test leads etc. The table below gives examples of product codes using the 'N' key.

Optical	
Attenuation	Typically 0.25 with 62.5/125 cable
Repeatability	<0.1dB
Fibre types	9/125 50/125 62.5/125 100/140 200/280
Cable types	-001 50/125 or 62.5/125 2.75mm OD Ruggedised -002 50/125 or 62.5/125 6.2mm OD Ruggedised -003 50/125 or 62.5/125 2.75mm OD Loose Tube -004 200/280 2.5mm OD Ruggedised EFA Spec -005 100/140 1.6mm OD Ruggedised -006 9/125 2.75mm OD Ruggedised -007 8/125 6.mm2 OD Ruggedised -008 50/125 or 62.5/125 2.75mm TJ Santaprene boot -017 50/125 or 62.5/125 5.4mm OD -7 Crimp ferrule and heat-shrink -039 50/125 or 62.5/125 1.6mm OD Ruggedised -054 50/125 or 62.5/125 1.8mm OD Ruggedised



# HARSH ENVIRONMENT

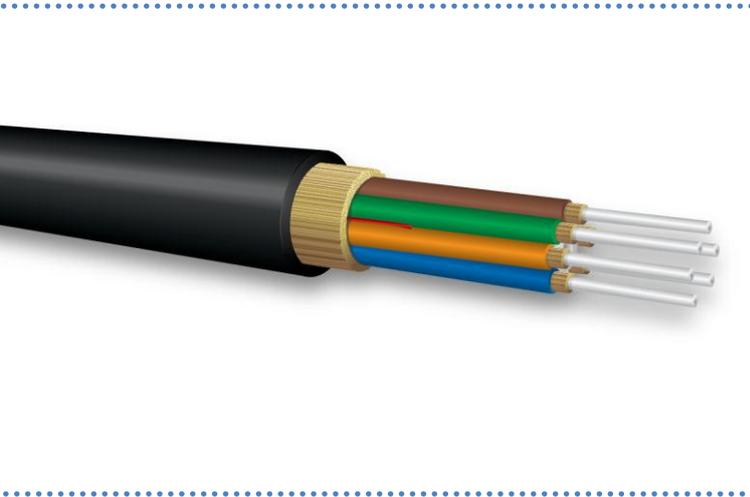
## MIL-TAC CABLES – B SERIES

Tech Optics Ltd

Distributor of Fibre Optic Products

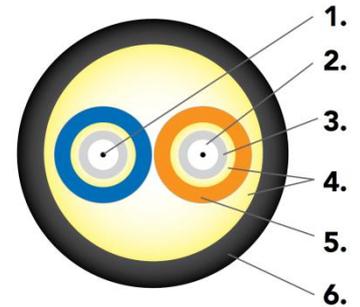


**OCC**  
OPTICAL CABLE CORPORATION



Ground-tactical cables are ideal for use in harsh environments where deployment and retrieval for reuse is required

- Extremely strong, lightweight, rugged, survivable tight-buffered cables designed for military tactical field use and commercial applications
- Polyurethane jacketed for abrasion, cut, crush, impact, and chemical resistance
- Breakout cable design with individual color-coded subcables protecting each optical fibre
- Crush resistant and resilient
- Helically stranded cable core for flexibility, deployment survivability and exceptional mechanical protection for the optical fibres
- Cables have been tested and are in use in military data communications applications worldwide
- Excellent for use in deployment/retrieval applications
- Can be used outdoors for temporary deployment directly on the ground in all terrains, including severe environments
- Suitable for industrial, mining and petrochemical environments - chemical resistant
- Round cable design for easy installation and survivability
- Ideally suited for use with MIL-C-38999 style military connectors - subcables terminate to individual "pins" and overall aramid strength member terminates to backshell
- 2.0mm subcables standard
- Tactical Polyurethane (C) outer jacket material is standard. Flame retardant (E), Flame retardant tactical (V) and low smoke zero halogen (G) outer jacket materials are available



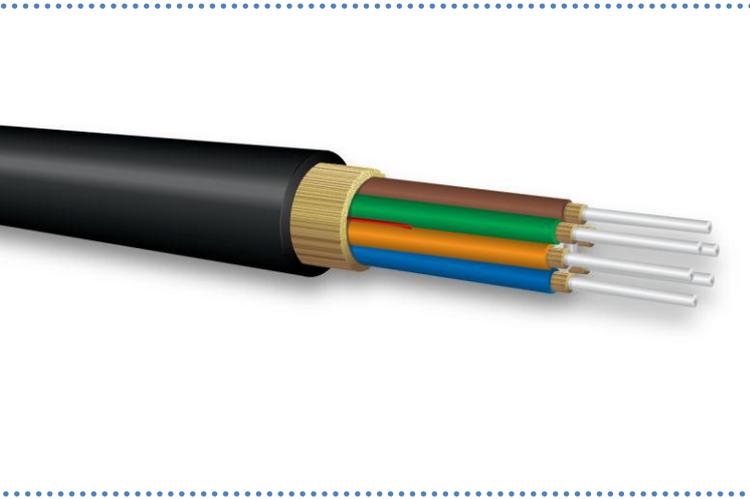
1. Optical Fibre
2. Acrylate Fibre Coating
3. 900µm Diameter Tight-Buffer
4. Aramid Strength Member
5. Colour-Coded Elastomeric Subcable Jacket
6. Core-Locked™ Tactical Polyurethane Jacket



# HARSH ENVIRONMENT



## MIL-TAC CABLES – B SERIES



### D-Series MIL-TAC

Operating Temperature -55°C to +85°C

Storage Temperature -70°C to +85°C

Crush Resistance 440 N/cm

Impact Resistance 200 impacts

Flex Resistance 2,000 cycles

Fiber Count	Diameter	Weight	Tensile Load		Minimum Bend Radius	
			Installation	Operational	Installation	Long Term
			N	N	cm	cm
	mm	kg/km	N	N	cm	cm
	(in)	(lbs/1,000)	(lbs)	(lbs)	(in)	(in)
2	6.5	36	2200	550	10.4	5.2
	-0.26	-24	-490	-120	-4.1	-2
4	7.5	47	2200	550	12	6
	-0.3	-32	-490	-120	-4.7	-2.4
6	8.5	56	2400	600	13.6	6.8
	-0.33	-37	-540	-130	-5.4	-2.7
8	10	75	3200	800	16	8
	-0.39	-51	-720	-180	-6.3	-3.1
10	11.5	100	4000	1000	18.4	9.2
	-0.45	-67	-900	-220	-7.2	-3.6
12	11	88	4800	1200	17.6	8.8
	-0.43	-59	-1080	-270	-6.9	-3.5
18	13.5	138	7200	1800	21.6	10.8
	-0.53	-93	-1620	-400	-8.5	-4.3
24	14.5	150	9600	2400	23.2	11.6
	-0.57	-101	-2160	-540	-9.1	-4.6

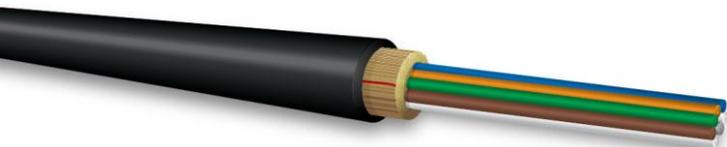


# HARSH ENVIRONMENT

## MIL-TAC CABLES – D SERIES

Tech Optics Ltd

Distributor of Fibre Optic Products



Ground-tactical cable are ideal for use in harsh environments where deployment and retrieval for reuse is required

- Extremely strong, lightweight, rugged, survivable tight-buffered cables designed for military tactical field use and commercial applications
- Compact, round cable design for ease of transportation and deployment
- Designed for use in adverse environments where reduced size and weight are important
- Helically stranded cable core for flexibility, deployment survivability and exceptional mechanical protection for the optical fibres
- Cables have been tested and are in use in military data communications applications worldwide
- Can be used outdoors for temporary deployment directly on the ground in all terrains, including severe environments
- Suitable for industrial, mining and petrochemical environments - chemical resistant
- Crush-resistant and resilient with a thick layer of aramid strength members
- Polyurethane jacketed for abrasion, cut and chemical resistance
- Most commonly used with ruggedized multiway military tactical field connectors, for maximum connector retention (400lbs)
- Tactical Polyurethane (C) outer jacket material is standard.
- Flame-retardant (E), Flame-retardant tactical (V) and low-smoke zero halogen (G) outer jacket materials are available.

### D-Series MIL-TAC

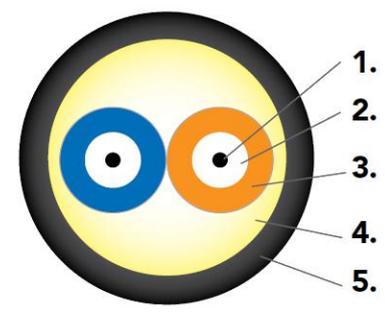
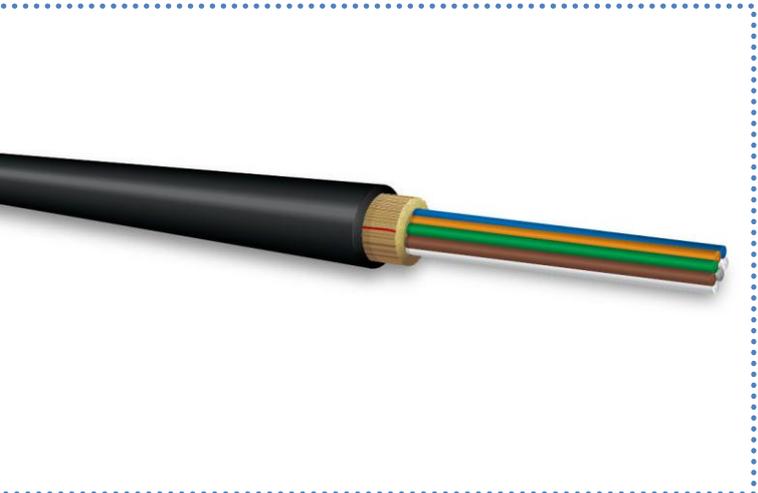
Operating Temperature	-55°C to +85°C
Storage Temperature	-70°C to +85°C
Crush Resistance	440 N/cm
Impact Resistance	200 impacts
Flex Resistance	2,000 cycles



# HARSH ENVIRONMENT



## MIL-TAC CABLES – D SERIES



1. Optical Fibre
2. Acrylate Fibre Coating
3. Colour-Coded 900µm Diameter Tight-Buffer
4. Aramid Strength Member
5. Core-Locked™ Tactical Polyurethane Jacket (standard)

Fiber Count	Tensile Load				Minimum Bend Radius	
	Diameter	Weight	Installation	Operational	Installation	Long Term
	mm (in)	kg/km (lbs/1,000)	N (lbs)	N (lbs)	cm (in)	cm (in)
2	5	21	1800	600	8	4
	-0.2	-14	-400	-130	-3.1	-1.6
4	5.5	27	1800	600	8.8	4.4
	-0.22	-18	-400	-130	-3.5	-1.7
6	6	32	1800	600	9.6	4.8
	-0.24	-22	-400	-130	-3.8	-1.9
8	6.5	37	1800	600	10.4	5.2
	-0.26	-25	-400	-130	-4.1	-2
10	6.5	37	2100	700	10.4	5.2
	-0.26	-25	-470	-160	-4.1	-2
12	6.5	36	2100	700	10.4	5.2
	-0.26	-24	-470	-160	-4.1	-2
18	7.5	49	2400	800	12	6
	-0.3	-33	-540	-180	-4.7	-2.4
24	8.5	56	3000	1000	13.6	6.8
	-0.33	-38	-670	-220	-5.4	-2.7

