MILNEC
INTERCONNECT SYSTEMS

CONNECTING YOUR
ENGINEERING PASSION

MILITARY & DEFENSE EDITION

TF Series

MIL-DTL-5015 Crimp

MILITARY STYLE CONNECTORS

- Front-Release Contacts
- EMI-RFI Environmental Backshells
- Covers, Gaskets, Contacts, Tooling

Milnec Interconnect Systems

High-Performance Cylindrical Connectors

About Us

MILNEC INTERCONNECT SYSTEMS is a leader in the design, manufacture, and supply of high-performance cylindrical interconnect systems. From research stations in the Antarctic to spacecraft on the plains of Mars, our high-reliability connector systems conquer the most demanding environments. Milnec is a supplier to leading companies in 24 countries in the following industries:

- Military & Defense
- Aerospace & Space
- Railway & Mass Transit
- Industrial & Heavy Equipment
- Alternative Energy, Nuclear, Oil & Gas

Logistics Solutions for Global Applications

Global logistics and support means we deliver products on time every time to any destination. To support your immediate requirements, we have extensive inventories, making most systems readily available for today's compressed design and production schedules. On average, custom connector solutions made to your exact configuration ship within seven days from the time of order placement.

- Worldwide shipping (restricted to NATO countries only)
- Web access to inventory, prices, & delivery information
- A large stock of popular parts for greater availability
- Competitive pricing and short lead times
- Impeccable customer service & technical support

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(1-855-464-5632)

technical-support@milnec.com

U.S. Military Cage Code: 6STX5

NAICS Code: 423690

High Reliability—Simplified

Just because your interconnect problem is complicated does not mean acquiring the solution has to be. Milnec connector systems and our "all-in-one" kits provide engineers the most complete and professional connector solutions with ease and technical clarity.

- Complete, high-reliability solutions
- Simple to understand technical data & configurations
- Online part builder tools, drawings, & documentation
- Field installable & serviceable

Performance With Environmental Responsibility

RoHS compliant products are available to support environmental responsibility and legislative conformity. Through simple modification codes, Milnec provides a wide variety of material options to easily provide customers with fully compliant and eco-friendly connector components.

- RoHS compliant materials & finishes
- Simple material modification codes
- Lead-free solder contacts

Highest Manufacturing Quality

We invest in the finest equipment and modern production processes to ensure that our connectors will exceed your quality and performance expectations. Our production processes include advanced computer numerical control machining, cosmetic and metal finishing, heat treatment, and stainless steel passivation.

- Traceability on 100% of the parts
- Quick production lead times
- Quantity support from R&D to production
- "Just-in-time" delivery, kitting, & special packaging
- Rapid tooling & prototyping for custom designs

MIL-DTL-5015 Crimp Compliant Connectors

The TF Series of connectors is based on the popular MIL-DTL-5015 standard and is designed to meet or exceed all of the specifications for performance and durability. Traditional threaded coupling, front-release crimp contacts, and 77 insert arrangements offer a high degree of interconnect design flexibility. In addition to the standards, the series features many specialty shell styles, backshells, RoHS approved finishes, and accessories unavailable in the mil-spec. This diverse component offering provides engineers with a wide range of options to match any application requiring a ruggedized, IP67 waterproof connector for signal and power in the harshest military environments.

Complete System Compatibility
TF Series connectors are fully compatible with all military and commercial MIL-DTL-5015 style connectors.

Complete IP67 Rated Waterproof Connector Kits

TF Series connectors can be easily configured as complete kits that include a full range of protective accessories for a reliable, IP67 rated environmental interconnect solution. Simply select the desired kit option on the part builder and your connector will come with all the matching sealing accessories you need for complete protection, right out of the box!

Table of Contents

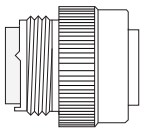
About Us X-1
Features & Benefits X-2
Component Overview X-3
Series Specifications X-5
Contact Specifications X-7
Materials & Finishes X-9
Part Builder X-11
Insert Arrangements & Rotations X-12
Insert Arrangement Drawings X-15
(TF06) Plug X-19
(TF08) Plug With 90° Strain Relief Backshell. X-20
(TF09) Plug With 45° Strain Relief Backshell. X-21
(TF00) Wall Mount Receptacle X-23
(TF02) Box Mount Receptacle X-24
(TF07) Jam Nut Receptacle X-25
(TF01) Cable Mount Receptacle. X-26
(TF22) Thru-Bulkhead Receptacle X-27
(TFB2) Straight Strain Relief Backshell X-29
(TFB4) 90° Strain Relief Backshell X-30
(TFE2) Straight Environmental Backshell X-31
(TFE3) 45° Environmental Backshell X-35
(TFE4) 90° Environmental Backshell X-37
(TFR2) Straight EMI/RFI Env. Backshell X-40
(TFR3) 45° EMI/RFI Env. Backshell X-43
(TFR4) 90° EMI/RFI Env. Backshell X-45
(TFSC) Shorting Cap Backshell. X-47
(TFK2) Straight Shrink Boot X-49
(TFK4) 90° Shrink Boot X-50
(TFAB) Boot Adapter X-51
(TFD2) EMI/RFI Banding Boot Adapter X-52
(TFCP) Protective Covers X-53
(TFCD) Stowage Receptacle X-54
(TFGE) Mounting Gasket X-55
(TFMB) Mounting Bracket & Screws X-56
Hand Crimpers & Postioners. X-57
Heat Gun X-59
Banding Tool & Bands X-60

EMI/RFI & Environmental Protection
The TF Series provides a wide range of backshell options for complete EMI/RFI and environmental protection for the most demanding military applications.

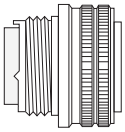
Full Environmental Sealing
Gaskets, protective covers, and mounting brackets with sealings screws will ensure complete IP67 installations.

Rev. 2208

Plugs

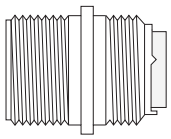


Plug (Self-Locking)
p. X-22

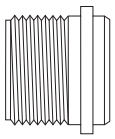


Plug
p. X-19

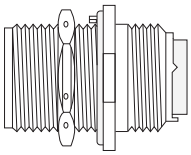
Receptacles



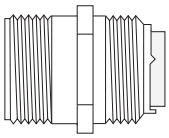
Wall Mount
p. X-23



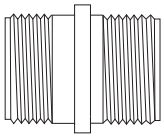
Box Mount
p. X-24



Jam Nut
p. X-25

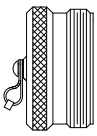


Cable Mount
p. X-26

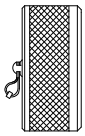


Thru-Bulkhead
p. X-27

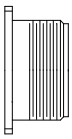
Covers



Plug Cover
p. X-53

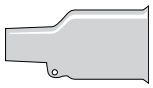


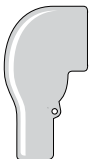
Receptacle Cover
p. X-53



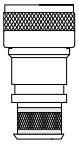
Stowage Receptacle
p. X-54

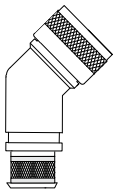
Backshells

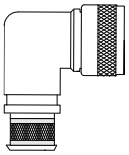




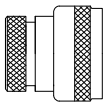
Shrink Boots
Straight p. X-49
90° p. X-50





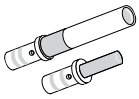


EMI/RFI Banding Boot Adapters
Straight p. X-52
45° p. X-52
90° p. X-52



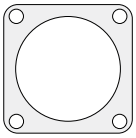
Boot Adapter
p. X-51

Contacts

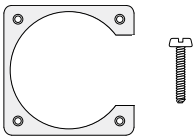


Standard
p. X-7

Mounting

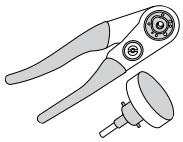


Mounting Gasket
p. X-55

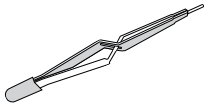


Mounting Bracket & Screws
p. X-56

Tools



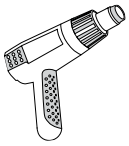
Crimper & Positioner
p. X-7



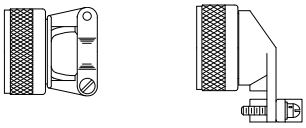
Insertion/Extraction
p. X-7

Banding Tool
p. X-60

Band
p. X-60

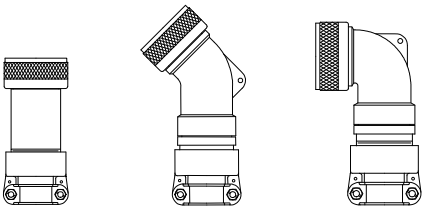


Heat Gun
p. X-59



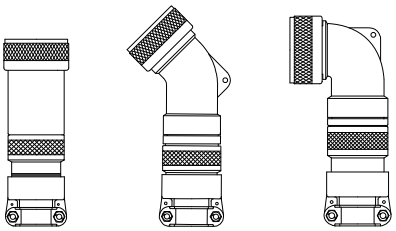
Strain Relief

Straight	90°
p. X-29	p. X-30



Environmental

Straight	45°	90°
p. X-31	p. X-35	p. X-37



EMI/RFI Environmental

Straight	45°	90°
p. X-40	p. X-43	p. X-45

Performance Specifications

Built to meet or exceed MIL-DTL-5015 specifications
Guaranteed fully compatible and interchangeable with respect to physical and performance characteristics with all existing MIL-DTL-5015 military and commercial derivatives

Environmental Characteristics

Temperature Range

-85° to +347°F (-65° to +175°C)
Service life varies with the maximum internal hot spot temperature resulting from any combination of electrical load or ambient temperature:

77°F (25°C): Continuous
221°F (105°C): 35,000 hours
392°F (200°C): 1,000 hours

Water Pressure

IP67 rating (environmental sealing) when used in conjunction with proper sealing accessories
Fully submersible to 3.3 ft (1m) for minimum of 30 min

Air Leakage Rate

Environmental connector air leakage rate shall not exceed 1 inch^3/hr (4.55 x10^{-3} cm^3/sec) at 30 psi (2.11 kg/cm^2) pressure differential

Salt Spray Rating

See Materials & Finishes, p. X-9

Humidity

Mated connectors shall maintain an insulation resistance of 100 megohms or greater at 77°F (25°C) with 95% humidity for duration of 20 days

Chemical Resistance to Fluids

20 hour full immersion (unmated) in hydraulic fluid and lubricating oil without damage or material degradation

Firewall (Classes KS & KT)

Mated connectors shall prevent passing of a 2,000°F (1,093°C) flame through the connector for a minimum of 20 minutes in accordance with MIL-STD-1344, Method 1009

Physical Characteristics

Coupling

Threaded (A-Threads), single-start, 4 turns to couple

Coupling Torque

Engagement & Disengagement Force (max / min)
Shell Size 10: 2.21 ft-lb$_f$ (3.0 N-m) / .11 ft-lb$_f$ (.15 N-m)
Shell Size 12: 2.07 ft-lb$_f$ (2.8 N-m) / .17 ft-lb$_f$ (.23 N-m)
Shell Size 14: 4.35 ft-lb$_f$ (5.9 N-m) / .26 ft-lb$_f$ (.35 N-m)
Shell Size 16: 5.16 ft-lb$_f$ (7.0 N-m) / .34 ft-lb$_f$ (.46 N-m)
Shell Size 18: 5.90 ft-lb$_f$ (8.0 N-m) / .43 ft-lb$_f$ (.58 N-m)
Shell Size 20: 6.64 ft-lb$_f$ (9.0 N-m) / .52 ft-lb$_f$ (.70 N-m)
Shell Size 22: 7.82 ft-lb$_f$ (10.6 N-m) / .59 ft-lb$_f$ (.80 N-m)
Shell Size 24: 9.51 ft-lb$_f$ (12.9 N-m) / .59 ft-lb$_f$ (.80 N-m)
Shell Size 28: 12.32 ft-lb$_f$ (16.7 N-m) / .68 ft-lb$_f$ (.92 N-m)
Shell Size 32: 13.35 ft-lb$_f$ (18.1 N-m) / .75 ft-lb$_f$ (1.02 N-m)
Shell Size 36: 17.63 ft-lb$_f$ (23.9 N-m) / .77 ft-lb$_f$ (1.05 N-m)

Polarization

Single master key and keyway on top position of shell

Insert Arrangements

77 standard, custom inserts available

Insert Rotations

Normal polarization (N), plus 4 alternate insert rotational polarizations (W, X, Y, Z)

Endurance Characteristics

Coupling Cycles

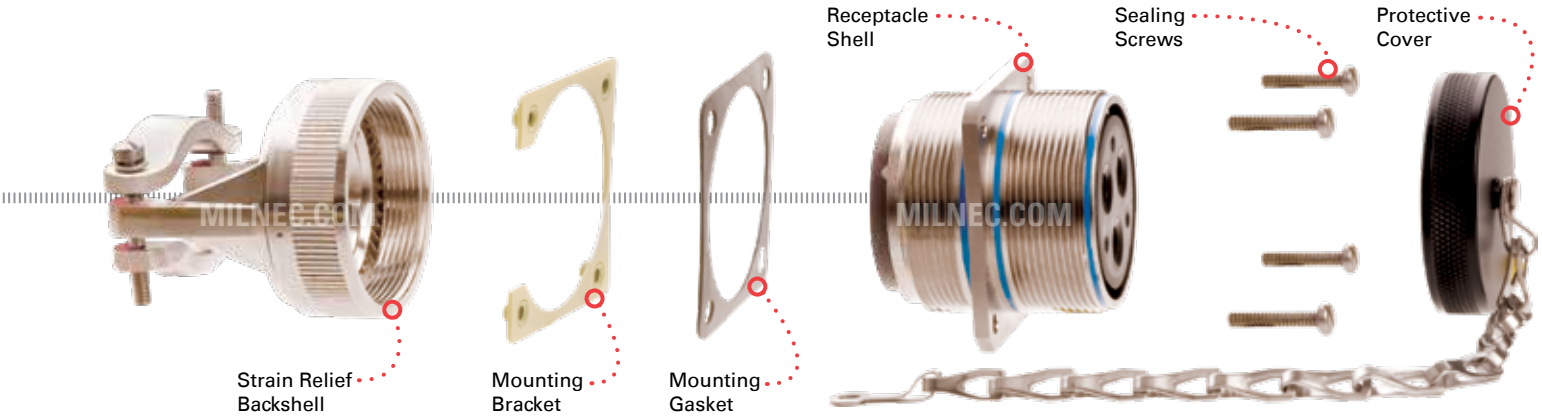
250 coupling cycles (minimum)

Shock

50g's, 11ms duration, three major axes, 10 microseconds maximum discontinuity

Vibration

Random vibration at 10 to 2,000Hz (15g's), 10 microseconds maximum discontinuity



Rev. 2208

Material Characteristics

Shell
Aluminum, solid, one piece, seamless construction

Shell Plating (Standard Finishes)

D Finish
Electrically conductive cadmium plate finish (96 hr salt spray rating)

L Finish
Electrically conductive electroless nickel plating (48 hr salt spray rating)

(See p. K-9 for all available finishes)

Shell Conductivity
Maximum shell-to-shell conductivity potential drop shall not exceed 200 millivolts across assembly with overall DC resistance not greater than 0.05 Ω

Insert
Neoprene elastomer
Non-removable and mechanically bonded to shell

Protective Cover Chain
Passivated stainless steel, sash chain able to withstand a 25 lb (11.3 kg) tensile force without damage

Sealing Grommet
Neoprene

O-Ring Seal
Neoprene or silicone

Mounting Gasket
Neoprene or silicone

Mounting Bracket
Aluminum alloy with SST locking nuts

Sealing Screws
SST steel with silicone O-rings

Contact Characteristics

Contact Design
Removable, front-release crimp contacts

Contact Sizes
#0, #4, #8, #12, #16

Contacts
Copper alloy

Contact Plating
Silver alloy plate, 100 µinches (2.54 µm) minimum
Gold plate, 50 µinches (1.27 µm) minimum (#16 only)

Max Number of Contacts
1 to 52 standard, custom inserts available

Max Contact Resistance
6 milliohm maximum resistance

Max Voltage Drop
<50 millivolt maximum drop (initial)

Contact Retention
Pin and socket contacts are designed to resist severe vibration and repeated connection and disconnection

Electrical Characteristics

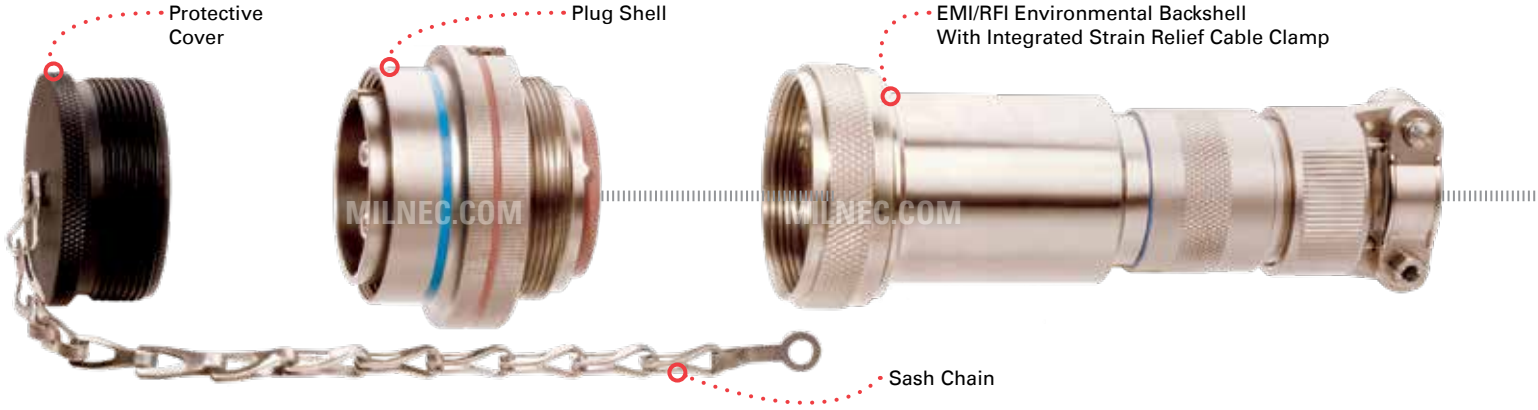
Current Rating
150 amps (test current) at 68°F (20°C)

Max Operating Voltage
3,000 VAC (RMS) at sea level

Insulation Resistance
>5,000 megohms at 77°F (25°C)

Wire Size
0 to 20 (AWG)

Wire Sealing Range
Designed for individual wire sealing
Sealing is only guaranteed if wires meet MIL-W-5086 or within permitted ranges



Rev. 2208

Wire & Crimp Dimensions

Contact Size	Potential Drop (Millivolts)	Crimp Well Diameter	Min Crimp Well Depth	Finished Wire Diameter Sealing Range		Contact Retention Min Axial Load Pounds (Newtons)
				Min	Max	
#16	<50	.067 (1.70)	.250 (6.35)	.053 (1.35)	.103 (2.62)	25 (111.2)
#12	<42	.100 (25.4)	.250 (6.35)	.097 (2.46)	.158 (4.01)	30 (133.4)
#8	<26	.181 (4.6)	.485 (12.3)	.132 (3.4)	.255 (6.5)	50 (222.4)
#4	<23	.281 (7.1)	.485 (12.3)	.237 (6.0)	.370 (9.4)	60 (266.9)
#0	<21	.453 (11.5)	.580 (14.7)	.360 (9.1)	.550 (14.0)	75 (333.6)

Dimensions are in inches (mm) unless otherwise noted.

Current Rating By Contact Size & Wire Size

Wire Size	Contact Size				
	#16	#12	#8	#4	#0
20	7.5A				
16	13A				
14		17A			
12		23A			
10			33A		
8			46A		
6				60A	
4				80A	
2					100A
0					150A

Test ratings only. A connector cannot withstand maximum current through all contacts continuously. Please note that the establishment of electrical safety factors is left entirely in the designer's hands, since he or she is in the best position to know what peak voltage, switching surges, transients, etc. can be expected in a particular circuit.

Torque Values for Accessory Threads

Shell Size	Recommended Torque	
	Min	Max
8	51 (5.8)	61 (6.9)
10	71 (8.0)	81 (9.2)
12	103 (11.6)	113 (12.8)
14	111 (12.5)	121 (13.7)
16	111 (12.5)	121 (13.7)
18	111 (12.5)	121 (13.7)
20	131 (14.8)	141 (15.9)
22	131 (14.8)	141 (15.9)
24	131 (14.8)	141 (15.9)

Units are in inch pounds (Newton meters).

TF

Contact Derating Specifications

Service Rating	Max Operating Voltage at Sea Level		Nominal Distance in Inches (mm)		Mechanical Spacing Nominal	Standard Sea Level Conditions		Pressure Altitude 50,000 ft		Pressure Altitude 70,000 ft	
	AC (RMS)	DC	Airspace	Creepage		Min Flashover Voltage AC (RMS)	Test Voltage AC (RMS)	Min Flashover Voltage AC (RMS)	Test Voltage AC (RMS)	Min Flashover Voltage AC (RMS)	Test Voltage AC (RMS)
Inst.	200	250	.0312 (.8)	.063 (1.6)	—	1,400	1,000	500	400	325	260
A	500	700	.063 (1.6)	.125 (3.2)	.063 (1.6)	2,800	2,000	800	600	450	360
D	900	1,250	.125 (3.2)	.188 (4.8)	.125 (3.2)	3,600	2,800	900	675	500	400
E	1,250	1,750	.188 (4.8)	.250 (6.4)	.188 (4.8)	4,500	3,500	1,000	750	550	440
B	1,750	2,450	.250 (6.4)	.313 (8.0)	.250 (6.4)	5,700	4,500	1,100	825	600	480
C	3,000	4,200	.313 (8.0)	1.000 (25.4)	.313 (8.0)	8,500	7,000	1,300	975	700	560

Test ratings only. A connector cannot withstand maximum current through all contacts continuously. Please note that the establishment of electrical safety factors is left entirely in the designer's hands, since he or she is in the best position to know what peak voltage, switching surges, transients, etc. can be expected in a particular circuit.

Torque Values For Cable Clamp Screws

Screw Size	Recommended Torque	
	Min	Max
#2-56	1.5 (.2)	2.5 (.3)
#4-40	3.5 (.4)	4.5 (.5)
#6-32	5 (.6)	7 (.8)
#8-32	7 (.8)	9 (1.0)
#10-32	9 (1.0)	11 (1.2)
#.250-20	11 (1.2)	13 (1.5)

Units are in inch pounds (Newton meters).

Standard Contacts, Sealing Plugs, & Tooling

Contact Size	Contact Style	Part Number	Wire Size (AWG)	Wire Range (Dia)	Jacket Strip Length	Crimping Tool	Positioner (Turret)	Die Set	Locator	Insertion Tool	Extraction Tool
#16	Pin (reducing)	TFPD16	22, 24, 26	.016–.025 (.41–.64)	.236 (6.0)	TK101A (Hand Crimper)	TP102	—	—	TN1701	TX1901
	Socket (reducing)	TFSF16									
	Pin	TFPP16	16, 18, 20	.032–.051 (.81–1.29)							
	Socket	TFSS16									
	Sealing Plug	TFSP16	—	—							
#12	Pin	TFPD12	16, 18, 20	.032–.051 (.81–1.29)	.236 (6.0)			—	—	TN1702	TX1902
	Socket	TFSF12									
	Pin	TFPP12	12, 14, 16	.051–.081 (1.29–2.05)							
	Socket	TFSS12									
	Sealing Plug	TFSP12	—	—							
#8	Pin	TFPP08	8, 10	.102–.129 (2.59–3.26)	.512 (13.0)	TU2301 (Pneumatic Crimper)	—	TD2302	TL2309	TN1706	TX1903
	Socket	TFSS08									
	Sealing Plug	TFSP08	—	—							
#4	Pin	TFPP04	4, 6	.162–.204 (4.11–5.18)	.512 (13.0)		—	TD2304	TL2311	TN1707	TX1904
	Socket	TFSS04									
	Sealing Plug	TFSP04		—							
#0	Pin	TFPP00	0, 2	.258–.325 (6.54–8.25)	.630 (16.0)		—	TD2305	TL2313	TN1708	TX1905
	Socket	TFSS00									
	Sealing Plug	TFSP00	—	—							

Dimensions are in inches (mm) unless otherwise noted.

MILNEC SHIPS CONNECTORS WORLDWIDE IN ONE WEEK

World Class Service, Worldwide

We know your project can't wait, so we provide tailor-made flexibility with off-the-shelf lead times. We employ the latest assembly and quality-control processes to build and test every connector we ship.

- Standard connector kits ship in just one week
- No order minimums, credit cards accepted
- Average ship time is 7 days
- Expedited builds available for critical requirements

Rev. 2208

TF Series Finishes

A connector's finish does more than simply provide good looks. The finish is the first line of defense for a connector. It provides enhanced corrosion resistance and can be made conductive to provide electrical continuity across connector shells for EMI/RFI shielding applications. Olive drab cadmium and nickel are the standard finishes for the TF Series. Both finishes offer durability and corrosion resistance and will match the aesthetic design of most applications. In addition to the standard finishes, a number of specialty finishes are available for the TF Series, including RoHS compliant finishes for environmentally friendly designs and stainless steel for firewall applications. ■

Standard TF Series Materials & Finishes

Finish Code	Finish	Electrically Conductive	RoHS Compliant	Appearance	Shell & Insert Material	Salt Spray Rating	Recommended Operating Temperature Range
D	Cadmium over Nickel	✓		Bright Metal	Aluminum, Silicone Elastomer	96 hrs	-85° to +347°F (-65° to +175°C)
L	Nickel Plate	✓	✓	Bright Metal	Aluminum, Fluorosilicone Elastomer	48 hrs	-85° to +347°F (-65° to +175°C)
DS	Black Cadmium	✓		Black	Stainless Steel, Silicone Elastomer	1,000 hrs	-85° to +392°F (-65° to +200°C)
W	Olive Drab Cadmium	✓		Drab Olive Green	Aluminum, Fluorosilicone Elastomer	96 hrs	-85° to +347°F (-65° to +175°C)

Special TF Series Materials & Finishes*

Finish Code	Finish	Electrically Conductive	RoHS Compliant	Appearance	Shell Material	Salt Spray Rating	Recommended Operating Temperature Range
K	Electroless Nickel	✓	✓	Bright Metal	Stainless Steel, Fluorosilicone Elastomer	1,000 hrs	-85° to +392°F (-65° to +200°C)
KS ‡	Passivated SST			Gray	Stainless Steel, Fluorosilicone Elastomer	1,000 hrs	-85° to +392°F (-65° to +200°C)
KT ‡	Cadmium over Nickel			Bright Metal	Stainless Steel, Fluorosilicone Elastomer	1,000 hrs	-85° to +392°F (-65° to +200°C)
U	Nickel Plate	✓		Bright Metal	Aluminum, Fluorosilicone Elastomer	96 hrs	-85° to +347°F (-65° to +175°C)

* Please consult an authorized distributor for lead time information and minimum quantity requirements for special order finishes.

‡ Supplied with firewall rated flame resistant inserts designed to protect bulkheads from the passage of a 2,000°F (1,093°C) flame through the connector for a minimum of 20 minutes.

Cadmium over nickel (Aluminum)
A standard finish in the TF Series of connectors. It is electrically conductive for applications that require EMI/RFI shielding. The finish has a 96 hour salt spray rating, making it excellent for corrosion resistance.

Passivated Stainless Steel (Firewall Rated)
The TF Series offers firewall rated connectors that provide improved temperature capabilities for use in engine compartments or for any other application where the need to prevent emergency fire ingress is necessary. Firewall connectors are machined from passivated stainless steel and feature flame resistant inserts.

RoHS Compliant Parts

Milnec provides a full offering of RoHS compliant finishes in conductive and non-conductive versions to best suit your application requirements.

Please consult the latest European Union general and regional regulations to ensure materials are appropriate for your application and compliance requirements.

CORROSION RESISTANT CONNECTORS FOR THE LONG JOURNEY AHEAD

Durability & Reliability You Can Trust

TF Series high-performance crimp connectors and backshells come standard in aerospace-grade aluminum, offering strength, durability, and light weight. For the harshest marine or industrial environments, we also provide these components in passivated stainless steel with a 1,000 hour salt spray rating for ultimate corrosion resistance.

MILNEC®
INTERCONNECT SYSTEMS

How to Build Your TF Connector Part Number

A part number is comprised of a string of characters that represent the different elements of a connector. High-performance connectors are built to order from component form using a unique part number as a blueprint to specify particular characteristics. Each modifier of the part number represents a particular configuration.

Below is an example part number for a TF Series connector that designates, 1) TF Series wall mount receptacle, 2) cadmium over nickel finish on aluminum, 3) 24-28 insert arrangement, 4) pin contacts, 5) normal rotation, 6) EMI/RFI environmental backshell (dash number indicates backshell size), and 7) integrated accessory kit. ■

TF00	D	24-28	P	N	-	R2(150)	-	03
1	2	3	4	5		6		7

1 Series Shell Style

Standard Environmental Shells

- **TF06** Plug, p. X-19
- **TF08** Plug with 90° strain relief , p. X-20
- **TF09** Plug with 45° strain relief , p. X-21
- **TF96** Plug (self-locking), p. X-22

- **TF00** Wall mount receptacle, p. X-23
- **TF01** Cable mount receptacle, p. X-26
- **TF02** Box mount receptacle, p. X-24
- **TF07** Jam nut receptacle, p. X-25

For non-standard shell styles, including thru-bulkhead receptacles, please see specific datasheet for part numbering and kitting options.

2 Material & Finish

- **D** Cadmium over nickel (aluminum) 96 hr. dynamic salt spray rating

For complete materials and finishes options, including RoHS, see p. X-9.

3 Shell Size & Insert Arrangement

See Insert Arrangement Selection table, p. X-12

4 Contact Style

Standard Crimp Contacts

- **P** Pin (standard size)
- **S** Socket (standard size)
- **D** Pin (wire reducing)*
- **F** Socket (wire reducing)*
- **A** Pin insert, supplied without contacts
- **B** Socket insert, supplied without contacts

*Wire reducing, #16: 22–26 AWG, #12: 16–20 AWG.

5 Insert Rotation

Normal Rotation

- **N** Normal

Alternate Rotations

- **W, X, Y, Z** Alternate rotations

See Insert Arrangement Selection table on p. X-12 (not all rotations are available for every arrangement).

6 Optional Backshell Kit (Omit for None)

Strain Relief Backshell (Self-Locking)

- **B2** Straight, p. X-29
- **B4** 90°, p. X-30

Environmental Backshell

- **E2 ( )** Straight, p. X-31
- **E3 ( )** 45°, p. X-35
- **E4 ( )** 90°, p. X-37

Supply specific Dash No. on referenced datasheet page for appropriate connector shell size.

EMI/RFI Environmental Backshell

- **R2 ( )** Straight, p. X-40
- **R3 ( )** 45°, p. X-43
- **R4 ( )** 90°, p. X-45

Supply specific Dash No. on referenced datasheet page for appropriate connector shell size.

Shrink Boot & Boot Adapter

- **K2** Straight boot, p. X-49, & adapter, p. X-51
- **K4** 90° boot, p. X-50, & adapter, p. X-51

K2 supplied with recommended boot in 100 material, p. X-49.
K4 supplied with recommended boot in 100 material, p. X-50.

Shrink Boot, EMI/RFI Banding Boot Adapter, & Band

- **D2** Straight adapter, p. X-52, w/ boot & band
- **D4** 90° adapter, p. X-52, w/ boot & band

Supplied with recommended straight boot in 100 material, p. X-49, and TB250 band, p. X-60.

7 Optional Accessory Kit (Omit for None)

- **01** **For Plugs:** Protective cover, p. X-53
- **02** **For Receptacles:** Protective cover, p. X-53 + Mounting gasket, p. X-55
- **03** **For Receptacles:** Protective cover, p. X-53 + Mounting gasket, p. X-55 + Mounting bracket, p. X-56 with (4x) sealing screws

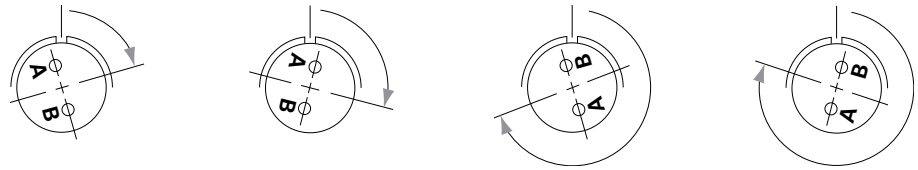
Kits with EMI/RFI Backshells will be supplied with TFGS RFI shielding gaskets.

Rev. 2208

Selecting Your Insert Arrangement & Rotation

Below is a chart that represents every available shell and insert arrangement within the series. To choose the proper insert arrangement, you must first distinguish your application requirements for contact size and amount.

Rotations are designated at the time of ordering using rotation labels N (normal), W, X, Y, and Z. Some insert arrangements have limited or no alternate rotation options. Refer to the chart below for possible rotations for specific arrangements. ■



Position W Position X Position Y Position Z

Looking into front face of pin insert or rear of socket insert.

Insert Arrangement Selection

Insert Arrangement	Total Contacts	Contact Size					Service Rating	Alternate Insert Rotation			
		#16	#12	#8	#4	#0		W	X	Y	Z
10S-2	1	1					A				
10SL-3	3	3					A				
10SL-4	2	2					A	63°			
12S-3	2	2					A	70°	145°	215°	290°
14S-2	4	4					Inst.		120°	240°	
14S-5	5	5					Inst.		110°		
14S-6	6	6					Inst.				
14S-7	3	3					A	90°	180°	270°	
16-9	4	2	2				A	35°	110°	250°	325°
16-10	3		3				A	90°	180°	270°	
16-11	2		2				A	35°	110°	250°	325°
16-12	1				1		A				
16S-1	7	7					A	80°			280°
16S-4	2	2					D	35°	110°	250°	325°
16S-8	5	5					A		170°	265°	
18-1	10	10					A/Inst.	70°	145°	215°	290°
18-4	4	4					D	35°	110°	250°	325°
18-8	8	7	1				A	70°			290°
18-9	7	5	2				Inst.	80°	110°	250°	280°
18-11	5		5				A		170°	265°	
18-13	4		3	1			A	80°	110°	250°	280°
20-2	1					1	D				
20-4	4		4				D	45°	110°	250°	
20-7	8	8					D/A	80°	110°	250°	280°
20-8	6	4		2			Inst.	80°	110°	250°	280°
20-14	5		3	2			A	80°	110°	250°	280°
20-15	7		7				A	80°			280°
20-16	9	7	2				A	80°	110°	250°	280°
20-17	6	1	5				A	90°	180°	270°	
20-18	9	6	3				A	35°	110°	250°	325°
20-19	3			3			A	90°	180°	270°	

* Option is unavailable if left blank.

(Continued on next page)

Rev. 2208

Insert Arrangement Selection (Continued from previous page)

Insert Arrangement	Total Contacts	Contact Size					Service Rating	Alternate Insert Rotation			
		#16	#12	#8	#4	#0		W	X	Y	Z
20-22	6	3		3			A	80°	110°	250°	280°
20-24	4	2		2			A	35°	110°	250°	325°
20-27	14	14					A	35°	110°	250°	325°
20-29	17	17					A	80°			280°
20-33	11	11					A				
22-2	3			3			D	70°	145°	215°	290°
22-5	6	4	2				D	35°	110°	250°	325°
22-7	1					1	E				
22-9	3		3				E	70°	145°	250°	290°
22-14	19	19					A	80°	110°	250°	280°
22-18	8	8					D/A	80°	110°	250°	280°
22-19	14	14					A	80°	110°	250°	280°
22-22	4			4			A		110°	250°	
22-23	8		8				D/A	35°		250°	
24-2	7		7				D	80°			280°
24-4	4	3				1	D	80°	110°	250°	280°
24-6	8		8				D/A	80°	110°	250°	280°
24-7	16	14	2				A	80°	110°	250°	280°
24-10	7			7			A	80°			280°
24-11	9		6	3			A	35°	110°	250°	325°
24-12	5		3		2		A	80°	110°	250°	280°
24-20	11	9	2				D	80°	110°	250°	280°
24-22	4			4			D	45°	110°	250°	
24-28	24	24					Inst.	80°	110°	250°	280°
28-2	14	12	2				D	35°	110°	250°	325°
28-3	3			3			E	70°	145°	215°	290°
28-9	12	6	6				D	80°	110°	250°	280°
28-11	22	18	4				A	80°	110°	250°	280°
28-12	26	26					A	90°	180°	270°	
28-15	35	35					A	80°	110°	250°	280°
28-20	14	4	10				A	80°	110°	250°	280°
28-21	37	37					A	80°	110°	250°	280°
28-22	6	3			3		D	70°	145°	250°	290°
32-1	5		3			2	E/D	80°	110°	250°	280°
32-2	5	2			3		E	70°	145°	215°	290°
32-6	23	16	2	3	2		A	80°	110°	250°	280°
32-7	35	28	7				Inst./A	80°	125°	235°	280°
32-17	4				4		D	45°	110°	250°	
32-63	5				5		D				
36-3	6		3			3	D	70°	145°	215°	290°
36-5	4					4	A		120°	240°	
36-6	6				4	2	A	35°	110°	250°	325°
36-7	47	40	7				A	80°	110°	250°	280°
36-9	31	14	14	2	1		A	80°	125°	235°	280°
36-10	48	48					A	80°	125°	235°	280°
36-52	52	52					A				

* Option is unavailable if left blank.

BRING OUT THE BIG GUNS

Power & Signal Connectors for Big Jobs

When you need signal and power in the same connector, Milnec TF Series crimp connectors are the perfect choice. TF connectors can handle up to 150A, and are built from heavy duty materials to ensure reliability in the harshest environments. When you are faced with a tough interconnect application, be sure to choose Milnec.

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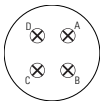
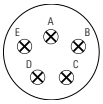
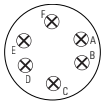
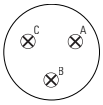
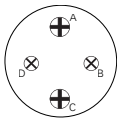
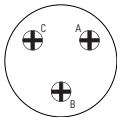
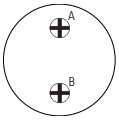
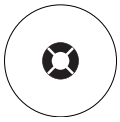
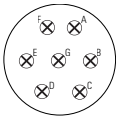
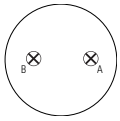
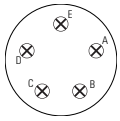
INTERCONNECT SYSTEMS



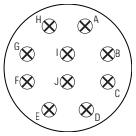
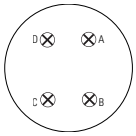
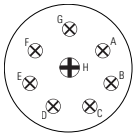
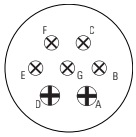
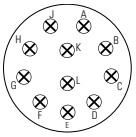
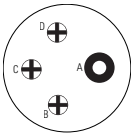
Arrangement	**10S-2**	**10SL-3**	**10SL-4**	**12S-3**	**14S-2**
Service Rating	A	A	A	A	Inst.
Number of Contacts	1 x #16	3 x #16	2 x #16	2 x #16	4 x #16

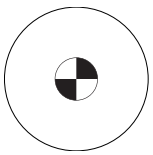
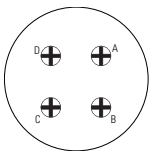
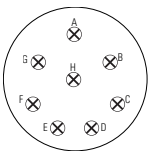
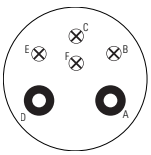
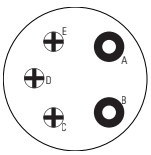
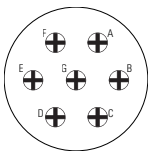
Arrangement	**14S-5**	**14S-6**	**14S-7**	**16-9**	**16-10**
Service Rating	Inst.	Inst.	A	A	A
Number of Contacts	5 x #16	6 x #16	3 x #16	2 x #12 2 x #16	3 x #12

Arrangement	**16-11**	**16-12**	**16S-1**	**16S-4**	**16S-8**
Service Rating	A	A	A	D	A
Number of Contacts	2 x #12	1 x #4	7 x #16	2 x #16	5 x #16

Arrangement	**18-1**	**18-4**	**18-8**	**18-9**	**18-11**	**18-13**
Service Rating	B,C,F,G=A; Bal.=Inst.	D	A	Inst.	A	A
Number of Contacts	10 x #16	4 x #16	1 x #12 7 x #16	2 x #12 5 x #16	5 x #12	1 x #8 3 x #12

Arrangement	**20-2**	**20-4**	**20-7**	**20-8**	**20-14**	**20-15**
Service Rating	D	D	A,B,H,G=D; C,D,E,F=A	Inst.	A	A
Number of Contacts	1 x #0	4 x #12	8 x #16	2 x #8 4 x #16	2 x #8 3 x #12	7 x #12

Contact Legend #0 #4 #8 #10 #12 #16

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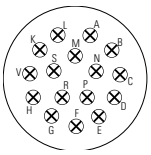
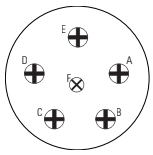
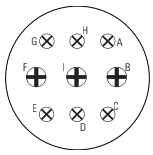


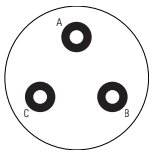
20-16
A
2 x #12
7 x #16



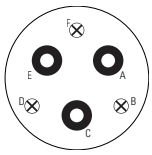
20-17
A
5 x #12
1 x #16



20-18
A
3 x #12
6 x #16

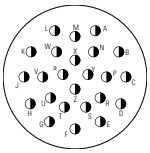


20-19
A
3 x #8

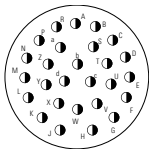


20-22
A
3 x #8
3 x #16

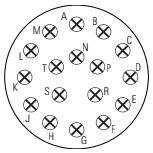
Arrangement
Service Rating
Number of Contacts



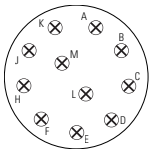
20-24
A
2 x #8
2 x #16



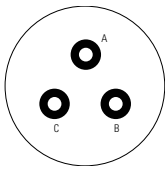
20-27
A
14 x #16



20-29
A
17 x #16

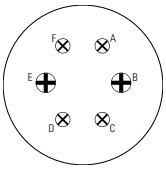


20-33
A
11 x #16

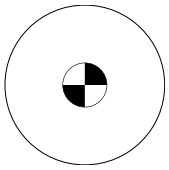


22-2
D
3 x #8

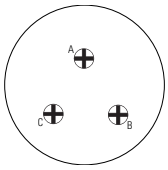
Arrangement
Service Rating
Number of Contacts



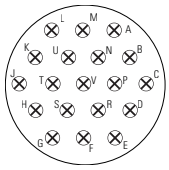
22-5
D
2 x #12
4 x #16



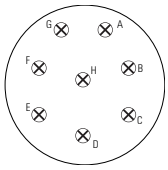
22-7
E
1 x #0



22-9
E
3 x #12

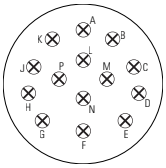


22-14
A
19 x #16

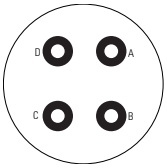


22-18
A,B,F,G,H=D; C,D,E=A
8 x #16

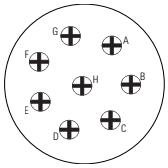
Arrangement
Service Rating
Number of Contacts



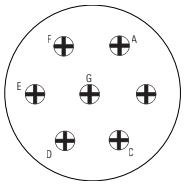
22-19
A
14 x #16



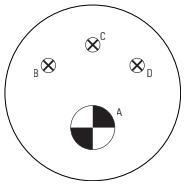
22-22
A
4 x #8



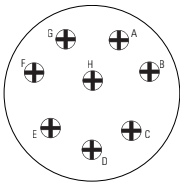
22-23
H=D; Bal.=A
8 x #12



24-2
D
7 x #12

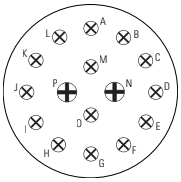


24-4
D/A
1 x #0
3 x #16

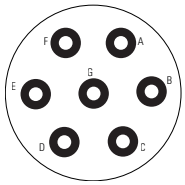


24-6
A,G,H=D; Bal.= A
8 x #12

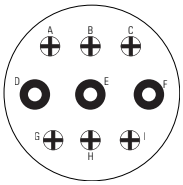
Arrangement
Service Rating
Number of Contacts



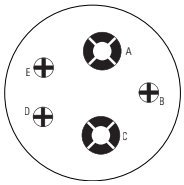
24-7
A
2 x #12
14 x #16



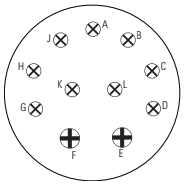
24-10
A
7 x #8



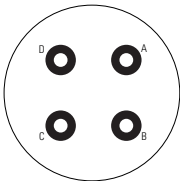
24-11
A
3 x #8
6 x #12



24-12
A
2 x #4
3 x #12



24-20
D
2 x #12
9 x #16



24-22
D
4 x #8

Arrangement
Service Rating
Number of Contacts

(Continued on next page)

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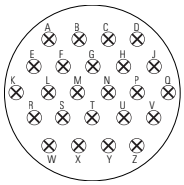
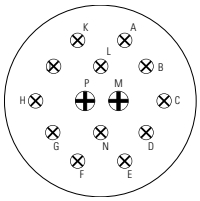
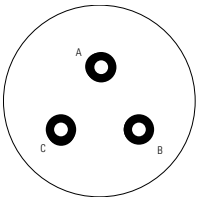
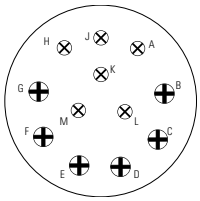
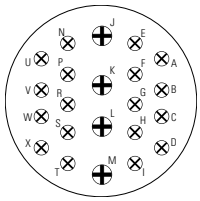
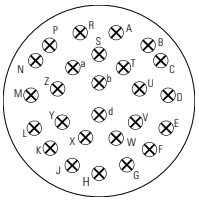
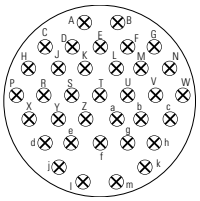
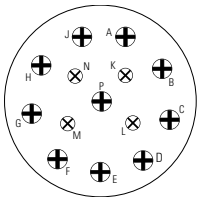
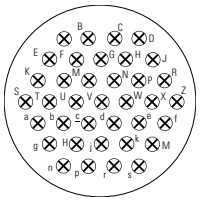
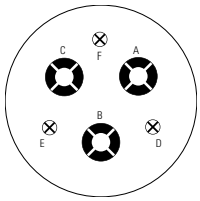
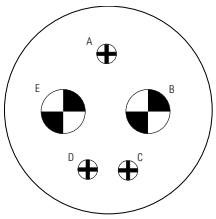
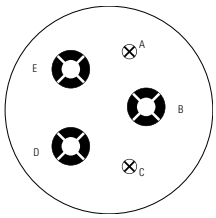
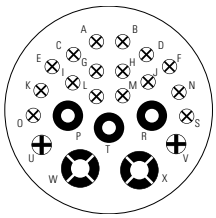
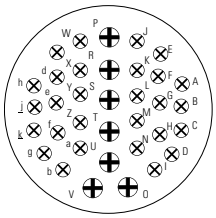
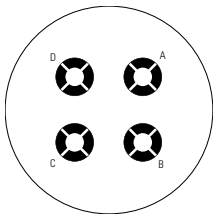






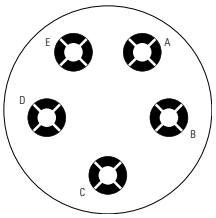
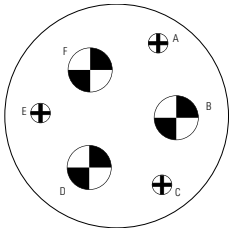
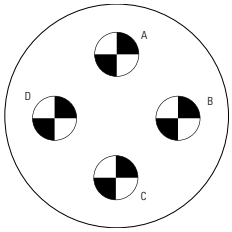
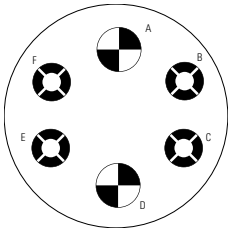
Arrangement	**24-28**	**28-2**	**28-3**	**28-9**	**28-11**
Service Rating	Inst.	D	E	D	A
Number of Contacts	24 x #16	2 x #12 12 x #16	3 x #8	6 x #12 6 x #16	4 x #12 18 x #16

Arrangement	**28-12**	**28-15**	**28-20**	**28-21**	**28-22**
Service Rating	A	A	A	A	D
Number of Contacts	26 x #16	35 x #16	10 x #12 4 x #16	37 x #16	3 x #4 3 x #16

Arrangement	**32-1**	**32-2**	**32-6**	**32-7**	**32-17**
Service Rating	A=E; B,C,D,E=D	E	A	A,B,H,J=Inst.; Bal.=A	D
Number of Contacts	2 x #0 3 x #12	3 x #4 2 x #16	2 x #4; 3 x #8 2 x #12; 16 x #16	7 x #12 28 x #16	4 x #4

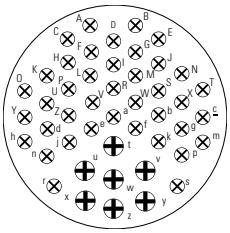





Arrangement	**32-63**	**36-3**	**36-5**	**36-6**
Service Rating	D	D	A	A
Number of Contacts	5 x #4	3 x #0 3 x #12	4 x #0	2 x #0 4 x #4

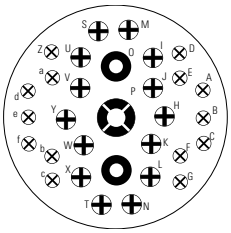
Contact Legend #0 #4 #8 #10 #12 #16

(Continued on next page)

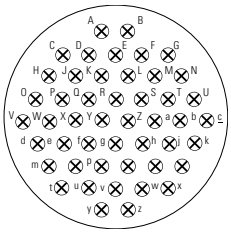
(Continued from previous page)



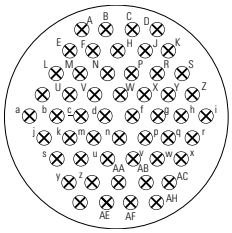
36-7
A
7 x #12
40 x #16



36-9
A
1 x #4; 2 x #8
14 x #12; 14 x #16



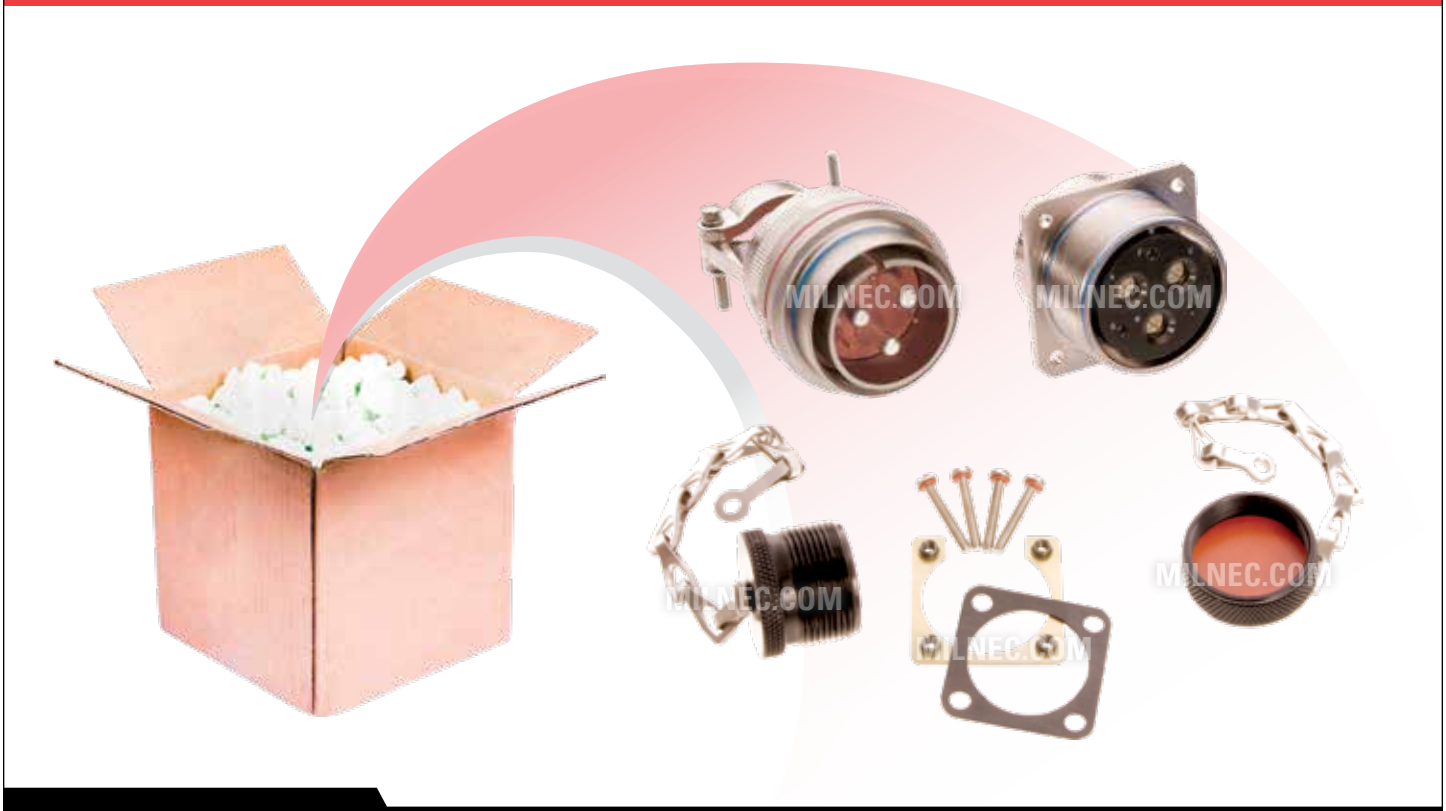
36-10
A
48 x #16



36-52
A
52 x #16

Arrangement
Service Rating
Number of Contacts

OUT OF THE BOX SOLUTIONS



Complete Solutions Right Out of the Box

Milnec makes ordering professional connector solutions easy! Our simple part builders enable you to configure a custom connector solution with everything you need, including protective covers, sealing gaskets, and mounting hardware with sealing screws.

MILNEC® INTERCONNECT SYSTEMS

TF06 Cross Reference & Compatibility

Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3406	MS3400, MS3401, MS3402, MS3404

TF06 L 28-22 P N - R2(055) - 01

1 2 3 4 5 6 7

1 BASIC PART NUMBER

TF06 Plug

2 MATERIAL & FINISH

D Aluminum, cadmium over nickel

L Aluminum, electroless nickel

3 SHELL SIZE & INSERT ARRANGEMENT

See Insert Arrangement Selection table, p. X-12

4 CONTACT STYLE

P Pin

S Socket

D Pin (wire reducing, size #16 & #12 only)

F Socket (wire reducing, size #16 & #12 only)

5 INSERT ROTATION

N Normal or W, X, Y, Z, see p. X-12 for availability

6 OPTIONAL BACKSHELL KIT (OMIT FOR NONE)

B2 Straight strain relief (self-locking), p. X-29

R2( ) Straight EMI/RFI environmental, p. X-40

(Add dash number for appropriate shell size, see p. X-40)

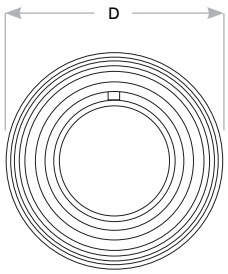
7 OPTIONAL ACCESSORY KIT (OMIT FOR NONE)

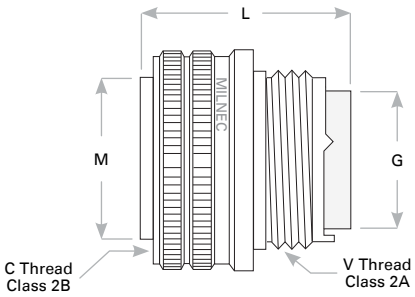
01 Protective cover

Plug Dimensions

Shell Size	D	C Thread Class 2B	L Max		M	G	V Thread Class 2A
			#12, #16 Contacts	#0, #4, #8 Contacts			
10SL	.969 (24.6)	.6250-24 UNEF	2.031 (51.6)	-	.441 (11.2)	.405 (10.3)	.6250-24 UNEF
12S	1.062 (27.0)	.7500-20 UNEF	2.031 (51.6)	-	.550 (14.0)	.549 (13.9)	.7500-20 UNEF
14S	1.156 (29.4)	.8750-20 UNEF	2.031 (51.6)	-	.670 (17.0)	.665 (16.9)	.8750-20 UNEF
16S	1.250 (31.8)	1.0000-20 UNEF	2.031 (51.6)	-	.800 (20.3)	.790 (20.1)	1.0000-20 UNEF
18	1.344 (34.1)	1.1250-18 UNEF	2.125 (54.0)	2.500 (63.5)	.925 (23.5)	.869 (22.1)	1.0625-18 UNEF
20	1.469 (37.3)	1.2500-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.045 (26.5)	.994 (25.2)	1.1875-18 UNEF
22	1.594 (40.5)	1.3750-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.170 (29.7)	1.119 (28.4)	1.3125-18 UNEF
24	1.719 (43.7)	1.5000-18 UNS	2.125 (54.0)	2.500 (63.5)	1.295 (32.9)	1.244 (31.6)	1.4375-18 UNEF
28	1.969 (50.0)	1.7500-18 UNS	2.125 (54.0)	2.500 (63.5)	1.515 (38.5)	1.465 (37.2)	1.7500-18 UNS
32	2.219 (56.4)	2.0000-18 UNS	2.125 (54.0)	2.500 (63.5)	1.765 (44.8)	1.715 (43.6)	2.0000-18 UNS
36	2.469 (62.7)	2.2500-16 UNS	2.125 (54.0)	2.500 (63.5)	1.975 (50.2)	1.930 (49.0)	2.2500-16 UN

Dimensions are in inches (mm).





TF08 L 28-22 P N - 01

1 2 3 4 5 6

1 **BASIC PART NUMBER**
- **TF08** Plug with 90° strain relief backshell

2 **MATERIAL & FINISH**
- **L** Aluminum, electroless nickel
- **D** Aluminum, cadmium over nickel

3 **SHELL SIZE & INSERT ARRANGEMENT**
- See Insert Arrangement Selection table, p. X-12

4 **CONTACT STYLE**
- **P** Pin
- **S** Socket
- **D** Pin (wire reducing, size #16 & #12 only)
- **F** Socket (wire reducing, size #16 & #12 only)

5 **INSERT ROTATION**
- **N** Normal or W, X, Y, Z, see p. X-12 for availability

6 **OPTIONAL ACCESSORY KIT** (OMIT FOR NONE)
- **01** Protective cover

Note: See part builder (p. X-11) for additional kit options.

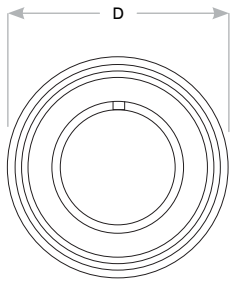
TF08 Compatibility

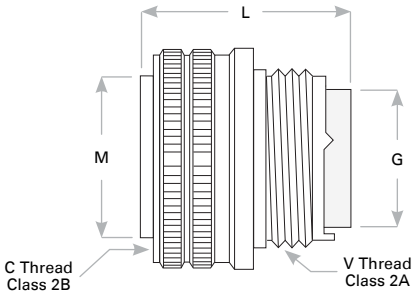
Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3408	MS3400, MS3401, MS3402, MS3404

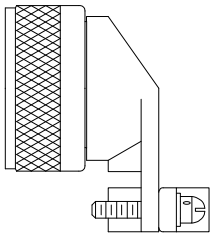
Plug Dimensions

Shell Size	D	C Thread Class 2B	L Max		M	G	V Thread Class 2A
			#12, #16 Contacts	#0, #4, #8 Contacts			
10SL	.969 (24.6)	.6250-24 UNEF	2.031 (51.6)	-	.441 (11.2)	.405 (10.3)	.6250-24 UNEF
12S	1.062 (27.0)	.7500-20 UNEF	2.031 (51.6)	-	.550 (14.0)	.549 (13.9)	.7500-20 UNEF
14S	1.156 (29.4)	.8750-20 UNEF	2.031 (51.6)	-	.670 (17.0)	.665 (16.9)	.8750-20 UNEF
16S	1.250 (31.8)	1.0000-20 UNEF	2.031 (51.6)	-	.800 (20.3)	.790 (20.1)	1.0000-20 UNEF
18	1.344 (34.1)	1.1250-18 UNEF	2.125 (54.0)	2.500 (63.5)	.925 (23.5)	.869 (22.1)	1.0625-18 UNEF
20	1.469 (37.3)	1.2500-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.045 (26.5)	.994 (25.2)	1.1875-18 UNEF
22	1.594 (40.5)	1.3750-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.170 (29.7)	1.119 (28.4)	1.3125-18 UNEF
24	1.719 (43.7)	1.5000-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.295 (32.9)	1.244 (31.6)	1.4375-18 UNEF
28	1.969 (50.0)	1.7500-18 UNS	2.125 (54.0)	2.500 (63.5)	1.515 (38.5)	1.465 (37.2)	1.7500-18 UNS
32	2.219 (56.4)	2.0000-18 UNS	2.125 (54.0)	2.500 (63.5)	1.765 (44.8)	1.715 (43.6)	2.0000-18 UNS
36	2.469 (62.7)	2.2500-16 UNS	2.125 (54.0)	2.500 (63.5)	1.975 (50.2)	1.930 (49.0)	2.2500-16 UN

Dimensions are in inches (mm).







For backshell dimensions see p. X-30.

Rev. 2208

TF09 Cross Reference & Compatibility

Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3409	MS3400, MS3401, MS3402, MS3404

TF09 L 28-22 P N - 01

1 2 3 4 5 6

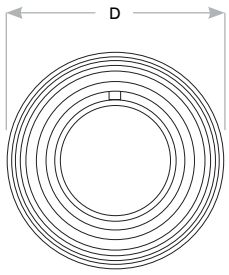
1. **BASIC PART NUMBER**
   - **TF09** Plug with 45° strain relief
2. **MATERIAL & FINISH**
   - **L** Aluminum, electroless nickel
   - **D** Aluminum, cadmium over nickel
3. **SHELL SIZE & INSERT ARRANGEMENT**
   - See Insert Arrangement Selection table, p. X-12
4. **CONTACT STYLE**
   - **P** Pin
   - **S** Socket
   - **D** Pin (wire reducing, size #16 & #12 only)
   - **F** Socket (wire reducing, size #16 & #12 only)
5. **INSERT ROTATION**
   - **N** Normal or W, X, Y, Z, see p. X-12 for availability
6. **OPTIONAL ACCESSORY KIT** (OMIT FOR NONE)
   - **01** Protective cover

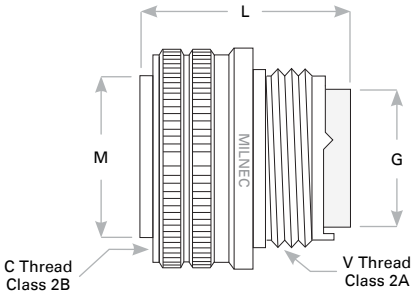
Note: See part builder (p. X-11) for additional kit options.

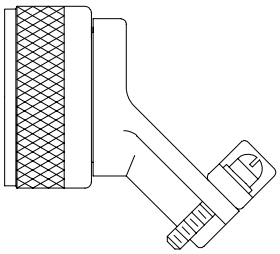
Plug Dimensions

Shell Size	D	C Thread Class 2B	L Max		M	G	V Thread Class 2A
			#12, #16 Contacts	#0, #4, #8 Contacts			
10SL	.969 (24.6)	.6250-24 UNEF	2.031 (51.6)	-	.441 (11.2)	.405 (10.3)	.6250-24 UNEF
12S	1.062 (27.0)	.7500-20 UNEF	2.031 (51.6)	-	.550 (14.0)	.549 (13.9)	.7500-20 UNEF
14S	1.156 (29.4)	.8750-20 UNEF	2.031 (51.6)	-	.670 (17.0)	.665 (16.9)	.8750-20 UNEF
16S	1.250 (31.8)	1.0000-20 UNEF	2.031 (51.6)	-	.800 (20.3)	.790 (20.1)	1.0000-20 UNEF
18	1.344 (34.1)	1.1250-18 UNEF	2.125 (54.0)	2.500 (63.5)	.925 (23.5)	.869 (22.1)	1.0625-18 UNEF
20	1.469 (37.3)	1.2500-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.045 (26.5)	.994 (25.2)	1.1875-18 UNEF
22	1.594 (40.5)	1.3750-18 UNEF	2.125 (54.0)	2.500 (63.5)	1.170 (29.7)	1.119 (28.4)	1.3125-18 UNEF
24	1.719 (43.7)	1.5000-18 UNS	2.125 (54.0)	2.500 (63.5)	1.295 (32.9)	1.244 (31.6)	1.4375-18 UNEF
28	1.969 (50.0)	1.7500-18 UNS	2.125 (54.0)	2.500 (63.5)	1.515 (38.5)	1.465 (37.2)	1.7500-18 UNS
32	2.219 (56.4)	2.0000-18 UNS	2.125 (54.0)	2.500 (63.5)	1.765 (44.8)	1.715 (43.6)	2.0000-18 UNS
36	2.469 (62.7)	2.2500-16 UNS	2.125 (54.0)	2.500 (63.5)	1.975 (50.2)	1.930 (49.0)	2.2500-16 UN

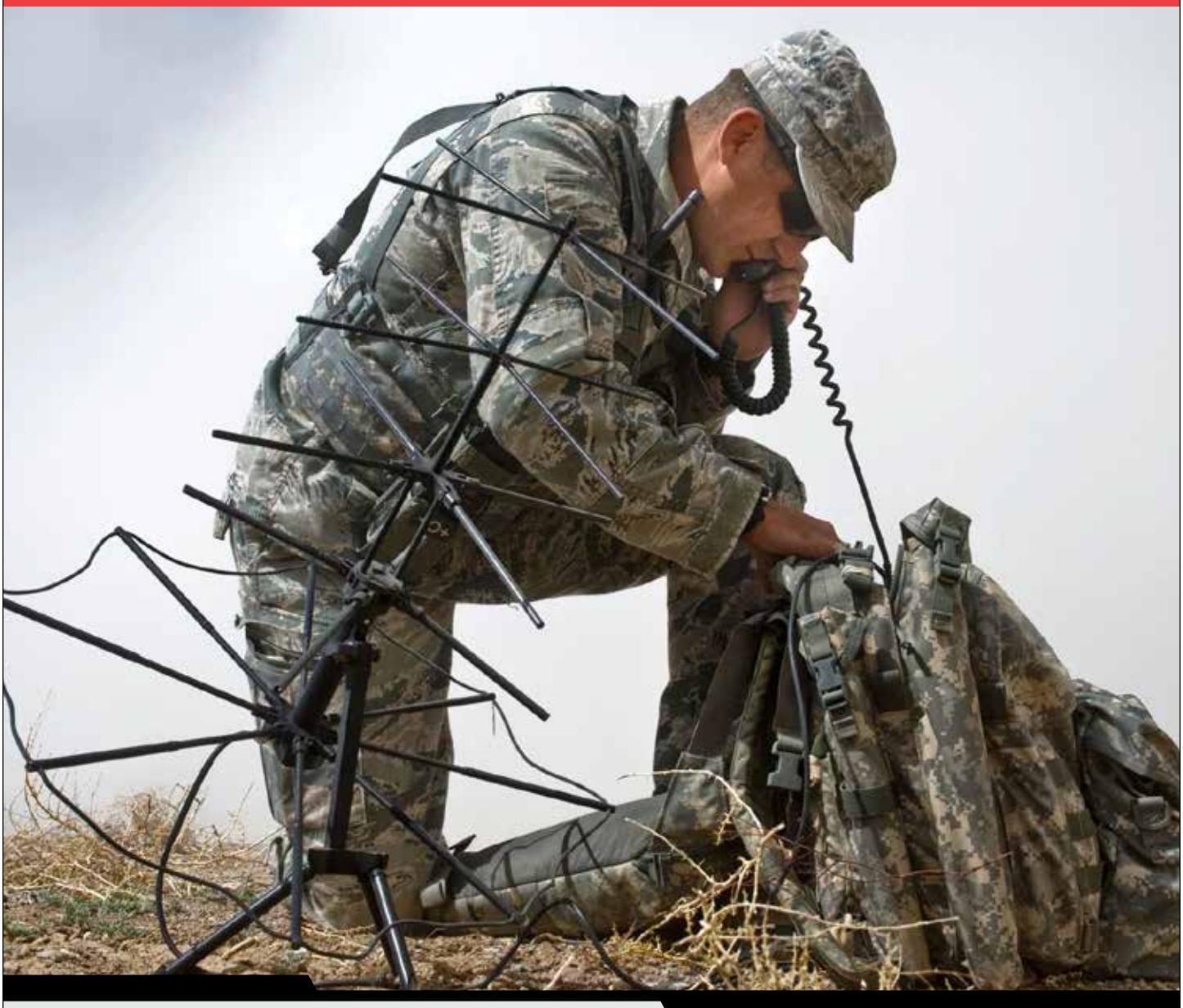
Dimensions are in inches (mm).







CONNECTOR SELECTION IS CRITICAL MAKE THE RIGHT CALL



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INTERCONNECT SYSTEMS

TF00 Cross Reference & Compatibility

Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3400	MS3406, MS3408, MS3409, MS3496

TF00 L 28-22 S N - R2(055) - 03

1 2 3 4 5 6 7

1 BASIC PART NUMBER

TF00 Wall mount receptacle

2 MATERIAL & FINISH

L Aluminum, electroless nickel

D Aluminum, cadmium over nickel

3 SHELL SIZE & INSERT ARRANGEMENT

See Insert Arrangement Selection table, p. X-12

4 CONTACT STYLE

P Pin

S Socket

D Pin (wire reducing, size #16 & #12 only)

F Socket (wire reducing, size #16 & #12 only)

5 INSERT ROTATION

N Normal or W, X, Y, Z, see p. X-12 for availability

6 OPTIONAL BACKSHELL KIT (OMIT FOR NONE)

B2 Straight strain relief (self-locking), p. X-29

R2( ) Straight EMI/RFI environmental, p. X-40

(Add dash number for appropriate shell size, see p. X-40)

7 OPTIONAL ACCESSORY KIT (OMIT FOR NONE)

02 Protective cover + mounting gasket

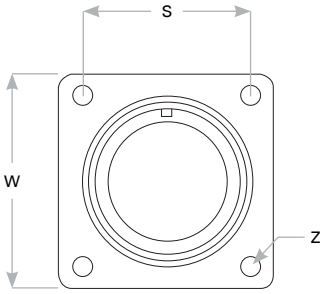
03 02 kit + mounting bracket + sealing screws

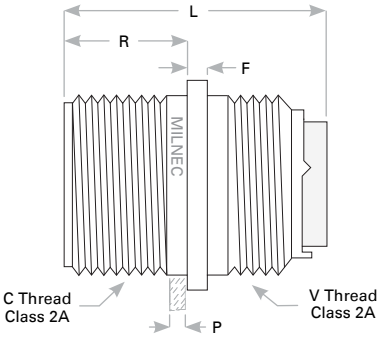
Note: See part builder (p. X-11) for additional kit options.

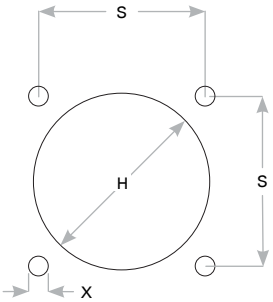
Receptacle Dimensions

Shell Size	W	Z	C Thread Class 2A	L Max		R	F	V Thread Class 2A	P Max Rear Panel‡	S	X	H
				#12, #16 Contacts	#0, #4, #8 Contacts							
10SL	1.000 (25.4)	.120 (3.0)	.6250-24 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.6250-24 UNEF	.187 (4.8)	.719 (18.3)	.120 (3.1)	.655 (16.6)
12S	1.094 (27.8)	.120 (3.0)	.7500-20 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.7500-20 UNEF	.187 (4.8)	.812 (20.6)	.120 (3.1)	.780 (19.8)
14S	1.188 (30.2)	.120 (3.0)	.8750-20 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.8750-20 UNEF	.187 (4.8)	.906 (23.0)	.120 (3.1)	.905 (23.0)
16S	1.281 (32.5)	.120 (3.0)	1.0000-20 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	1.0000-20 UNEF	.187 (4.8)	.969 (24.6)	.120 (3.1)	1.030 (26.2)
18	1.375 (34.9)	.120 (3.0)	1.1250-18 UNEF	2.125 (54.0)	2.500 (63.5)	.750 (19.1)	.125 (3.2)	1.0625-18 UNEF	.125 (3.2)	1.062 (27.0)	.120 (3.1)	1.155 (29.3)
20	1.500 (38.1)	.120 (3.0)	1.2500-18 UNEF	2.125 (54.0)	2.500 (63.5)	.750 (19.1)	.125 (3.2)	1.1875-18 UNEF	.125 (3.2)	1.156 (29.4)	.120 (3.1)	1.280 (32.5)
22	1.625 (41.3)	.120 (3.0)	1.3750-18 UNEF	2.125 (54.0)	2.500 (63.5)	.750 (19.1)	.125 (3.2)	1.3125-18 UNEF	.125 (3.2)	1.250 (31.8)	.120 (3.1)	1.405 (35.7)
24	1.750 (44.5)	.147 (3.7)	1.5000-18 UNEF	2.125 (54.0)	2.500 (63.5)	.812 (20.6)	.125 (3.2)	1.4375-18 UNEF	.187 (4.8)	1.375 (34.9)	.147 (3.7)	1.530 (38.9)
28	2.000 (50.8)	.147 (3.7)	1.7500-18 UNS	2.125 (54.0)	2.500 (63.5)	.812 (20.6)	.125 (3.2)	1.7500-18 UNS	.187 (4.8)	1.562 (39.7)	.147 (3.7)	1.780 (45.2)
32	2.250 (57.2)	.173 (4.4)	2.0000-18 UNS	2.125 (54.0)	2.500 (63.5)	.875 (22.2)	.125 (3.2)	2.0000-18 UNS	.250 (6.4)	1.750 (44.5)	.173 (4.4)	2.030 (51.6)
36	2.500 (63.5)	.173 (4.4)	2.2500-16 UN	2.125 (54.0)	2.500 (63.5)	.875 (22.2)	.125 (3.2)	2.2500-16 UN	.250 (6.4)	1.938 (49.2)	.173 (4.4)	2.280 (57.9)

Dimensions are in inches (mm). ‡ Max panel thickness applies only to rear mount applications to ensure proper coupling clearance.







Panel Cutout

Rev. 2208

TF02 L 28-22 S N - 03

1 2 3 4 5 6

1 **BASIC PART NUMBER**
- **TF02** Box mount receptacle

2 **MATERIAL & FINISH**
- **L** Aluminum, electroless nickel
- **D** Aluminum, cadmium over nickel

3 **SHELL SIZE & INSERT ARRANGEMENT**
- See Insert Arrangement Selection table, p. X-12

4 **CONTACT STYLE**
- **P** Pin
- **S** Socket
- **D** Pin (wire reducing, size #16 & #12 only)
- **F** Socket (wire reducing, size #16 & #12 only)

5 **INSERT ROTATION**
- **N** Normal or W, X, Y, Z, see p. X-12 for availability

6 **OPTIONAL ACCESSORY KIT** (OMIT FOR NONE)
- **02** Protective cover + mounting gasket
- **03** 02 kit + mounting bracket + sealing screws

TF02 Cross Reference & Compatibility

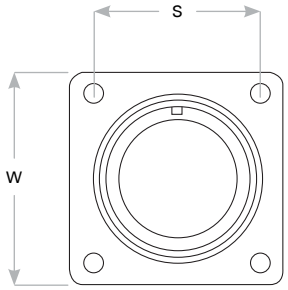
Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3402	MS3406, MS3408, MS3409, MS3496

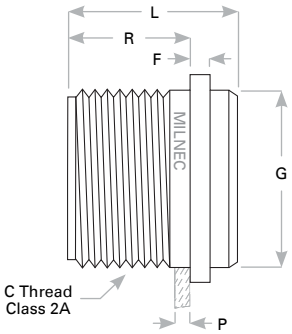
Note: See part builder (p. X-11) for additional kit options.

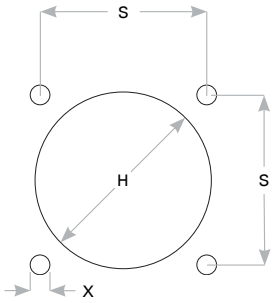
Receptacle Dimensions

Shell Size	W	C Thread Class 2A	L Max		R	F	G	P Max Rear Panel‡	S	X	H
			#12, #16 Contacts	#0, #4, #8 Contacts							
10SL	1.000 (25.4)	.6250-24 UNEF	1.662 (42.2)	-	.562 (14.3)	.083 (2.1)	.625 (15.9)	.187 (4.8)	.719 (18.3)	.120 (3.1)	.655 (16.6)
12S	1.094 (27.8)	.7500-20 UNEF	1.662 (42.2)	-	.562 (14.3)	.083 (2.1)	.750 (19.1)	.187 (4.8)	.812 (20.6)	.120 (3.1)	.780 (19.8)
14S	1.188 (30.2)	.8750-20 UNEF	1.662 (42.2)	-	.562 (14.3)	.083 (2.1)	.875 (22.2)	.187 (4.8)	.906 (23.0)	.120 (3.1)	.905 (23.0)
16S	1.281 (32.5)	1.0000-20 UNEF	1.662 (42.2)	-	.562 (14.3)	.083 (2.1)	1.000 (25.4)	.187 (4.8)	.969 (24.6)	.120 (3.1)	1.030 (26.2)
18	1.375 (34.9)	1.1250-18 UNEF	1.662 (42.2)	1.937 (49.2)	.750 (19.1)	.125 (3.2)	1.062 (27.0)	.125 (3.2)	1.062 (27.0)	.120 (3.1)	1.155 (29.3)
20	1.500 (38.1)	1.2500-18 UNEF	1.662 (42.2)	1.937 (49.2)	.750 (19.1)	.125 (3.2)	1.187 (30.1)	.125 (3.2)	1.156 (29.4)	.120 (3.1)	1.280 (32.5)
22	1.625 (41.3)	1.3750-18 UNEF	1.662 (42.2)	1.937 (49.2)	.750 (19.1)	.125 (3.2)	1.312 (33.3)	.125 (3.2)	1.250 (31.8)	.120 (3.1)	1.405 (35.7)
24	1.750 (44.5)	1.5000-18 UNEF	1.662 (42.2)	1.937 (49.2)	.812 (20.6)	.125 (3.2)	1.437 (36.5)	.187 (4.8)	1.375 (34.9)	.147 (3.7)	1.530 (38.9)
28	2.000 (50.8)	1.7500-18 UNS	1.662 (42.2)	1.937 (49.2)	.812 (20.6)	.125 (3.2)	1.750 (44.5)	.187 (4.8)	1.562 (39.7)	.147 (3.7)	1.780 (45.2)
32	2.250 (57.2)	2.0000-18 UNS	1.662 (42.2)	1.937 (49.2)	.875 (22.2)	.125 (3.2)	2.000 (50.8)	.250 (6.4)	1.750 (44.5)	.173 (4.4)	2.030 (51.6)
36	2.500 (63.5)	2.2500-16 UN	1.662 (42.2)	1.937 (49.2)	.875 (22.2)	.125 (3.2)	2.250 (57.2)	.250 (6.4)	1.938 (49.2)	.173 (4.4)	2.280 (57.9)

Dimensions are in inches (mm). ‡ Max panel thickness applies only to rear mount applications to ensure proper coupling clearance.







Panel Cutout

Rev. 2208

TF07 Cross Reference & Compatibility

Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3404	MS3406, MS3408, MS3409, MS3496

TF07 L 28-22 S N - R2(055) - 02

1 2 3 4 5 6 7

1 **BASIC PART NUMBER**
- **TF07** Jam nut receptacle

2 **MATERIAL & FINISH**
- **L** Aluminum, electroless nickel
- **D** Aluminum, olive drab cadmium

3 **SHELL SIZE & INSERT ARRANGEMENT**
- See Insert Arrangement Selection table, p. X-12

4 **CONTACT STYLE**
- **P** Pin
- **S** Socket

5 **INSERT ROTATION**
- **N** Normal or W, X, Y, Z, see p. X-12 for availability

6 **OPTIONAL BACKSHELL KIT** (OMIT FOR NONE)
- **B2** Straight strain relief (self-locking), p. X-29
- **R2( )** Straight EMI/RFI environmental, p. X-40
- (Add dash number for appropriate shell size, see p. X-40)

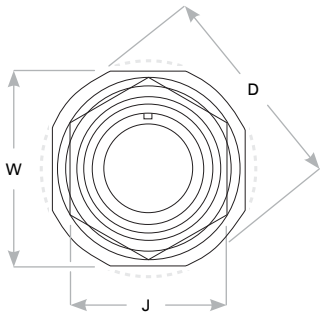
7 **OPTIONAL ACCESSORY KIT** (OMIT FOR NONE)
- **02** Protective cover

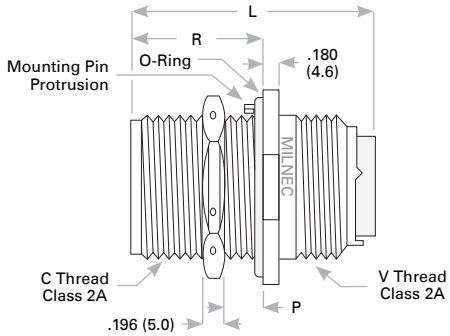
Note: See part builder (p. X-11) for additional kit options.

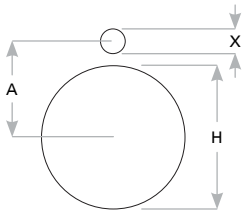
Receptacle Dimensions

Shell Size	W	D	J	C Thread Class 2A	L Max #12, #16 Contacts	L Max #0, #4, #8 Contacts	R	V Thread Class 2A	P Max Rear Panel‡	A	H	X
10L	1.312 (33.3)	1.397 (35.5)	.812 (20.6)	.6250-24 UNEF	2.031 (51.6)	-	.720 (18.3)	.6250-24 UNEF	.140 (3.6)	.385 (9.8)	.640 (16.3)	.100 (2.5)
12S	1.437 (36.5)	1.522 (38.7)	.937 (23.8)	.7500-20 UNEF	2.031 (51.6)	-	.720 (18.3)	.7500-20 UNEF	.140 (3.6)	.448 (11.4)	.765 (19.4)	.100 (2.5)
14S	1.562 (39.7)	1.647 (41.8)	1.125 (28.6)	.8750-20 UNEF	2.031 (51.6)	-	.720 (18.3)	.8750-20 UNEF	.140 (3.6)	.510 (13.0)	.890 (22.6)	.100 (2.5)
16S	1.687 (42.8)	1.772 (45.0)	1.250 (31.8)	1.0000-20 UNEF	2.031 (51.6)	-	.720 (18.3)	1.0000-20 UNEF	.140 (3.6)	.573 (14.6)	1.015 (25.8)	.100 (2.5)
18	1.812 (46.0)	1.897 (48.2)	1.375 (34.9)	1.1250-18 UNEF	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	1.0625-18 UNEF	.140 (3.6)	.635 (16.1)	1.140 (29.0)	.100 (2.5)
20	1.937 (49.2)	2.022 (51.4)	1.500 (38.1)	1.2500-18 UNEF	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	1.1875-18 UNEF	.140 (3.6)	.698 (17.7)	1.265 (32.1)	.100 (2.5)
22	2.156 (54.8)	2.241 (56.9)	1.625 (41.3)	1.3750-18 UNEF	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	1.3125-18 UNEF	.140 (3.6)	.760 (19.3)	1.390 (35.3)	.100 (2.5)
24	2.281 (57.9)	2.366 (60.1)	1.750 (44.5)	1.5000-18 UNS	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	1.4375-18 UNEF	.140 (3.6)	.823 (20.9)	1.515 (38.5)	.100 (2.5)
28	2.531 (64.3)	2.616 (66.4)	2.000 (50.8)	1.7500-18 UNS	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	1.7500-18 UNS	.140 (3.6)	.948 (24.1)	1.765 (44.8)	.100 (2.5)
32	2.781 (70.6)	2.866 (72.8)	2.375 (60.3)	2.0000-18 UNS	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	2.0000-18 UNS	.140 (3.6)	1.073 (27.3)	2.015 (51.2)	.100 (2.5)
36	3.031 (77.0)	3.116 (79.1)	2.625 (66.7)	2.2500-16 UN	2.125 (54.0)	2.500 (63.5)	.970 (24.6)	2.2500-16 UN	.140 (3.6)	1.198 (30.4)	2.265 (57.5)	.100 (2.5)

Dimensions are in inches (mm). ‡ Max panel thickness applies only to rear mount applications to ensure proper coupling clearance.







Panel Cutout

TF01 L 28-22 S N - R2(055) - 02

1 2 3 4 5 6 7

1 BASIC PART NUMBER
- **TF01** Cable mount receptacle

2 MATERIAL & FINISH
- **L** Aluminum, electroless nickel
- **D** Aluminum, olive drab cadmium

3 SHELL SIZE & INSERT ARRANGEMENT
- See Insert Arrangement Selection table, p. X-12

4 CONTACT STYLE
- **P** Pin
- **S** Socket

5 INSERT ROTATION
- **N** Normal or W, X, Y, Z, see p. X-12 for availability

6 OPTIONAL BACKSHELL KIT (OMIT FOR NONE)
- **B2** Straight strain relief (self-locking), p. X-29
- **R2( )** Straight EMI/RFI environmental, p. X-40
- (Add dash number for appropriate shell size, see p. X-40)

7 OPTIONAL ACCESSORY KIT (OMIT FOR NONE)
- **02** Protective cover

Note: See part builder (p. X-11) for additional kit options.

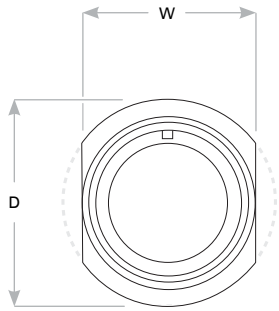
TF01 Cross Reference & Compatibility

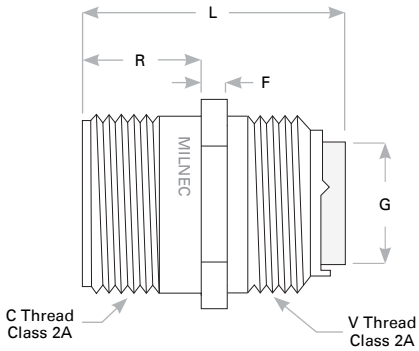
Compatible Brands	Equivalent	Mates
MIL-DTL-5015 Crimp	MS3401	MS3406, MS3408, MS3409, MS3496

Receptacle Dimensions

Shell Size	W Max	D	C Thread Class 2A	L Max		R	F	G	V Thread Class 2A
				#12, #16 Contacts	#0, #4, #8 Contacts				
10SL	.629 (16.0)	.854 (21.7)	.6250-24 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.405 (10.3)	.6250-24 UNEF
12S	.754 (19.2)	.974 (24.7)	.7500-20 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.549 (13.9)	.7500-20 UNEF
14S	.879 (22.3)	1.099 (27.9)	.8750-20 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.665 (16.9)	.8750-20 UNEF
16S	1.005 (25.5)	1.224 (31.1)	1.0000-20 UNEF	2.031 (51.6)	-	.562 (14.3)	.083 (2.1)	.790 (20.1)	1.0000-20 UNEF
18	1.131 (28.7)	1.349 (34.3)	1.1250-18 UNEF	2.125 (54.0)	2.500 (63.5)	.750 (19.1)	.125 (3.2)	.869 (22.1)	1.0625-18 UNEF
20	1.256 (31.9)	1.474 (37.4)	1.2500-18 UNEF	2.125 (54.0)	2.500 (63.5)	.750 (19.1)	.125 (3.2)	.994 (25.2)	1.1875-18 UNEF
22	1.381 (35.1)	1.599 (40.6)	1.3750-18 UNEF	2.125 (54.0)	2.500 (63.5)	.750 (19.1)	.125 (3.2)	1.119 (28.4)	1.3125-18 UNEF
24	1.506 (38.3)	1.715 (43.6)	1.5000-18 UNEF	2.125 (54.0)	2.500 (63.5)	.812 (20.6)	.125 (3.2)	1.244 (31.6)	1.4375-18 UNEF
28	1.756 (44.6)	1.974 (50.1)	1.7500-18 UNS	2.125 (54.0)	2.500 (63.5)	.812 (20.6)	.125 (3.2)	1.465 (37.2)	1.7500-18 UNS
32	2.007 (51.0)	2.224 (56.5)	2.0000-18 UNS	.2.125 (54.0)	2.500 (63.5)	.870 (22.1)	.125 (3.2)	1.715 (43.6)	2.0000-18 UNS
36	2.257 (57.3)	2.474 (62.8)	2.2500-16 UN	2.125 (54.0)	2.500 (63.5)	.870 (22.1)	.125 (3.2)	1.930 (49.0)	2.2500-16 UN

Dimensions are in inches (mm).





Thru-Bulkhead Receptacle

TF Series • MIL-DTL-5015 Crimp Type Connectors

TF22 D 18-11 PS N - 02

1 2 3 4 5 6

1 **BASIC PART NUMBER**
- **TF22** Thru-bulkhead receptacle

2 **MATERIAL & FINISH**
- **L** Aluminum, electroless nickel
- **D** Aluminum, olive drab cadmium

3 **SHELL SIZE & INSERT ARRANGEMENT**
- See Insert Arrangement Selection table, p. X-12

4 **CONTACT STYLE**
- **PS** Pin / socket (non-configurable)

5 **INSERT ROTATION**
- **N** Normal or W, X, Y, Z, see p. X-12 for availability

6 **OPTIONAL ACCESSORY KIT** (OMIT FOR NONE)
- **02** Protective covers (2x) + mounting gasket
- **03** 02 kit + mounting bracket + sealing screws

Note: See part builder (p. X-11) for additional kit options.

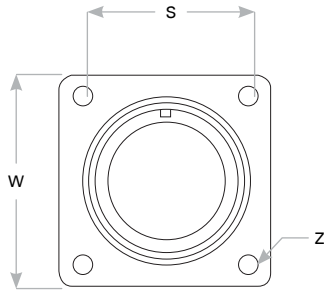
TF22 Compatibility

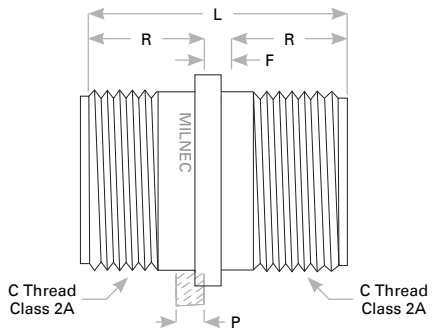
Compatible Brands	Mates
MIL-DTL-5015 Crimp	MS3406, MS3408, MS3409, MS3496

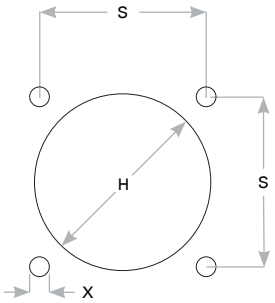
Receptacle Dimensions

Shell Size	W	Z	L Max	R	F	C Thread Class 2A	Min Thread Length	P Max Rear Panel‡	S	X	H
10SL	NOT AVAILABLE										
12S	1.094 (27.8)	.120 (3.0)	1.563 (39.7)	.711 (18.1)	.141 (3.6)	.7500-20 UNEF	.406 (10.3)	.266 (6.8)	.812 (20.6)	.120 (3.1)	.812 (20.6)
14S	1.188 (30.2)	.120 (3.0)	1.563 (39.7)	.711 (18.1)	.141 (3.6)	.8750-20 UNEF	.406 (10.3)	.266 (6.8)	.906 (23.0)	.120 (3.1)	.938 (23.8)
16S	1.281 (32.5)	.120 (3.0)	1.563 (39.7)	.711 (18.1)	.141 (3.6)	1.0000-20 UNEF	.406 (10.3)	.266 (6.8)	.969 (24.6)	.120 (3.1)	1.062 (27.0)
18	1.375 (34.9)	.120 (3.0)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	1.1250-18 UNEF	.625 (15.9)	.312 (7.9)	1.062 (27.0)	.120 (3.1)	1.188 (30.2)
20	1.500 (38.1)	.120 (3.0)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	1.2500-18 UNEF	.625 (15.9)	.312 (7.9)	1.156 (29.4)	.120 (3.1)	1.312 (33.3)
22	1.625 (41.3)	.120 (3.0)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	1.3750-18 UNEF	.625 (15.9)	.312 (7.9)	1.250 (31.8)	.120 (3.1)	1.438 (36.5)
24	1.750 (44.5)	.147 (3.7)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	1.5000-18 UNEF	.625 (15.9)	.312 (7.9)	1.375 (34.9)	.147 (3.7)	1.562 (39.7)
28	2.000 (50.8)	.147 (3.7)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	1.7500-18 UNS	.625 (15.9)	.312 (7.9)	1.562 (39.7)	.147 (3.7)	1.812 (46.0)
32	2.250 (57.2)	.173 (4.4)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	2.0000-18 UNS	.625 (15.9)	.312 (7.9)	1.750 (44.5)	.173 (4.4)	2.062 (52.4)
36	2.500 (63.5)	.173 (4.4)	2.125 (54.0)	.985 (25.0)	.155 (4.0)	2.2500-16 UN	.625 (15.9)	.312 (7.9)	1.938 (49.2)	.173 (4.4)	2.312 (58.7)

Dimensions are in inches (mm). ‡ Max panel thickness applies only to rear mount applications to ensure proper coupling clearance.







Panel Cutout

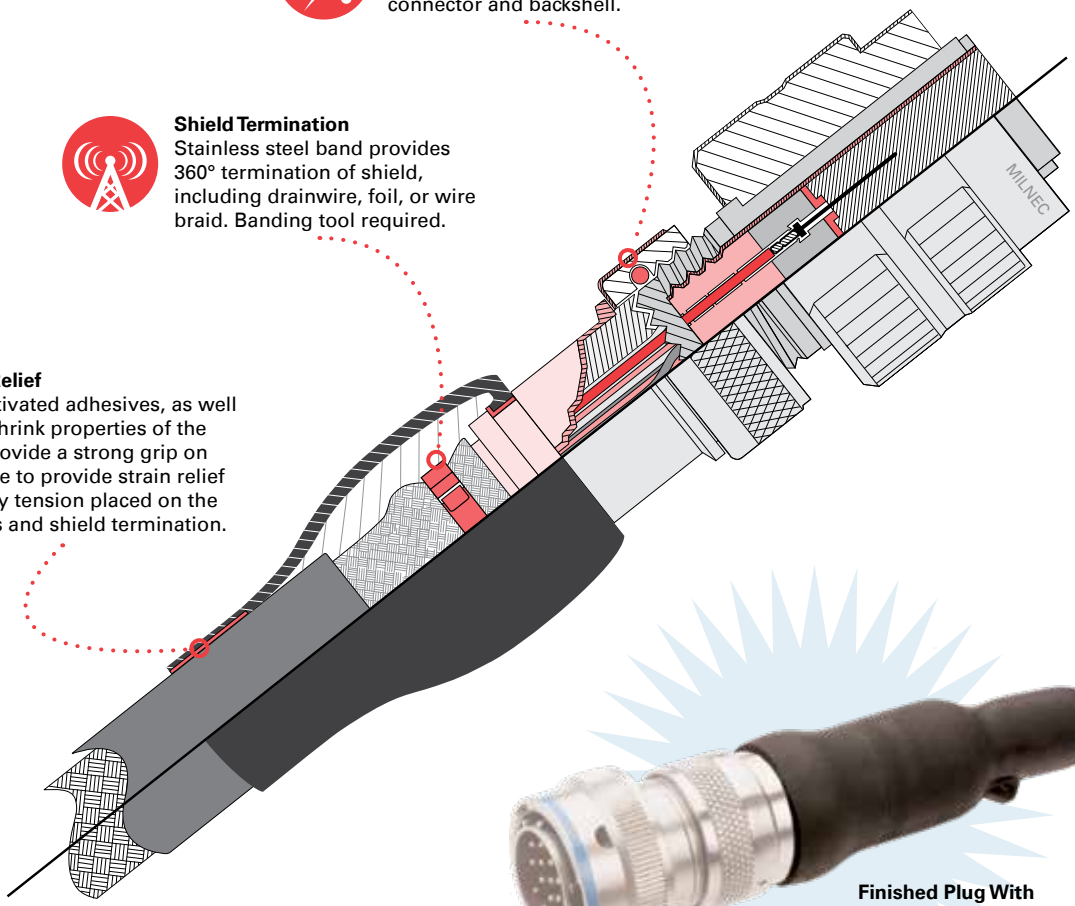
Rev. 2208

COMPLETE PROTECTION, LOW-PROFILE DESIGN

O-Ring
Seals threads on backshell's rear assembly and the junction between connector and backshell.

Shield Termination
Stainless steel band provides 360° termination of shield, including drainwire, foil, or wire braid. Banding tool required.

Strain Relief
Heat activated adhesives, as well as the shrink properties of the boot, provide a strong grip on the cable to provide strain relief from any tension placed on the contacts and shield termination.



Finished Plug With Banding Boot Adapter & Shrink Boot

360° EMI/RFI & Environmental Protection

Get complete protection from shrink boots with a banding boot adapter. The adapter attaches easily to connectors via a spin coupling and offers 360° shield termination. The overlaying boot provides superior strain relief and environmental sealing for applications that require low-profile backshells.

MILNEC INTERCONNECT SYSTEMS

Straight Strain Relief Backshell

TF Series • MIL-DTL-5015 Crimp Type Connectors

TFB2 - S - 16 N

1 2 3 4

1 BASIC PART NUMBER

TFB2 Straight strain relief backshell

2 COUPLING STYLE

N Non-self-locking coupling

S Self-locking coupling

3 SHELL SIZE

See Strain Relief Dimensions table below

4 MATERIAL & FINISH

N Aluminum, electroless nickel

W Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

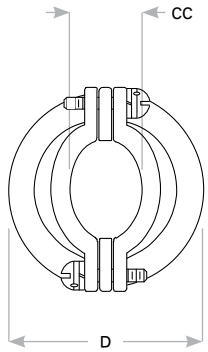
TFB2 Compatibility

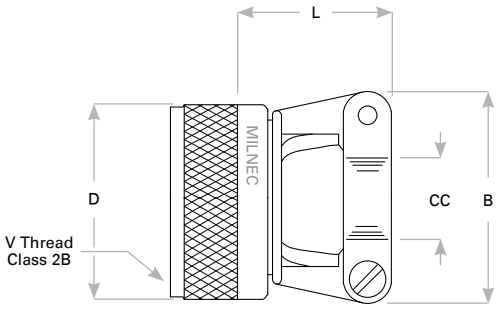
Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496

Strain Relief Dimensions

Shell Size	D	V Thread Class 2B	L	B	CC Cable Clearance	
					Min	Max
10	1.010 (25.7)	.625-24 UNEF	.850 (21.6)	.812 (20.6)	.187 (4.7)	.286 (7.3)
12	1.135 (28.8)	.750-20 UNEF	.980 (24.9)	.968 (24.6)	.291 (7.4)	.416 (10.6)
14	1.260 (32.0)	.875-20 UNEF	.980 (24.9)	1.026 (26.1)	.351 (8.9)	.476 (12.1)
16	1.385 (35.2)	1.000-20 UNEF	1.100 (27.9)	1.299 (33.0)	.501 (12.7)	.626 (15.9)
18	1.510 (38.4)	1.062-18 UNEF	1.350 (34.3)	1.431 (36.3)	.518 (13.2)	.706 (17.9)
20	1.635 (41.5)	1.188-18 UNEF	1.480 (37.6)	1.537 (39.0)	.581 (14.8)	.831 (21.1)
22	1.760 (44.7)	1.313-18 UNEF	1.600 (40.6)	1.633 (41.5)	.644 (16.4)	.956 (24.3)
24	1.885 (47.9)	1.438-18 UNEF	1.730 (43.9)	1.755 (44.6)	.706 (17.9)	1.081 (27.5)
28	2.135 (54.2)	1.750-18 UNS	1.880 (47.8)	2.000 (50.8)	.750 (19.1)	1.187 (30.1)
32	2.395 (60.8)	2.000-18 UNS	2.130 (54.1)	2.366 (60.1)	.875 (22.2)	1.250 (31.8)
36	2.635 (66.9)	2.250-16 UN	2.440 (62.0)	2.476 (62.9)	.938 (23.8)	1.375 (34.9)

Dimensions are in inches (mm).





Rev. 2208

TFB4 - S - 16 N

1 2 3 4

1 **BASIC PART NUMBER**
- **TFB4** 90° strain relief backshell

2 **COUPLING STYLE**
- **N** Non-self-locking coupling
- **S** Self-locking coupling

3 **SHELL SIZE**
- See Strain Relief Dimensions table below

4 **MATERIAL & FINISH**
- **N** Aluminum, electroless nickel
- **W** Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

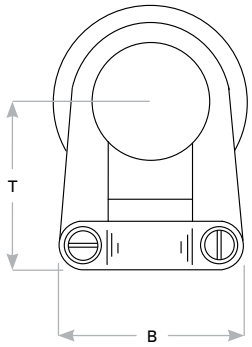
TFB4 Compatibility

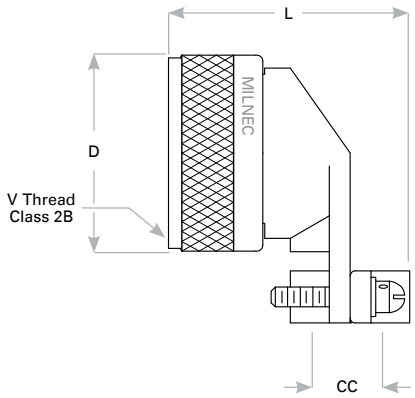
Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496

Strain Relief Dimensions

Shell Size	T	B	V Thread Class 2B	L	D	CC Cable Clearance	
						Min	Max
10	.805 (20.4)	.812 (20.6)	.625-24 UNEF	1.339 (34.0)	1.010 (25.7)	.187 (4.7)	.286 (7.3)
12	.867 (22.0)	.968 (24.6)	.750-20 UNEF	1.532 (38.9)	1.135 (28.8)	.291 (7.4)	.416 (10.6)
14	.930 (23.6)	1.026 (26.1)	.875-20 UNEF	1.592 (40.4)	1.260 (32.0)	.351 (8.9)	.476 (12.1)
16	.994 (25.2)	1.299 (33.0)	1.000-20 UNEF	1.741 (44.2)	1.385 (35.2)	.501 (12.7)	.626 (15.9)
18	1.171 (29.7)	1.431 (36.3)	1.062-18 UNEF	1.853 (47.1)	1.510 (38.4)	.518 (13.2)	.706 (17.9)
20	1.234 (31.2)	1.537 (39.0)	1.188-18 UNEF	1.978 (50.2)	1.635 (41.5)	.581 (14.8)	.831 (21.1)
22	1.296 (32.9)	1.633 (41.5)	1.313-18 UNEF	2.108 (53.5)	1.760 (44.7)	.644 (16.4)	.956 (24.3)
24	1.358 (34.5)	1.755 (44.6)	1.438-18 UNEF	2.228 (56.6)	1.885 (47.9)	.706 (17.9)	1.081 (27.5)
28	1.572 (39.9)	2.000 (50.8)	1.750-18 UNS	2.528 (64.2)	2.135 (54.2)	.750 (19.1)	1.187 (30.1)
32	1.797 (45.6)	2.366 (60.1)	2.000-18 UNS	2.591 (65.8)	2.395 (60.8)	.875 (22.2)	1.250 (31.8)
36	1.922 (48.8)	2.476 (62.9)	2.250-16 UN	2.716 (69.0)	2.635 (66.9)	.938 (23.8)	1.375 (34.9)

Dimensions are in inches (mm).





Rev. 2208

Straight Environmental Backshell

TF Series • MIL-DTL-5015 Crimp Type Connectors

TFE2 - 009 N

1 2 3

1 **BASIC PART NUMBER**
- **TFE2** Straight environmental backshell

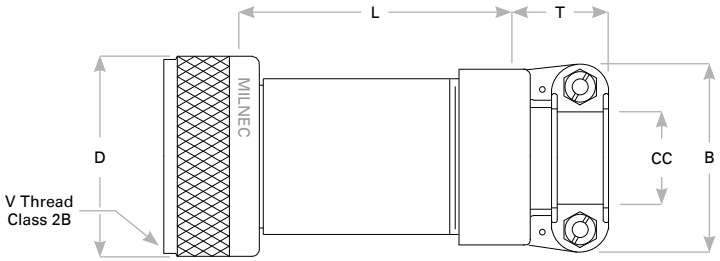
2 **DASH NO.**
- See Backshell Dimensions table below

3 **MATERIAL & FINISH**
- **N** Aluminum, electroless nickel
- **W** Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

TFE2 Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496



Backshell Dimensions

Dash No.	Shell Size	V Thread Class 2B	T	D	B	L	CC Cable Clearnace	
							Min	Max
009	10	.625-24 UNEF	1.027 (26.1)	.734 (18.6)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
010	10	.625-24 UNEF	1.027 (26.1)	.734 (18.6)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
136	10	.625-24 UNEF	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.375 (9.5)
137	10	.625-24 UNEF	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.375 (9.5)
011	10	.625-24 UNEF	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	2.875 (73.0)	.250 (6.4)	.437 (11.1)
012	10	.625-24 UNEF	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	3.875 (98.4)	.250 (6.4)	.437 (11.1)
114	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
115	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
013	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
014	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
111	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.500 (12.7)
139	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.500 (12.7)
015	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	2.875 (73.0)	.350 (8.9)	.625 (15.9)
016	12	.750-20 UNEF	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	3.875 (98.4)	.350 (8.9)	.625 (15.9)
150	14	.875-20 UNEF	1.027 (26.1)	.984 (25.0)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)

Dimensions are in inches (mm).

(Continued on next page)

Rev. 2208

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	T	D	B	L	CC Cable Clearance	
							Min	Max
151	14	.875-20 UNEF	1.027 (26.1)	.984 (25.0)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
116	14	.875-20 UNEF	1.027 (26.1)	.984 (25.0)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
117	14	.875-20 UNEF	1.027 (26.1)	.984 (25.0)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
017	14	.875-20 UNEF	1.027 (26.1)	.984 (25.0)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.575 (14.6)
018	14	.875-20 UNEF	1.027 (26.1)	.984 (25.0)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.575 (14.6)
019	14	.875-20 UNEF	1.059 (26.9)	.984 (25.0)	1.551 (39.4)	2.875 (73.0)	.500 (12.7)	.750 (19.1)
020	14	.875-20 UNEF	1.059 (26.9)	.984 (25.0)	1.551 (39.4)	3.875 (98.4)	.500 (12.7)	.750 (19.1)
152	16	1.000-20 UNEF	1.027 (26.1)	1.112 (28.2)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
153	16	1.000-20 UNEF	1.027 (26.1)	1.112 (28.2)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
112	16	1.000-20 UNEF	1.027 (26.1)	1.112 (28.2)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
113	16	1.000-20 UNEF	1.027 (26.1)	1.112 (28.2)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
118	16	1.000-20 UNEF	1.027 (26.1)	1.112 (28.2)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.625 (15.9)
119	16	1.000-20 UNEF	1.027 (26.1)	1.112 (28.2)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
021	16	1.000-20 UNEF	1.059 (26.9)	1.112 (28.2)	1.551 (39.4)	2.125 (54.0)	.500 (12.7)	.700 (17.8)
022	16	1.000-20 UNEF	1.059 (26.9)	1.112 (28.2)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.700 (17.8)
023	16	1.000-20 UNEF	1.156 (29.4)	1.112 (28.2)	1.770 (45.0)	2.875 (73.0)	.625 (15.9)	.937 (23.8)
024	16	1.000-20 UNEF	1.156 (29.4)	1.112 (28.2)	1.770 (45.0)	3.875 (98.4)	.625 (15.9)	.937 (23.8)
120	18	1.062-18 UNEF	1.027 (26.1)	1.218 (30.9)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
121	18	1.062-18 UNEF	1.027 (26.1)	1.218 (30.9)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
122	18	1.062-18 UNEF	1.027 (26.1)	1.218 (30.9)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
123	18	1.062-18 UNEF	1.027 (26.1)	1.218 (30.9)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
025	18	1.062-18 UNEF	1.027 (26.1)	1.218 (30.9)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.625 (15.9)
026	18	1.062-18 UNEF	1.027 (26.1)	1.218 (30.9)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
027	18	1.062-18 UNEF	1.059 (26.9)	1.218 (30.9)	1.551 (39.4)	2.125 (54.0)	.500 (12.7)	.750 (19.1)
028	18	1.062-18 UNEF	1.059 (26.9)	1.218 (30.9)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
029	18	1.062-18 UNEF	1.156 (29.4)	1.218 (30.9)	1.770 (45.0)	2.875 (73.0)	.625 (15.9)	.937 (23.8)
030	18	1.062-18 UNEF	1.156 (29.4)	1.218 (30.9)	1.770 (45.0)	3.875 (98.4)	.625 (15.9)	.937 (23.8)
124	20	1.188-18 UNEF	1.027 (26.1)	1.345 (34.2)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
125	20	1.188-18 UNEF	1.027 (26.1)	1.345 (34.2)	1.145 (29.1)	4.125 (104.8)	.250 (6.4)	.437 (11.1)
031	20	1.188-18 UNEF	1.027 (26.1)	1.345 (34.2)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
032	20	1.188-18 UNEF	1.027 (26.1)	1.345 (34.2)	1.332 (33.8)	4.125 (104.8)	.350 (8.9)	.625 (15.9)
033	20	1.188-18 UNEF	1.059 (26.9)	1.345 (34.2)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
034	20	1.188-18 UNEF	1.059 (26.9)	1.345 (34.2)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
140	20	1.188-18 UNEF	1.156 (29.4)	1.345 (34.2)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.904 (23.0)
141	20	1.188-18 UNEF	1.156 (29.4)	1.345 (34.2)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.904 (23.0)
035	20	1.188-18 UNEF	1.156 (29.4)	1.345 (34.2)	1.770 (45.0)	3.875 (98.4)	.625 (15.9)	.937 (23.8)
036	20	1.188-18 UNEF	1.156 (29.4)	1.345 (34.2)	1.770 (45.0)	4.875 (123.8)	.625 (15.9)	.937 (23.8)
037	20	1.188-18 UNEF	1.375 (34.9)	1.345 (34.2)	2.113 (53.7)	3.875 (98.4)	.875 (22.2)	1.250 (31.8)
038	20	1.188-18 UNEF	1.375 (34.9)	1.345 (34.2)	2.113 (53.7)	4.875 (123.8)	.875 (22.2)	1.250 (31.8)
126	22	1.313-18 UNEF	1.027 (26.1)	1.468 (37.3)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
127	22	1.313-18 UNEF	1.027 (26.1)	1.468 (37.3)	.957 (24.3)	4.125 (104.8)	.125 (3.2)	.312 (7.9)
128	22	1.313-18 UNEF	1.027 (26.1)	1.468 (37.3)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
129	22	1.313-18 UNEF	1.027 (26.1)	1.468 (37.3)	1.145 (29.1)	4.125 (104.8)	.250 (6.4)	.437 (11.1)
039	22	1.313-18 UNEF	1.027 (26.1)	1.468 (37.3)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
040	22	1.313-18 UNEF	1.027 (26.1)	1.468 (37.3)	1.332 (33.8)	4.125 (104.8)	.350 (8.9)	.625 (15.9)
041	22	1.313-18 UNEF	1.059 (26.9)	1.468 (37.3)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
042	22	1.313-18 UNEF	1.059 (26.9)	1.468 (37.3)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
043	22	1.313-18 UNEF	1.156 (29.4)	1.468 (37.3)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)

Dimensions are in inches (mm).

(Continued on next page)

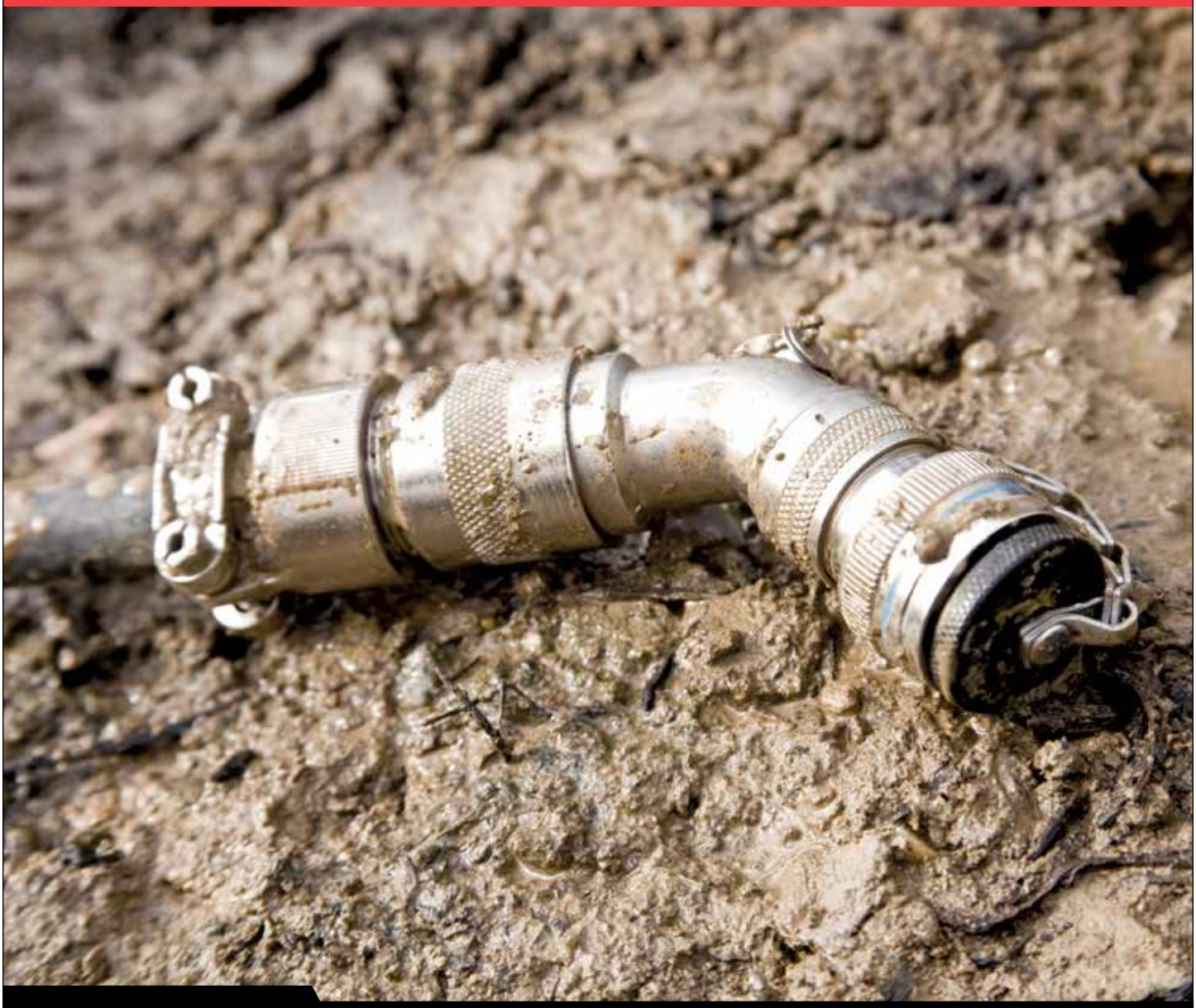
Rev. 2208

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	T	D	B	L	CC Cable Clearance	
							Min	Max
044	22	1.313-18 UNEF	1.156 (29.4)	1.468 (37.3)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
142	22	1.313-18 UNEF	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.029 (26.1)
143	22	1.313-18 UNEF	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.029 (26.1)
045	22	1.313-18 UNEF	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	3.875 (98.4)	.875 (22.2)	1.250 (31.8)
046	22	1.313-18 UNEF	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	4.875 (123.8)	.875 (22.2)	1.250 (31.8)
130	24	1.438-18 UNEF	1.027 (26.1)	1.593 (40.5)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
131	24	1.438-18 UNEF	1.027 (26.1)	1.593 (40.5)	1.332 (33.8)	4.125 (104.8)	.350 (8.9)	.625 (15.9)
047	24	1.438-18 UNEF	1.059 (26.9)	1.593 (40.5)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
048	24	1.438-18 UNEF	1.059 (26.9)	1.593 (40.5)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
049	24	1.438-18 UNEF	1.156 (29.4)	1.593 (40.5)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.812 (20.6)
050	24	1.438-18 UNEF	1.156 (29.4)	1.593 (40.5)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.812 (20.6)
051	24	1.438-18 UNEF	1.156 (29.4)	1.593 (40.5)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)
052	24	1.438-18 UNEF	1.156 (29.4)	1.593 (40.5)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
144	24	1.438-18 UNEF	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.144 (29.1)
145	24	1.438-18 UNEF	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.144 (29.1)
053	24	1.438-18 UNEF	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	3.875 (98.4)	.875 (22.2)	1.250 (31.8)
054	24	1.438-18 UNEF	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	4.875 (123.8)	.875 (22.2)	1.250 (31.8)
055	28	1.750-18 UNS	1.059 (26.9)	1.969 (50.0)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
056	28	1.750-18 UNS	1.059 (26.9)	1.969 (50.0)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
057	28	1.750-18 UNS	1.156 (29.4)	1.969 (50.0)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)
058	28	1.750-18 UNS	1.156 (29.4)	1.969 (50.0)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
059	28	1.750-18 UNS	1.375 (34.9)	1.969 (50.0)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.250 (31.8)
060	28	1.750-18 UNS	1.375 (34.9)	1.969 (50.0)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.250 (31.8)
061	28	1.750-18 UNS	1.500 (38.1)	1.969 (50.0)	2.363 (60.0)	3.125 (79.4)	1.000 (25.4)	1.375 (34.9)
062	28	1.750-18 UNS	1.500 (38.1)	1.969 (50.0)	2.363 (60.0)	4.125 (104.8)	1.000 (25.4)	1.375 (34.9)
063	32	2.000-18 UNS	1.156 (29.4)	2.219 (56.4)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)
064	32	2.000-18 UNS	1.156 (29.4)	2.219 (56.4)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
065	32	2.000-18 UNS	1.375 (34.9)	2.219 (56.4)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.250 (31.8)
066	32	2.000-18 UNS	1.375 (34.9)	2.219 (56.4)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.250 (31.8)
067	32	2.000-18 UNS	1.500 (38.1)	2.219 (56.4)	2.363 (60.0)	3.125 (79.4)	1.000 (25.4)	1.375 (34.9)
068	32	2.000-18 UNS	1.500 (38.1)	2.219 (56.4)	2.363 (60.0)	4.125 (104.8)	1.000 (25.4)	1.375 (34.9)
069	32	2.000-18 UNS	1.781 (45.2)	2.219 (56.4)	2.770 (70.4)	3.125 (79.4)	1.250 (31.8)	1.625 (41.3)
070	32	2.000-18 UNS	1.781 (45.2)	2.219 (56.4)	2.770 (70.4)	4.125 (104.8)	1.250 (31.8)	1.625 (41.3)
132	36	2.250-16 UN	1.059 (26.9)	2.469 (62.7)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
133	36	2.250-16 UN	1.059 (26.9)	2.469 (62.7)	1.551 (39.4)	5.125 (130.2)	.500 (12.7)	.750 (19.1)
148	36	2.250-16 UN	1.156 (29.4)	2.469 (62.7)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
149	36	2.250-16 UN	1.156 (29.4)	2.469 (62.7)	1.770 (45.0)	5.125 (130.2)	.625 (15.9)	.937 (23.8)
071	36	2.250-16 UN	1.375 (34.9)	2.469 (62.7)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.250 (31.8)
072	36	2.250-16 UN	1.375 (34.9)	2.469 (62.7)	2.113 (53.7)	5.125 (130.2)	.875 (22.2)	1.250 (31.8)
073	36	2.250-16 UN	1.500 (38.1)	2.469 (62.7)	2.363 (60.0)	4.125 (104.8)	1.000 (25.4)	1.375 (34.9)
074	36	2.250-16 UN	1.500 (38.1)	2.469 (62.7)	2.363 (60.0)	5.125 (130.2)	1.000 (25.4)	1.375 (34.9)
075	36	2.250-16 UN	1.781 (45.2)	2.469 (62.7)	2.770 (70.4)	4.125 (104.8)	1.250 (31.8)	1.625 (41.3)
076	36	2.250-16 UN	1.781 (45.2)	2.469 (62.7)	2.770 (70.4)	5.125 (130.2)	1.250 (31.8)	1.625 (41.3)
146	36	2.250-16 UN	1.830 (46.5)	2.469 (62.7)	3.020 (76.7)	4.125 (104.8)	1.437 (36.5)	1.840 (46.7)
147	36	2.250-16 UN	1.830 (46.5)	2.469 (62.7)	3.020 (76.7)	5.125 (130.2)	1.437 (36.5)	1.840 (46.7)
077	36	2.250-16 UN	1.830 (46.5)	2.469 (62.7)	3.020 (76.7)	5.000 (127.0)	1.437 (36.5)	1.875 (47.6)
078	36	2.250-16 UN	1.830 (46.5)	2.469 (62.7)	3.020 (76.7)	6.000 (152.4)	1.437 (36.5)	1.875 (47.6)

Dimensions are in inches (mm).

BATTLEFIELD READY RIGHT OUT OF THE BOX



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Milnec high-performance connectors can handle the toughest applications in the most demanding environments. Heavy duty construction with a variety of sealing and mounting components ensures IP67 protection for complete system reliability. Keep your equipment ready for action with Milnec ruggedized connectors.

MILNEC®
INTERCONNECT SYSTEMS

45° Environmental Backshell

TF Series • MIL-DTL-5015 Crimp Type Connectors

TFE3 - 009 N

1 2 3

1 **BASIC PART NUMBER**
- **TFE3** 45° environmental backshell

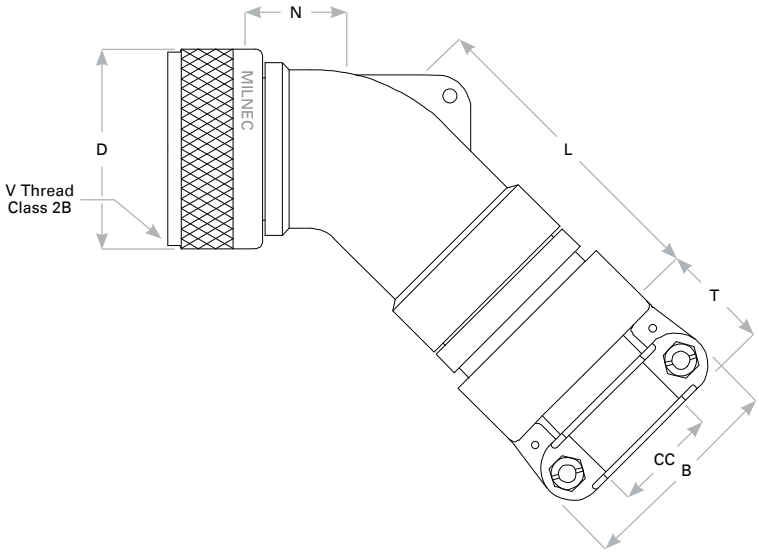
2 **DASH NO.**
- See Backshell Dimensions table below

3 **MATERIAL & FINISH**
- **N** Aluminum, electroless nickel
- **W** Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

TFE3 Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496



Backshell Dimensions

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
004	10	.625-24 UNEF	.688 (17.5)	1.027 (26.1)	.734 (18.6)	.957 (24.3)	1.912 (48.6)	.125 (3.2)	.312 (7.9)
005	10	.625-24 UNEF	.688 (17.5)	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	1.307 (33.2)	.250 (6.4)	.375 (9.5)
049	10	.625-24 UNEF	1.500 (38.1)	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	1.972 (50.1)	.250 (6.4)	.437 (11.1)
006	12	.750-20 UNEF	.750 (19.1)	1.027 (26.1)	.858 (21.8)	.957 (24.3)	1.972 (50.1)	.125 (3.2)	.312 (7.9)
007	12	.750-20 UNEF	.750 (19.1)	1.027 (26.1)	.858 (21.8)	1.145 (29.1)	1.972 (50.1)	.250 (6.4)	.437 (11.1)
008	12	.750-20 UNEF	.750 (19.1)	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	1.972 (50.1)	.350 (8.9)	.500 (12.7)
071	12	.750-20 UNEF	1.654 (42.0)	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	2.173 (55.2)	.350 (8.9)	.625 (15.9)

Dimensions are in inches (mm).

(Continued on next page)

Rev. 2208

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
074	14	.875-20 UNEF	.812 (20.6)	1.027 (26.1)	.984 (25.0)	.957 (24.3)	2.062 (52.4)	.125 (3.2)	.312 (7.9)
009	14	.875-20 UNEF	.812 (20.6)	1.027 (26.1)	.984 (25.0)	1.145 (29.1)	2.062 (52.4)	.250 (6.4)	.437 (11.1)
010	14	.875-20 UNEF	.812 (20.6)	1.027 (26.1)	.984 (25.0)	1.332 (33.8)	1.717 (43.6)	.350 (8.9)	.575 (14.6)
050	14	.875-20 UNEF	1.842 (46.8)	1.059 (26.9)	.984 (25.0)	1.551 (39.4)	2.362 (60.0)	.500 (12.7)	.750 (19.1)
075	16	1.000-20 UNEF	.906 (23.0)	1.027 (26.1)	1.112 (28.2)	.957 (24.3)	2.172 (55.2)	.125 (3.2)	.312 (7.9)
011	16	1.000-20 UNEF	.906 (23.0)	1.027 (26.1)	1.112 (28.2)	1.145 (29.1)	2.172 (55.2)	.250 (6.4)	.437 (11.1)
040	16	1.000-20 UNEF	.906 (23.0)	1.027 (26.1)	1.112 (28.2)	1.332 (33.8)	2.172 (55.2)	.350 (8.9)	.625 (15.9)
012	16	1.000-20 UNEF	.906 (23.0)	1.059 (26.9)	1.112 (28.2)	1.551 (39.4)	1.812 (46.0)	.500 (12.7)	.700 (17.8)
051	16	1.000-20 UNEF	1.938 (49.2)	1.156 (29.4)	1.112 (28.2)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
041	18	1.062-18 UNEF	1.093 (27.8)	1.027 (26.1)	1.218 (30.9)	.957 (24.3)	2.362 (60.0)	.125 (3.2)	.312 (7.9)
042	18	1.062-18 UNEF	1.093 (27.8)	1.027 (26.1)	1.218 (30.9)	1.145 (29.1)	2.362 (60.0)	.250 (6.4)	.437 (11.1)
013	18	1.062-18 UNEF	1.093 (27.8)	1.027 (26.1)	1.218 (30.9)	1.332 (33.8)	2.362 (60.0)	.350 (8.9)	.625 (15.9)
052	18	1.062-18 UNEF	1.093 (27.8)	1.059 (26.9)	1.218 (30.9)	1.551 (39.4)	2.362 (60.0)	.500 (12.7)	.750 (19.1)
014	18	1.062-18 UNEF	1.093 (27.8)	1.156 (29.4)	1.218 (30.9)	1.770 (45.0)	2.000 (50.8)	.625 (15.9)	.779 (19.8)
072	18	1.062-18 UNEF	1.938 (49.2)	1.156 (29.4)	1.218 (30.9)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
043	20	1.188-18 UNEF	1.093 (27.8)	1.027 (26.1)	1.345 (34.2)	1.145 (29.1)	2.362 (60.0)	.250 (6.4)	.437 (11.1)
015	20	1.188-18 UNEF	1.093 (27.8)	1.027 (26.1)	1.345 (34.2)	1.332 (33.8)	2.362 (60.0)	.350 (8.9)	.625 (15.9)
054	20	1.188-18 UNEF	1.093 (27.8)	1.059 (26.9)	1.345 (34.2)	1.551 (39.4)	2.362 (60.0)	.500 (12.7)	.750 (19.1)
016	20	1.188-18 UNEF	1.093 (27.8)	1.156 (29.4)	1.345 (34.2)	1.770 (45.0)	2.000 (50.8)	.625 (15.9)	.904 (23.0)
055	20	1.188-18 UNEF	2.061 (52.3)	1.375 (34.9)	1.345 (34.2)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
044	22	1.313-18 UNEF	1.188 (30.2)	1.027 (26.1)	1.468 (37.3)	.957 (24.3)	2.512 (63.8)	.125 (3.2)	.312 (7.9)
045	22	1.313-18 UNEF	1.188 (30.2)	1.027 (26.1)	1.468 (37.3)	1.145 (29.1)	2.512 (63.8)	.250 (6.4)	.437 (11.1)
056	22	1.313-18 UNEF	1.188 (30.2)	1.027 (26.1)	1.468 (37.3)	1.332 (33.8)	2.512 (63.8)	.350 (8.9)	.625 (15.9)
017	22	1.313-18 UNEF	1.188 (30.2)	1.059 (26.9)	1.468 (37.3)	1.551 (39.4)	2.512 (63.8)	.500 (12.7)	.750 (19.1)
057	22	1.313-18 UNEF	1.188 (30.2)	1.156 (29.4)	1.468 (37.3)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
018	22	1.313-18 UNEF	1.188 (30.2)	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	2.155 (54.7)	.875 (22.2)	1.029 (26.1)
058	22	1.313-18 UNEF	2.061 (52.3)	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
046	24	1.438-18 UNEF	1.188 (30.2)	1.027 (26.1)	1.593 (40.5)	1.332 (33.8)	2.512 (63.8)	.350 (8.9)	.625 (15.9)
019	24	1.438-18 UNEF	1.188 (30.2)	1.059 (26.9)	1.593 (40.5)	1.551 (39.4)	2.512 (63.8)	.500 (12.7)	.750 (19.1)
059	24	1.438-18 UNEF	1.188 (30.2)	1.156 (29.4)	1.593 (40.5)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
020	24	1.438-18 UNEF	1.188 (30.2)	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	2.155 (54.7)	.875 (22.2)	1.144 (29.1)
073	24	1.438-18 UNEF	2.061 (52.3)	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
060	28	1.750-18 UNS	1.312 (33.3)	1.059 (26.9)	1.969 (50.0)	1.551 (39.4)	2.562 (65.1)	.500 (12.7)	.750 (19.1)
021	28	1.750-18 UNS	1.312 (33.3)	1.156 (29.4)	1.969 (50.0)	1.770 (45.0)	2.562 (65.1)	.625 (15.9)	.937 (23.8)
061	28	1.750-18 UNS	1.312 (33.3)	1.375 (34.9)	1.969 (50.0)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
022	28	1.750-18 UNS	1.312 (33.3)	1.500 (38.1)	1.969 (50.0)	2.363 (60.0)	2.218 (56.3)	1.000 (25.4)	1.375 (34.9)
023	32	2.000-18 UNS	1.375 (34.9)	1.156 (29.4)	2.219 (56.4)	1.770 (45.0)	2.662 (67.6)	.625 (15.9)	.937 (23.8)
024	32	2.000-18 UNS	1.375 (34.9)	1.375 (34.9)	2.219 (56.4)	2.113 (53.7)	2.662 (67.6)	.875 (22.2)	1.250 (31.8)
062	32	2.000-18 UNS	1.375 (34.9)	1.500 (38.1)	2.219 (56.4)	2.363 (60.0)	2.662 (67.6)	1.000 (25.4)	1.375 (34.9)
025	32	2.000-18 UNS	1.375 (34.9)	1.781 (45.2)	2.219 (56.4)	2.770 (70.4)	2.312 (58.7)	1.250 (31.8)	1.625 (41.3)
047	36	2.250-16 UN	1.406 (35.7)	1.059 (26.9)	2.469 (62.7)	1.551 (39.4)	2.752 (69.9)	.500 (12.7)	.750 (19.1)
026	36	2.250-16 UN	1.406 (35.7)	1.156 (29.4)	2.469 (62.7)	1.770 (45.0)	2.752 (69.9)	.625 (15.9)	.937 (23.8)
063	36	2.250-16 UN	1.406 (35.7)	1.375 (34.9)	2.469 (62.7)	2.113 (53.7)	2.752 (69.9)	.875 (22.2)	1.250 (31.8)
027	36	2.250-16 UN	1.406 (35.7)	1.500 (38.1)	2.469 (62.7)	2.363 (60.0)	2.752 (69.9)	1.000 (25.4)	1.375 (34.9)
064	36	2.250-16 UN	1.406 (35.7)	1.781 (45.2)	2.469 (62.7)	2.770 (70.4)	2.752 (69.9)	1.250 (31.8)	1.625 (41.3)
028	36	2.250-16 UN	1.406 (35.7)	1.830 (46.5)	2.469 (62.7)	3.020 (76.7)	2.406 (61.1)	1.437 (36.5)	1.840 (46.7)

Dimensions are in inches (mm).

90° Environmental Backshell

TF Series • MIL-DTL-5015 Crimp Type Connectors

TFE4 - 009 N

1 2 3

1 **BASIC PART NUMBER**
- **TFE4** 90° environmental backshell

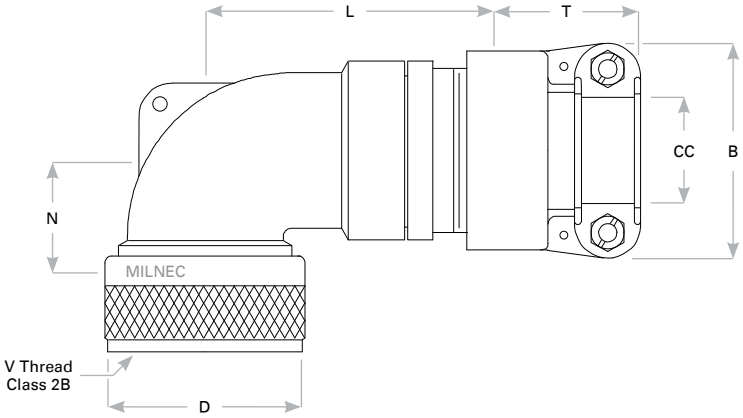
2 **DASH NO.**
- See Backshell Dimensions table below

3 **MATERIAL & FINISH**
- **N** Aluminum, electroless nickel
- **W** Aluminum, olive drab cadmium

Note: See part builder (p. K-11) for additional kit options.

TFE4 Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496



Backshell Dimensions

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
004	10	.625-24 UNEF	.761(19.3)	1.027 (26.1)	.734 (18.6)	.957 (24.3)	1.982 (50.3)	.125 (3.2)	.312 (7.9)
005	10	.625-24 UNEF	.761 (19.3)	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	1.382 (35.1)	.250 (6.4)	.375 (9.5)
049	10	.625-24 UNEF	1.516 (38.5)	1.027 (26.1)	.734 (18.6)	1.145 (29.1)	2.002 (50.9)	.250 (6.4)	.437 (11.1)
006	12	.750-20 UNEF	.766 (19.5)	1.027 (26.1)	.858 (21.8)	.957 (24.3)	2.002 (50.9)	.125 (3.2)	.312 (7.9)
007	12	.750-20 UNEF	.766 (19.5)	1.027 (26.1)	.858 (21.8)	1.145 (29.1)	2.002 (50.9)	.250 (6.4)	.437 (11.1)
008	12	.750-20 UNEF	.766 (19.5)	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	1.397 (35.5)	.350 (8.9)	.500 (12.7)
071	12	.750-20 UNEF	1.811 (46.0)	1.027 (26.1)	.858 (21.8)	1.332 (33.8)	2.162 (54.9)	.350 (8.9)	.625 (15.9)
074	14	.875-20 UNEF	.866 (22.0)	1.027 (26.1)	.984 (25.0)	.957 (24.3)	2.072 (52.6)	.125 (3.2)	.312 (7.9)
009	14	.875-20 UNEF	.866 (22.0)	1.027 (26.1)	.984 (25.0)	1.145 (29.1)	2.072 (52.6)	.250 (6.4)	.437 (11.1)
010	14	.875-20 UNEF	.866 (22.0)	1.027 (26.1)	.984 (25.0)	1.332 (33.8)	1.717 (43.6)	.350 (8.9)	.575 (14.6)
050	14	.875-20 UNEF	1.891 (48.0)	1.059 (26.9)	.984 (25.0)	1.551 (39.4)	2.332 (59.2)	.500 (12.7)	.750 (19.1)

Dimensions are in inches (mm).

(Continued on next page)

Rev. 2208

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
075	16	1.000-20 UNEF	1.051 (26.7)	1.027 (26.1)	1.112 (28.2)	.957 (24.3)	2.162 (54.9)	.125 (3.2)	.312 (7.9)
011	16	1.000-20 UNEF	1.051 (26.7)	1.027 (26.1)	1.112 (28.2)	1.145 (29.1)	2.162 (54.9)	.250 (6.4)	.437 (11.1)
040	16	1.000-20 UNEF	1.051 (26.7)	1.027 (26.1)	1.112 (28.2)	1.332 (33.8)	2.162 (54.9)	.350 (8.9)	.625 (15.9)
012	16	1.000-20 UNEF	1.051 (26.7)	1.059 (26.9)	1.112 (28.2)	1.551 (39.4)	1.807 (45.9)	.500 (12.7)	.700 (17.8)
051	16	1.000-20 UNEF	2.041 (51.8)	1.156 (29.4)	1.112 (28.2)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
041	18	1.062-18 UNEF	1.141 (29.0)	1.027 (26.1)	1.218 (30.9)	.957 (24.3)	2.332 (59.2)	.125 (3.2)	.312 (7.9)
042	18	1.062-18 UNEF	1.141 (29.0)	1.027 (26.1)	1.218 (30.9)	1.145 (29.1)	2.332 (59.2)	.250 (6.4)	.437 (11.1)
013	18	1.062-18 UNEF	1.141 (29.0)	1.027 (26.1)	1.218 (30.9)	1.332 (33.8)	2.332 (59.2)	.350 (8.9)	.625 (15.9)
052	18	1.062-18 UNEF	1.141 (29.0)	1.059 (26.9)	1.218 (30.9)	1.551 (39.4)	2.332 (59.2)	.500 (12.7)	.750 (19.1)
014	18	1.062-18 UNEF	1.141 (29.0)	1.156 (29.4)	1.218 (30.9)	1.770 (45.0)	1.982 (50.3)	.625 (15.9)	.779 (19.8)
072	18	1.062-18 UNEF	2.051 (52.1)	1.156 (29.4)	1.218 (30.9)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
043	20	1.188-18 UNEF	1.141 (29.0)	1.027 (26.1)	1.345 (34.2)	1.145 (29.1)	2.332 (59.2)	.250 (6.4)	.437 (11.1)
015	20	1.188-18 UNEF	1.141 (29.0)	1.027 (26.1)	1.345 (34.2)	1.332 (33.8)	2.332 (59.2)	.350 (8.9)	.625 (15.9)
054	20	1.188-18 UNEF	1.141 (29.0)	1.059 (26.9)	1.345 (34.2)	1.551 (39.4)	2.332 (59.2)	.500 (12.7)	.750 (19.1)
016	20	1.188-18 UNEF	1.141 (29.0)	1.156 (29.4)	1.345 (34.2)	1.770 (45.0)	1.982 (50.3)	.625 (15.9)	.904 (23.0)
055	20	1.188-18 UNEF	2.141 (54.4)	1.375 (34.9)	1.345 (34.2)	2.113 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
044	22	1.313-18 UNEF	1.291 (32.8)	1.027 (26.1)	1.468 (37.3)	.957 (24.3)	2.442 (62.0)	.125 (3.2)	.312 (7.9)
045	22	1.313-18 UNEF	1.291 (32.8)	1.027 (26.1)	1.468 (37.3)	1.145 (29.1)	2.442 (62.0)	.250 (6.4)	.437 (11.1)
056	22	1.313-18 UNEF	1.291 (32.8)	1.027 (26.1)	1.468 (37.3)	1.332 (33.8)	2.442 (62.0)	.350 (8.9)	.625 (15.9)
017	22	1.313-18 UNEF	1.291 (32.8)	1.059 (26.9)	1.468 (37.3)	1.551 (39.4)	2.442 (62.0)	.500 (12.7)	.750 (19.1)
057	22	1.313-18 UNEF	1.291 (32.8)	1.156 (29.4)	1.468 (37.3)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
018	22	1.313-18 UNEF	1.291 (32.8)	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	2.087 (53.0)	.875 (22.2)	1.029 (26.1)
058	22	1.313-18 UNEF	2.141 (54.4)	1.375 (34.9)	1.468 (37.3)	2.113 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
046	24	1.438-18 UNEF	1.291 (32.8)	1.027 (26.1)	1.593 (40.5)	1.332 (33.8)	2.442 (62.0)	.350 (8.9)	.625 (15.9)
019	24	1.438-18 UNEF	1.291 (32.8)	1.059 (26.9)	1.593 (40.5)	1.551 (39.4)	2.442 (62.0)	.500 (12.7)	.750 (19.1)
059	24	1.438-18 UNEF	1.291 (32.8)	1.156 (29.4)	1.593 (40.5)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
020	24	1.438-18 UNEF	1.291 (32.8)	1.375 (34.9)	1.593 (40.5)	2.113 (53.7)	2.087 (53.0)	.875 (22.2)	1.114 (28.3)
073	24	1.438-18 UNEF	2.151 (54.6)	1.375 (34.9)	1.593 (40.5)	2.116 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
060	28	1.750-18 UNS	1.391 (35.3)	1.059 (26.9)	1.969 (50.0)	1.551 (39.4)	2.612 (66.3)	.500 (12.7)	.750 (19.1)
021	28	1.750-18 UNS	1.391 (35.3)	1.156 (29.4)	1.969 (50.0)	1.770 (45.0)	2.612 (66.3)	.625 (15.9)	.937 (23.8)
061	28	1.750-18 UNS	1.391 (35.3)	1.375 (34.9)	1.969 (50.0)	2.113 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
022	28	1.750-18 UNS	1.391 (35.3)	1.500 (38.1)	1.969 (50.0)	2.363 (60.0)	2.257 (57.3)	1.000 (25.4)	1.375 (34.9)
023	32	2.000-18 UNS	1.741 (44.2)	1.156 (29.4)	2.219 (56.4)	1.770 (45.0)	2.862 (72.7)	.625 (15.9)	.937 (23.8)
024	32	2.000-18 UNS	1.741 (44.2)	1.375 (34.9)	2.219 (56.4)	2.113 (53.7)	2.862 (72.7)	.875 (22.2)	1.250 (31.8)
062	32	2.000-18 UNS	1.741 (44.2)	1.500 (38.1)	2.219 (56.4)	2.363 (60.0)	2.862 (72.7)	1.000 (25.4)	1.375 (34.9)
025	32	2.000-18 UNS	1.741 (44.2)	1.781 (45.2)	2.219 (56.4)	2.770 (70.4)	2.507 (63.7)	1.250 (31.8)	1.625 (41.3)
047	36	2.250-16 UN	1.941 (49.3)	1.059 (26.9)	2.469 (62.7)	1.551 (39.4)	2.832 (71.9)	.500 (12.7)	.750 (19.1)
026	36	2.250-16 UN	1.941 (49.3)	1.156 (29.4)	2.469 (62.7)	1.770 (45.0)	2.832 (71.9)	.625 (15.9)	.937 (23.8)
063	36	2.250-16 UN	1.941 (49.3)	1.375 (34.9)	2.469 (62.7)	2.113 (53.7)	2.832 (71.9)	.875 (22.2)	1.250 (31.8)
027	36	2.250-16 UN	1.941 (49.3)	1.500 (38.1)	2.469 (62.7)	2.363 (60.0)	2.832 (71.9)	1.000 (25.4)	1.375 (34.9)
064	36	2.250-16 UN	1.941 (49.3)	1.781 (45.2)	2.469 (62.7)	2.770 (70.4)	2.832 (71.9)	1.250 (31.8)	1.625 (41.3)
028	36	2.250-16 UN	1.941 (49.3)	1.830 (46.5)	2.469 (62.7)	3.020 (76.7)	2.477 (62.9)	1.437 (36.5)	1.840 (46.7)

Dimensions are in inches (mm).

STEEL TOE PROTECTION FOR YOUR CONNECTORS

Simple & Effective Environmental Protection

A shrink boot is a simple alternative to a metal backshell that is low-profile and provides strain relief and environmental protection. Boots come in straight and 90° configurations and are available in a variety of material options, including flame retardant for specialty applications. Get the look you want with the protection you require.

MILNEC® INTERCONNECT SYSTEMS

TFR2 - 009 N

1 2 3

1 **BASIC PART NUMBER**
TFR2 Straight EMI/RFI env. backshell

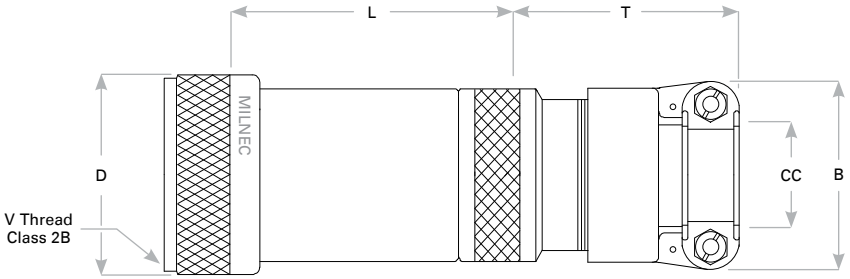
2 **DASH NO.**
See Backshell Dimensions table below

3 **MATERIAL & FINISH**
N Aluminum, electroless nickel
W Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

TFR2 Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496



Backshell Dimensions

Dash No.	Shell Size	V Thread Class 2B	T	D	B	L	CC Cable Clearance	
							Min	Max
009	10	.625-24 UNEF	1.544 (39.2)	.730 (18.5)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
010	10	.625-24 UNEF	1.544 (39.2)	.730 (18.5)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
136	10	.625-24 UNEF	1.544 (39.2)	.730 (18.5)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.375 (9.5)
137	10	.625-24 UNEF	1.544 (39.2)	.730 (18.5)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.375 (9.5)
011	10	.625-24 UNEF	1.544 (39.2)	.730 (18.5)	1.145 (29.1)	2.875 (73.0)	.250 (6.4)	.437 (11.1)
012	10	.625-24 UNEF	1.544 (39.2)	.730 (18.5)	1.145 (29.1)	3.875 (98.4)	.250 (6.4)	.437 (11.1)
114	12	.750-20 UNEF	1.544 (39.2)	.860 (21.8)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
115	12	.750-20 UNEF	1.544 (39.2)	.860 (21.8)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
013	12	.750-20 UNEF	1.544 (39.2)	.860 (21.8)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
014	12	.750-20 UNEF	1.544 (39.2)	.860 (21.8)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
111	12	.750-20 UNEF	1.844 (46.8)	.860 (21.8)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.500 (12.7)
139	12	.750-20 UNEF	1.844 (46.8)	.860 (21.8)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.500 (12.7)
015	12	.750-20 UNEF	1.844 (46.8)	.860 (21.8)	1.332 (33.8)	2.875 (73.0)	.350 (8.9)	.625 (15.9)
016	12	.750-20 UNEF	1.844 (46.8)	.860 (21.8)	1.332 (33.8)	3.875 (98.4)	.350 (8.9)	.625 (15.9)
150	14	.875-20 UNEF	1.544 (39.2)	.980 (24.9)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)

Dimensions are in inches (mm).

(Continued on next page)

Rev. 2208

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	T	D	B	L	CC Cable Clearance	
							Min	Max
151	14	.875-20 UNEF	1.544 (39.2)	.980 (24.9)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
116	14	.875-20 UNEF	1.544 (39.2)	.980 (24.9)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
117	14	.875-20 UNEF	1.544 (39.2)	.980 (24.9)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
017	14	.875-20 UNEF	1.844 (46.8)	.980 (24.9)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.575 (14.6)
018	14	.875-20 UNEF	1.844 (46.8)	.980 (24.9)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.575 (14.6)
019	14	.875-20 UNEF	1.916 (48.7)	.980 (24.9)	1.551 (39.4)	2.875 (73.0)	.500 (12.7)	.750 (19.1)
020	14	.875-20 UNEF	1.916 (48.7)	.980 (24.9)	1.551 (39.4)	3.875 (98.4)	.500 (12.7)	.750 (19.1)
152	16	1.000-20 UNEF	1.544 (39.2)	1.110 (28.2)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
153	16	1.000-20 UNEF	1.544 (39.2)	1.110 (28.2)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
112	16	1.000-20 UNEF	1.544 (39.2)	1.110 (28.2)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
113	16	1.000-20 UNEF	1.544 (39.2)	1.110 (28.2)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
118	16	1.000-20 UNEF	1.844 (46.8)	1.110 (28.2)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.625 (15.9)
119	16	1.000-20 UNEF	1.844 (46.8)	1.110 (28.2)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
021	16	1.000-20 UNEF	1.916 (48.7)	1.110 (28.2)	1.551 (39.4)	2.125 (54.0)	.500 (12.7)	.700 (17.8)
022	16	1.000-20 UNEF	1.916 (48.7)	1.110 (28.2)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.700 (17.8)
023	16	1.000-20 UNEF	2.000 (50.8)	1.110 (28.2)	1.770 (45.0)	2.875 (73.0)	.625 (15.9)	.937 (23.8)
024	16	1.000-20 UNEF	2.000 (50.8)	1.110 (28.2)	1.770 (45.0)	3.875 (98.4)	.625 (15.9)	.937 (23.8)
120	18	1.062-18 UNEF	1.544 (39.2)	1.220 (31.0)	.957 (24.3)	2.125 (54.0)	.125 (3.2)	.312 (7.9)
121	18	1.062-18 UNEF	1.544 (39.2)	1.220 (31.0)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
122	18	1.062-18 UNEF	1.544 (39.2)	1.220 (31.0)	1.145 (29.1)	2.125 (54.0)	.250 (6.4)	.437 (11.1)
123	18	1.062-18 UNEF	1.544 (39.2)	1.220 (31.0)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
025	18	1.062-18 UNEF	1.844 (46.8)	1.220 (31.0)	1.332 (33.8)	2.125 (54.0)	.350 (8.9)	.625 (15.9)
026	18	1.062-18 UNEF	1.844 (46.8)	1.220 (31.0)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
027	18	1.062-18 UNEF	1.916 (48.7)	1.220 (31.0)	1.551 (39.4)	2.125 (54.0)	.500 (12.7)	.750 (19.1)
028	18	1.062-18 UNEF	1.916 (48.7)	1.220 (31.0)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
029	18	1.062-18 UNEF	2.000 (50.8)	1.220 (31.0)	1.770 (45.0)	2.875 (73.0)	.625 (15.9)	.937 (23.8)
030	18	1.062-18 UNEF	2.000 (50.8)	1.220 (31.0)	1.770 (45.0)	3.875 (98.4)	.625 (15.9)	.937 (23.8)
124	20	1.188-18 UNEF	1.544 (39.2)	1.340 (34.0)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
125	20	1.188-18 UNEF	1.544 (39.2)	1.340 (34.0)	1.145 (29.1)	4.125 (104.8)	.250 (6.4)	.437 (11.1)
031	20	1.188-18 UNEF	1.844 (46.8)	1.340 (34.0)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
032	20	1.188-18 UNEF	1.844 (46.8)	1.340 (34.0)	1.332 (33.8)	4.125 (104.8)	.350 (8.9)	.625 (15.9)
033	20	1.188-18 UNEF	1.916 (48.7)	1.340 (34.0)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
034	20	1.188-18 UNEF	1.916 (48.7)	1.340 (34.0)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
140	20	1.188-18 UNEF	2.000 (50.8)	1.340 (34.0)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.904 (23.0)
141	20	1.188-18 UNEF	2.000 (50.8)	1.340 (34.0)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.904 (23.0)
035	20	1.188-18 UNEF	2.000 (50.8)	1.340 (34.0)	1.770 (45.0)	3.875 (98.4)	.625 (15.9)	.937 (23.8)
036	20	1.188-18 UNEF	2.000 (50.8)	1.340 (34.0)	1.770 (45.0)	4.875 (123.8)	.625 (15.9)	.937 (23.8)
037	20	1.188-18 UNEF	2.230 (56.6)	1.340 (34.0)	2.113 (53.7)	3.875 (98.4)	.875 (22.2)	1.250 (31.8)
038	20	1.188-18 UNEF	2.230 (56.6)	1.340 (34.0)	2.113 (53.7)	4.875 (123.8)	.875 (22.2)	1.250 (31.8)
126	22	1.313-18 UNEF	1.544 (39.2)	1.470 (37.3)	.957 (24.3)	3.125 (79.4)	.125 (3.2)	.312 (7.9)
127	22	1.313-18 UNEF	1.544 (39.2)	1.470 (37.3)	.957 (24.3)	4.125 (104.8)	.125 (3.2)	.312 (7.9)
128	22	1.313-18 UNEF	1.544 (39.2)	1.470 (37.3)	1.145 (29.1)	3.125 (79.4)	.250 (6.4)	.437 (11.1)
129	22	1.313-18 UNEF	1.544 (39.2)	1.470 (37.3)	1.145 (29.1)	4.125 (104.8)	.250 (6.4)	.437 (11.1)
039	22	1.313-18 UNEF	1.844 (46.8)	1.470 (37.3)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
040	22	1.313-18 UNEF	1.844 (46.8)	1.470 (37.3)	1.332 (33.8)	4.125 (104.8)	.350 (8.9)	.625 (15.9)
041	22	1.313-18 UNEF	1.916 (48.7)	1.470 (37.3)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
042	22	1.313-18 UNEF	1.916 (48.7)	1.470 (37.3)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
043	22	1.313-18 UNEF	2.000 (50.8)	1.470 (37.3)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)

Dimensions are in inches (mm).

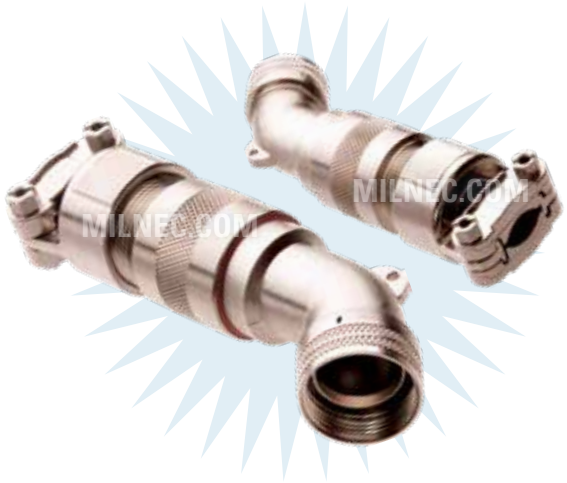
(Continued on next page)

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	T	D	B	L	CC Cable Clearance	
							Min	Max
044	22	1.313-18 UNEF	2.000 (50.8)	1.470 (37.3)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
142	22	1.313-18 UNEF	2.230 (56.6)	1.470 (37.3)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.029 (26.1)
143	22	1.313-18 UNEF	2.230 (56.6)	1.470 (37.3)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.029 (26.1)
045	22	1.313-18 UNEF	2.230 (56.6)	1.470 (37.3)	2.113 (53.7)	3.875 (98.4)	.875 (22.2)	1.250 (31.8)
046	22	1.313-18 UNEF	2.230 (56.6)	1.470 (37.3)	2.113 (53.7)	4.875 (123.8)	.875 (22.2)	1.250 (31.8)
130	24	1.438-18 UNEF	1.844 (46.8)	1.590 (40.4)	1.332 (33.8)	3.125 (79.4)	.350 (8.9)	.625 (15.9)
131	24	1.438-18 UNEF	1.844 (46.8)	1.590 (40.4)	1.332 (33.8)	4.125 (104.8)	.350 (8.9)	.625 (15.9)
047	24	1.438-18 UNEF	1.916 (48.7)	1.590 (40.4)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
048	24	1.438-18 UNEF	1.916 (48.7)	1.590 (40.4)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
049	24	1.438-18 UNEF	2.000 (50.8)	1.590 (40.4)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.812 (20.6)
050	24	1.438-18 UNEF	2.000 (50.8)	1.590 (40.4)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.812 (20.6)
051	24	1.438-18 UNEF	2.000 (50.8)	1.590 (40.4)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)
052	24	1.438-18 UNEF	2.000 (50.8)	1.590 (40.4)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
144	24	1.438-18 UNEF	2.230 (56.6)	1.590 (40.4)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.144 (29.1)
145	24	1.438-18 UNEF	2.230 (56.6)	1.590 (40.4)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.144 (29.1)
053	24	1.438-18 UNEF	2.230 (56.6)	1.590 (40.4)	2.113 (53.7)	3.875 (98.4)	.875 (22.2)	1.250 (31.8)
054	24	1.438-18 UNEF	2.230 (56.6)	1.590 (40.4)	2.113 (53.7)	4.875 (123.8)	.875 (22.2)	1.250 (31.8)
055	28	1.750-18 UNS	1.916 (48.7)	1.970 (50.0)	1.551 (39.4)	3.125 (79.4)	.500 (12.7)	.750 (19.1)
056	28	1.750-18 UNS	1.916 (48.7)	1.970 (50.0)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
057	28	1.750-18 UNS	2.000 (50.8)	1.970 (50.0)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)
058	28	1.750-18 UNS	2.000 (50.8)	1.970 (50.0)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
059	28	1.750-18 UNS	2.230 (56.6)	1.970 (50.0)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.250 (31.8)
060	28	1.750-18 UNS	2.230 (56.6)	1.970 (50.0)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.250 (31.8)
061	28	1.750-18 UNS	2.024 (51.4)	1.970 (50.0)	2.363 (60.0)	3.125 (79.4)	1.000 (25.4)	1.375 (34.9)
062	28	1.750-18 UNS	2.024 (51.4)	1.970 (50.0)	2.363 (60.0)	4.125 (104.8)	1.000 (25.4)	1.375 (34.9)
063	32	2.000-18 UNS	2.000 (50.8)	2.220 (56.4)	1.770 (45.0)	3.125 (79.4)	.625 (15.9)	.937 (23.8)
064	32	2.000-18 UNS	2.000 (50.8)	2.220 (56.4)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
065	32	2.000-18 UNS	2.230 (56.6)	2.220 (56.4)	2.113 (53.7)	3.125 (79.4)	.875 (22.2)	1.250 (31.8)
066	32	2.000-18 UNS	2.230 (56.6)	2.220 (56.4)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.250 (31.8)
067	32	2.000-18 UNS	2.024 (51.4)	2.220 (56.4)	2.363 (60.0)	3.125 (79.4)	1.000 (25.4)	1.375 (34.9)
068	32	2.000-18 UNS	2.024 (51.4)	2.220 (56.4)	2.363 (60.0)	4.125 (104.8)	1.000 (25.4)	1.375 (34.9)
069	32	2.000-18 UNS	2.550 (64.8)	2.220 (56.4)	2.770 (70.4)	3.125 (79.4)	1.250 (31.8)	1.625 (41.3)
070	32	2.000-18 UNS	2.550 (64.8)	2.220 (56.4)	2.770 (70.4)	4.125 (104.8)	1.250 (31.8)	1.625 (41.3)
132	36	2.250-16 UN	1.916 (48.7)	2.470 (62.7)	1.551 (39.4)	4.125 (104.8)	.500 (12.7)	.750 (19.1)
133	36	2.250-16 UN	1.916 (48.7)	2.470 (62.7)	1.551 (39.4)	5.125 (130.2)	.500 (12.7)	.750 (19.1)
148	36	2.250-16 UN	2.000 (50.8)	2.470 (62.7)	1.770 (45.0)	4.125 (104.8)	.625 (15.9)	.937 (23.8)
149	36	2.250-16 UN	2.000 (50.8)	2.470 (62.7)	1.770 (45.0)	5.125 (130.2)	.625 (15.9)	.937 (23.8)
071	36	2.250-16 UN	2.230 (56.6)	2.470 (62.7)	2.113 (53.7)	4.125 (104.8)	.875 (22.2)	1.250 (31.8)
072	36	2.250-16 UN	2.230 (56.6)	2.470 (62.7)	2.113 (53.7)	5.125 (130.2)	.875 (22.2)	1.250 (31.8)
073	36	2.250-16 UN	2.024 (51.4)	2.470 (62.7)	2.363 (60.0)	4.125 (104.8)	1.000 (25.4)	1.375 (34.9)
074	36	2.250-16 UN	2.024 (51.4)	2.470 (62.7)	2.363 (60.0)	5.125 (130.2)	1.000 (25.4)	1.375 (34.9)
075	36	2.250-16 UN	2.550 (64.8)	2.470 (62.7)	2.770 (70.4)	4.125 (104.8)	1.250 (31.8)	1.625 (41.3)
076	36	2.250-16 UN	2.550 (64.8)	2.470 (62.7)	2.770 (70.4)	5.125 (130.2)	1.250 (31.8)	1.625 (41.3)
146	36	2.250-16 UN	2.600 (66.0)	2.470 (62.7)	3.020 (76.7)	4.125 (104.8)	1.437 (36.5)	1.840 (46.7)
147	36	2.250-16 UN	2.600 (66.0)	2.470 (62.7)	3.020 (76.7)	5.125 (130.2)	1.437 (36.5)	1.840 (46.7)
077	36	2.250-16 UN	2.600 (66.0)	2.470 (62.7)	3.020 (76.7)	5.000 (127.0)	1.437 (36.5)	1.875 (47.6)
078	36	2.250-16 UN	2.600 (66.0)	2.470 (62.7)	3.020 (76.7)	6.000 (152.4)	1.437 (36.5)	1.875 (47.6)

Dimensions are in inches (mm).

Rev. 2208



TFR3 - 009 N

1 2 3

1 **BASIC PART NUMBER**
TFR3 45° EMI/RFI env. backshell

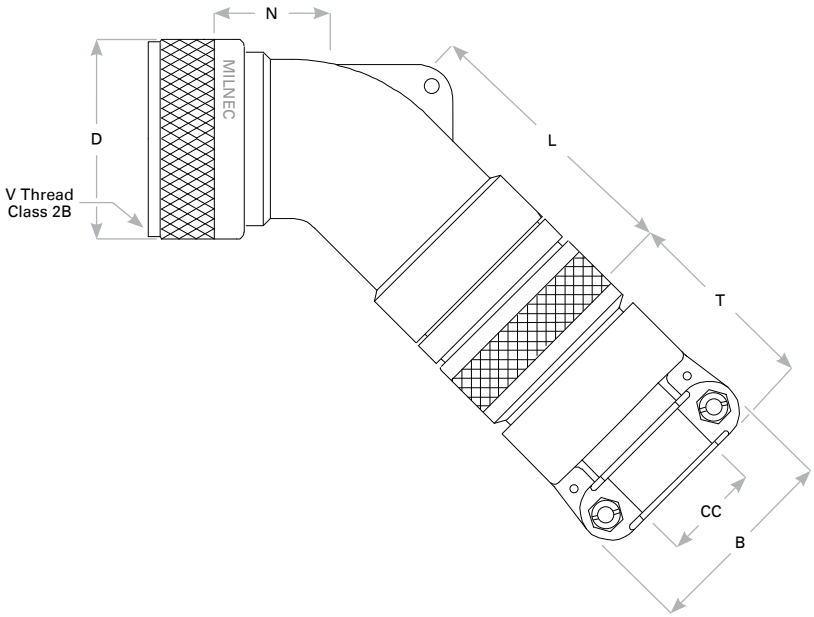
2 **DASH NO.**
See Backshell Dimensions table below

3 **MATERIAL & FINISH**
N Aluminum, electroless nickel
W Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

TFR3 Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496



Backshell Dimensions

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
004	10	.625-24 UNEF	.686 (17.4)	1.544 (39.2)	.734 (18.6)	.957 (24.3)	1.912 (48.6)	.125 (3.2)	.312 (7.9)
005	10	.625-24 UNEF	.686 (17.4)	1.544 (39.2)	.734 (18.6)	1.145 (29.1)	1.307 (33.2)	.250 (6.4)	.375 (9.5)
049	10	.625-24 UNEF	1.500 (38.1)	1.544 (39.2)	.734 (18.6)	1.145 (29.1)	1.972 (50.1)	.250 (6.4)	.437 (11.1)
006	12	.750-20 UNEF	.750 (19.1)	1.544 (39.2)	.858 (21.8)	.957 (24.3)	1.972 (50.1)	.125 (3.2)	.312 (7.9)
007	12	.750-20 UNEF	.750 (19.1)	1.544 (39.2)	.858 (21.8)	1.145 (29.1)	1.972 (50.1)	.250 (6.4)	.437 (11.1)

Dimensions are in inches (mm).

(Continued on next page)

Backshell Dimensions (Continued from previous page)

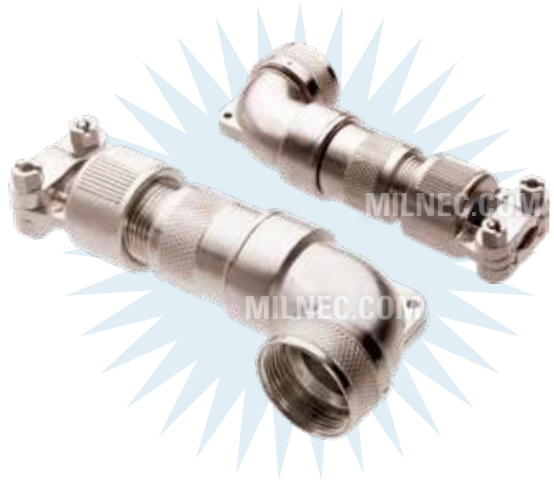
Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
008	12	.750-20 UNEF	.750 (19.1)	1.844 (46.8)	.858 (21.8)	1.332 (33.8)	1.972 (50.1)	.350 (8.9)	.500 (12.7)
071	12	.750-20 UNEF	1.654 (42.0)	1.844 (46.8)	.858 (21.8)	1.332 (33.8)	2.172 (55.2)	.350 (8.9)	.625 (15.9)
074	14	.875-20 UNEF	.813 (20.7)	1.544 (39.2)	.984 (25.0)	.957 (24.3)	2.062 (52.4)	.125 (3.2)	.312 (7.9)
009	14	.875-20 UNEF	.813 (20.7)	1.544 (39.2)	.984 (25.0)	1.145 (29.1)	2.062 (52.4)	.250 (6.4)	.437 (11.1)
010	14	.875-20 UNEF	.813 (20.7)	1.844 (46.8)	.984 (25.0)	1.332 (33.8)	1.717 (43.6)	.350 (8.9)	.575 (14.6)
050	14	.875-20 UNEF	1.842 (46.8)	1.916 (48.7)	.984 (25.0)	1.551 (39.4)	2.362 (60.0)	.500 (12.7)	.750 (19.1)
075	16	1.000-20 UNEF	.906 (23.0)	1.544 (39.2)	1.112 (28.2)	.957 (24.3)	2.172 (55.2)	.125 (3.2)	.312 (7.9)
011	16	1.000-20 UNEF	.906 (23.0)	1.544 (39.2)	1.112 (28.2)	1.145 (29.1)	2.172 (55.2)	.250 (6.4)	.437 (11.1)
040	16	1.000-20 UNEF	.906 (23.0)	1.844 (46.8)	1.112 (28.2)	1.332 (33.8)	2.172 (55.2)	.350 (8.9)	.625 (15.9)
012	16	1.000-20 UNEF	.906 (23.0)	1.916 (48.7)	1.112 (28.2)	1.551 (39.4)	1.812 (46.0)	.500 (12.7)	.700 (17.8)
051	16	1.000-20 UNEF	1.937 (49.2)	2.000 (50.8)	1.112 (28.2)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
041	18	1.062-18 UNEF	1.093 (27.8)	1.544 (39.2)	1.218 (30.9)	.957 (24.3)	2.362 (60.0)	.125 (3.2)	.312 (7.9)
042	18	1.062-18 UNEF	1.093 (27.8)	1.544 (39.2)	1.218 (30.9)	1.145 (29.1)	2.362 (60.0)	.250 (6.4)	.437 (11.1)
013	18	1.062-18 UNEF	1.093 (27.8)	1.844 (46.8)	1.218 (30.9)	1.332 (33.8)	2.362 (60.0)	.350 (8.9)	.625 (15.9)
052	18	1.062-18 UNEF	1.093 (27.8)	1.916 (48.7)	1.218 (30.9)	1.551 (39.4)	2.362 (60.0)	.500 (12.7)	.750 (19.1)
014	18	1.062-18 UNEF	1.093 (27.8)	2.000 (50.8)	1.218 (30.9)	1.770 (45.0)	2.000 (50.8)	.625 (15.9)	.779 (19.8)
072	18	1.062-18 UNEF	1.937 (49.2)	2.000 (50.8)	1.218 (30.9)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
043	20	1.188-18 UNEF	1.093 (27.8)	1.544 (39.2)	1.345 (34.2)	1.145 (29.1)	2.362 (60.0)	.250 (6.4)	.437 (11.1)
015	20	1.188-18 UNEF	1.093 (27.8)	1.844 (46.8)	1.345 (34.2)	1.332 (33.8)	2.362 (60.0)	.350 (8.9)	.625 (15.9)
054	20	1.188-18 UNEF	1.093 (27.8)	1.916 (48.7)	1.345 (34.2)	1.551 (39.4)	2.362 (60.0)	.500 (12.7)	.750 (19.1)
016	20	1.188-18 UNEF	1.093 (27.8)	2.000 (50.8)	1.345 (34.2)	1.770 (45.0)	2.000 (50.8)	.625 (15.9)	.904 (23.0)
055	20	1.188-18 UNEF	2.061 (52.3)	2.230 (56.6)	1.345 (34.2)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
044	22	1.313-18 UNEF	1.188 (30.2)	1.544 (39.2)	1.468 (37.3)	.957 (24.3)	2.512 (63.8)	.125 (3.2)	.312 (7.9)
045	22	1.313-18 UNEF	1.188 (30.2)	1.544 (39.2)	1.468 (37.3)	1.145 (29.1)	2.512 (63.8)	.250 (6.4)	.437 (11.1)
056	22	1.313-18 UNEF	1.188 (30.2)	1.844 (46.8)	1.468 (37.3)	1.332 (33.8)	2.512 (63.8)	.350 (8.9)	.625 (15.9)
017	22	1.313-18 UNEF	1.188 (30.2)	1.916 (48.7)	1.468 (37.3)	1.551 (39.4)	2.512 (63.8)	.500 (12.7)	.750 (19.1)
057	22	1.313-18 UNEF	1.188 (30.2)	2.000 (50.8)	1.468 (37.3)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
018	22	1.313-18 UNEF	1.188 (30.2)	2.230 (56.6)	1.468 (37.3)	2.113 (53.7)	2.155 (54.7)	.875 (22.2)	1.029 (26.1)
058	22	1.313-18 UNEF	2.061 (52.3)	2.230 (56.6)	1.468 (37.3)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
046	24	1.438-18 UNEF	1.188 (30.2)	1.844 (46.8)	1.593 (40.5)	1.332 (33.8)	2.512 (63.8)	.350 (8.9)	.625 (15.9)
019	24	1.438-18 UNEF	1.188 (30.2)	1.916 (48.7)	1.593 (40.5)	1.551 (39.4)	2.512 (63.8)	.500 (12.7)	.750 (19.1)
059	24	1.438-18 UNEF	1.188 (30.2)	2.000 (50.8)	1.593 (40.5)	1.770 (45.0)	2.512 (63.8)	.625 (15.9)	.937 (23.8)
020	24	1.438-18 UNEF	1.188 (30.2)	2.230 (56.6)	1.593 (40.5)	2.113 (53.7)	2.155 (54.7)	.875 (22.2)	1.144 (29.1)
073	24	1.438-18 UNEF	2.061 (52.3)	2.230 (56.6)	1.593 (40.5)	2.116 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
060	28	1.750-18 UNS	1.313 (33.4)	1.916 (48.7)	1.969 (50.0)	1.551 (39.4)	2.562 (65.1)	.500 (12.7)	.750 (19.1)
021	28	1.750-18 UNS	1.313 (33.4)	2.000 (50.8)	1.969 (50.0)	1.770 (45.0)	2.562 (65.1)	.625 (15.9)	.937 (23.8)
061	28	1.750-18 UNS	1.313 (33.4)	2.230 (56.6)	1.969 (50.0)	2.113 (53.7)	2.562 (65.1)	.875 (22.2)	1.250 (31.8)
022	28	1.750-18 UNS	1.312 (33.3)	2.024 (51.4)	1.969 (50.0)	2.363 (60.0)	2.218 (56.3)	1.000 (25.4)	1.375 (34.9)
023	32	2.000-18 UNS	1.375 (34.9)	2.000 (50.8)	2.219 (56.4)	1.770 (45.0)	2.662 (67.6)	.625 (15.9)	.937 (23.8)
024	32	2.000-18 UNS	1.375 (34.9)	2.230 (56.6)	2.219 (56.4)	2.113 (53.7)	2.662 (67.6)	.875 (22.2)	1.250 (31.8)
062	32	2.000-18 UNS	1.375 (34.9)	2.024 (51.4)	2.219 (56.4)	2.363 (60.0)	2.662 (67.6)	1.000 (25.4)	1.375 (34.9)
025	32	2.000-18 UNS	1.375 (34.9)	2.550 (64.8)	2.219 (56.4)	2.770 (70.4)	2.312 (58.7)	1.250 (31.8)	1.625 (41.3)
047	36	2.250-16 UN	1.406 (35.7)	1.916 (48.7)	2.469 (62.7)	1.551 (39.4)	2.752 (69.9)	.500 (12.7)	.750 (19.1)
026	36	2.250-16 UN	1.406 (35.7)	2.000 (50.8)	2.469 (62.7)	1.770 (45.0)	2.752 (69.9)	.625 (15.9)	.937 (23.8)
063	36	2.250-16 UN	1.406 (35.7)	2.230 (56.6)	2.469 (62.7)	2.113 (53.7)	2.752 (69.9)	.875 (22.2)	1.250 (31.8)
027	36	2.250-16 UN	1.406 (35.7)	2.024 (51.4)	2.469 (62.7)	2.363 (60.0)	2.752 (69.9)	1.000 (25.4)	1.375 (34.9)
064	36	2.250-16 UN	1.406 (35.7)	2.550 (64.8)	2.469 (62.7)	2.770 (70.4)	2.752 (69.9)	1.250 (31.8)	1.625 (41.3)
028	36	2.250-16 UN	1.406 (35.7)	2.600 (66.0)	2.469 (62.7)	3.020 (76.7)	2.406 (61.1)	1.437 (36.5)	1.840 (46.7)

Dimensions are in inches (mm).

Rev. 2208

90° EMI/RFI Env. Backshell

TF Series • MIL-DTL-5015 Crimp Type Connectors



TFR4 - 009 N

1 2 3

1 **BASIC PART NUMBER**
TFR4 90° EMI/RFI env. backshell

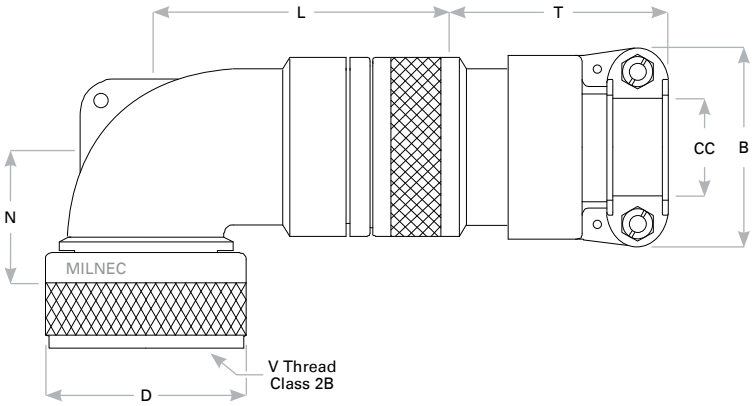
2 **DASH NO.**
See Backshell Dimensions table below

3 **MATERIAL & FINISH**
N Aluminum, electroless nickel
W Aluminum, olive drab cadmium

Note: See part builder (p. X-11) for additional kit options.

TFR4 Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496



Backshell Dimensions

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
004	10	.625-24 UNEF	.761 (19.3)	1.544 (39.2)	.730 (18.5)	.957 (24.3)	1.982 (50.3)	.125 (3.2)	.312 (7.9)
005	10	.625-24 UNEF	.761 (19.3)	1.544 (39.2)	.730 (18.5)	1.145 (29.1)	1.382 (35.1)	.250 (6.4)	.375 (9.5)
049	10	.625-24 UNEF	1.516 (38.5)	1.544 (39.2)	.730 (18.5)	1.145 (29.1)	2.002 (50.9)	.250 (6.4)	.437 (11.1)
006	12	.750-20 UNEF	.766 (19.5)	1.544 (39.2)	.860 (21.8)	.957 (24.3)	2.002 (50.9)	.125 (3.2)	.312 (7.9)
007	12	.750-20 UNEF	.766 (19.5)	1.544 (39.2)	.860 (21.8)	1.145 (29.1)	2.002 (50.9)	.250 (6.4)	.437 (11.1)
008	12	.750-20 UNEF	.766 (19.5)	1.844 (46.8)	.860 (21.8)	1.332 (33.8)	1.397 (35.5)	.350 (8.9)	.500 (12.7)
071	12	.750-20 UNEF	1.811 (46.0)	1.844 (46.8)	.860 (21.8)	1.332 (33.8)	2.162 (54.9)	.350 (8.9)	.625 (15.9)
074	14	.875-20 UNEF	.866 (22.0)	1.544 (39.2)	.980 (24.9)	.957 (24.3)	2.072 (52.6)	.125 (3.2)	.312 (7.9)
009	14	.875-20 UNEF	.866 (22.0)	1.544 (39.2)	.980 (24.9)	1.145 (29.1)	2.072 (52.6)	.250 (6.4)	.437 (11.1)
010	14	.875-20 UNEF	.866 (22.0)	1.844 (46.8)	.980 (24.9)	1.332 (33.8)	1.717 (43.6)	.350 (8.9)	.575 (14.6)
050	14	.875-20 UNEF	1.891 (48.0)	1.916 (48.7)	.980 (24.9)	1.551 (39.4)	2.332 (59.2)	.500 (12.7)	.750 (19.1)

Dimensions are in inches (mm).

(Continued on next page)

Rev. 2208

Backshell Dimensions (Continued from previous page)

Dash No.	Shell Size	V Thread Class 2B	N	T	D	B	L	CC Cable Clearance	
								Min	Max
075	16	1.000-20 UNEF	1.051 (26.7)	1.544 (39.2)	1.110 (28.2)	.957 (24.3)	2.162 (54.9)	.125 (3.2)	.312 (7.9)
011	16	1.000-20 UNEF	1.051 (26.7)	1.544 (39.2)	1.110 (28.2)	1.145 (29.1)	2.162 (54.9)	.250 (6.4)	.437 (11.1)
040	16	1.000-20 UNEF	1.051 (26.7)	1.844 (46.8)	1.110 (28.2)	1.332 (33.8)	2.162 (54.9)	.350 (8.9)	.625 (15.9)
012	16	1.000-20 UNEF	1.051 (26.7)	1.916 (48.7)	1.110 (28.2)	1.551 (39.4)	1.807 (45.9)	.500 (12.7)	.700 (17.8)
051	16	1.000-20 UNEF	2.041 (51.8)	2.000 (50.8)	1.110 (28.2)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
041	18	1.062-18 UNEF	1.141 (29.0)	1.544 (39.2)	1.220 (31.0)	.957 (24.3)	2.332 (59.2)	.125 (3.2)	.312 (7.9)
042	18	1.062-18 UNEF	1.141 (29.0)	1.544 (39.2)	1.220 (31.0)	1.145 (29.1)	2.332 (59.2)	.250 (6.4)	.437 (11.1)
013	18	1.062-18 UNEF	1.141 (29.0)	1.844 (46.8)	1.220 (31.0)	1.332 (33.8)	2.332 (59.2)	.350 (8.9)	.625 (15.9)
052	18	1.062-18 UNEF	1.141 (29.0)	1.916 (48.7)	1.220 (31.0)	1.551 (39.4)	2.332 (59.2)	.500 (12.7)	.750 (19.1)
014	18	1.062-18 UNEF	1.141 (29.0)	2.000 (50.8)	1.220 (31.0)	1.770 (45.0)	1.982 (50.3)	.625 (15.9)	.779 (19.8)
072	18	1.062-18 UNEF	2.051 (52.1)	2.000 (50.8)	1.220 (31.0)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
043	20	1.188-18 UNEF	1.141 (29.0)	1.544 (39.2)	1.340 (34.0)	1.145 (29.1)	2.332 (59.2)	.250 (6.4)	.437 (11.1)
015	20	1.188-18 UNEF	1.141 (29.0)	1.844 (46.8)	1.340 (34.0)	1.332 (33.8)	2.332 (59.2)	.350 (8.9)	.625 (15.9)
054	20	1.188-18 UNEF	1.141 (29.0)	1.916 (48.7)	1.340 (34.0)	1.551 (39.4)	2.332 (59.2)	.500 (12.7)	.750 (19.1)
016	20	1.188-18 UNEF	1.141 (29.0)	2.000 (50.8)	1.340 (34.0)	1.770 (45.0)	1.982 (50.3)	.625 (15.9)	.904 (23.0)
055	20	1.188-18 UNEF	2.141 (54.4)	2.230 (56.6)	1.340 (34.0)	2.113 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
044	22	1.313-18 UNEF	1.291 (32.8)	1.544 (39.2)	1.470 (37.3)	.957 (24.3)	2.442 (62.0)	.125 (3.2)	.312 (7.9)
045	22	1.313-18 UNEF	1.291 (32.8)	1.544 (39.2)	1.470 (37.3)	1.145 (29.1)	2.442 (62.0)	.250 (6.4)	.437 (11.1)
056	22	1.313-18 UNEF	1.291 (32.8)	1.844 (46.8)	1.470 (37.3)	1.332 (33.8)	2.442 (62.0)	.350 (8.9)	.625 (15.9)
017	22	1.313-18 UNEF	1.291 (32.8)	1.916 (48.7)	1.470 (37.3)	1.551 (39.4)	2.442 (62.0)	.500 (12.7)	.750 (19.1)
057	22	1.313-18 UNEF	1.291 (32.8)	2.000 (50.8)	1.470 (37.3)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
018	22	1.313-18 UNEF	1.291 (32.8)	2.230 (56.6)	1.470 (37.3)	2.113 (53.7)	2.087 (53.0)	.875 (22.2)	1.029 (26.1)
058	22	1.313-18 UNEF	2.141 (54.4)	2.230 (56.6)	1.470 (37.3)	2.113 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
046	24	1.438-18 UNEF	1.291 (32.8)	1.844 (46.8)	1.590 (40.4)	1.332 (33.8)	2.442 (62.0)	.350 (8.9)	.625 (15.9)
019	24	1.438-18 UNEF	1.291 (32.8)	1.916 (48.7)	1.590 (40.4)	1.551 (39.4)	2.442 (62.0)	.500 (12.7)	.750 (19.1)
059	24	1.438-18 UNEF	1.291 (32.8)	2.000 (50.8)	1.590 (40.4)	1.770 (45.0)	2.442 (62.0)	.625 (15.9)	.937 (23.8)
020	24	1.438-18 UNEF	1.291 (32.8)	2.230 (56.6)	1.590 (40.4)	2.113 (53.7)	2.087 (53.0)	.875 (22.2)	1.144 (29.1)
073	24	1.438-18 UNEF	2.151 (54.6)	2.230 (56.6)	1.590 (40.4)	2.116 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
060	28	1.750-18 UNS	1.391 (35.3)	1.916 (48.7)	1.970 (50.0)	1.551 (39.4)	2.612 (66.3)	.500 (12.7)	.750 (19.1)
021	28	1.750-18 UNS	1.391 (35.3)	2.000 (50.8)	1.970 (50.0)	1.770 (45.0)	2.612 (66.3)	.625 (15.9)	.937 (23.8)
061	28	1.750-18 UNS	1.391 (35.3)	2.230 (56.6)	1.970 (50.0)	2.113 (53.7)	2.612 (66.3)	.875 (22.2)	1.250 (31.8)
022	28	1.750-18 UNS	1.391 (35.3)	2.024 (51.4)	1.970 (50.0)	2.363 (60.0)	2.257 (57.3)	1.000 (25.4)	1.375 (34.9)
023	32	2.000-18 UNS	1.741 (44.2)	2.000 (50.8)	2.220 (56.4)	1.770 (45.0)	2.862 (72.7)	.625 (15.9)	.937 (23.8)
024	32	2.000-18 UNS	1.741 (44.2)	2.230 (56.6)	2.220 (56.4)	2.113 (53.7)	2.862 (72.7)	.875 (22.2)	1.250 (31.8)
062	32	2.000-18 UNS	1.741 (44.2)	2.024 (51.4)	2.220 (56.4)	2.363 (60.0)	2.862 (72.7)	1.000 (25.4)	1.375 (34.9)
025	32	2.000-18 UNS	1.741 (44.2)	2.550 (64.8)	2.220 (56.4)	2.770 (70.4)	2.507 (63.7)	1.250 (31.8)	1.625 (41.3)
047	36	2.250-16 UN	1.941 (49.3)	1.916 (48.7)	2.470 (62.7)	1.551 (39.4)	2.832 (71.9)	.500 (12.7)	.750 (19.1)
026	36	2.250-16 UN	1.941 (49.3)	2.000 (50.8)	2.470 (62.7)	1.770 (45.0)	2.832 (71.9)	.625 (15.9)	.937 (23.8)
063	36	2.250-16 UN	1.941 (49.3)	2.230 (56.6)	2.470 (62.7)	2.113 (53.7)	2.832 (71.9)	.875 (22.2)	1.250 (31.8)
027	36	2.250-16 UN	1.941 (49.3)	2.024 (51.4)	2.470 (62.7)	2.363 (60.0)	2.832 (71.9)	1.000 (25.4)	1.375 (34.9)
064	36	2.250-16 UN	1.941 (49.3)	2.550 (64.8)	2.470 (62.7)	2.770 (70.4)	2.832 (71.9)	1.250 (31.8)	1.625 (41.3)
028	36	2.250-16 UN	1.941 (49.3)	2.600 (66.0)	2.470 (62.7)	3.020 (76.7)	2.477 (62.9)	1.437 (36.5)	1.840 (46.7)

Dimensions are in inches (mm).

Shorting Cap Backshell

TF Series • MIL-DTL-5015 Crimp Type Connectors

Optional Body Strap
with Bolt Attachment

TFSC - 14 - 3 N 1

1 2 3 4 5

1 BASIC PART NUMBER

TFSC Shorting cap backshell

2 SHELL SIZE

See Backshell Dimensions table below

3 BACKSHELL LENGTH

Length in whole inches (1 inch = 25.4 mm)

4 MATERIAL & FINISH

N	Aluminum, electroless nickel
W	Aluminum, olive drab cadmium
G	Aluminum, electroless nickel (space-grade)

5 ATTACHMENT STYLE

1	No strap attachment
2	Body strap with bolt attachment

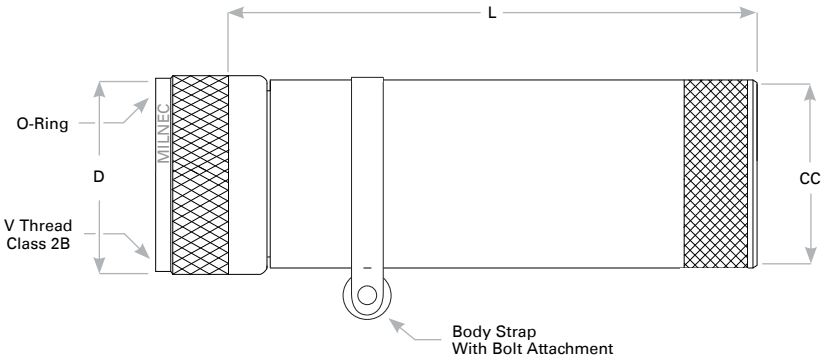
TFSC Compatibility

Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496

Backshell Dimensions

Shell Size	D	V Thread Class 2B	CC Internal Dia	L
10	.770 (19.6)	.625-24 UNEF	.355 (9.0)	Ordered in whole inch increments Min = 1 inch (25.4 mm) Max = 12 inches (304.8 mm)
12	.860 (21.8)	.750-20 UNEF	.491 (12.5)	
14	1.020 (25.9)	.875-20 UNEF	.565 (14.4)	
16	1.210 (30.7)	1.000-20 UNEF	.690 (17.5)	
18	1.230 (31.2)	1.062-18 UNEF	.769 (19.5)	
20	1.360 (34.5)	1.188-18 UNEF	.894 (22.7)	
22	1.480 (37.6)	1.313-18 UNEF	1.019 (25.9)	
24	1.730 (43.9)	1.438-18 UNEF	1.134 (28.8)	
28	1.970 (50.0)	1.750-18 UNS	1.369 (34.8)	
32	2.220 (56.4)	2.000-18 UNS	1.615 (41.0)	
36	2.470 (62.7)	2.250-16 UN	1.830 (46.5)	

Dimensions are in inches (mm).



Rev. 2208

CUSTOM TAILORED CONNECTORS

- Complete Mil-Spec Compatibility
- Wide Variety of Materials & Finishes
- More Backshells
- Specialized Contacts
- Additional Inserts
- More Shell Options

Military Strength—COTS Flexibility

Milnec builds connectors that meet and exceed established military specifications, while also providing additional options and features unavailable under the mil-spec. These commercial off the shelf (COTS) upgrades provide the strength and reliability of military specifications with the flexibility demanded by modern designs.

MILNEC INTERCONNECT SYSTEMS

Straight Shrink Boot

TF Series • MIL-DTL-5015 Crimp Type Connectors

TFK2 - 4 - 100

1 2 3

1 **BASIC PART NUMBER**

TFK2 Straight shrink boot

2 **BOOT SIZE**

See Boot Dimensions table below

3 **STANDARD MATERIAL**

100 Halogen-free, semi-flexible elastomer pre-coated with hot-melt adhesive. Material has excellent fire-safety characteristics and is especially suited where people are confined in enclosed spaces (mass transit, aviation, vehicles, offshore, etc).

- Temp: -22° to +302°F (-30° to +150°C)
- Low-smoke index as defined by NES 711
- Low-toxicity index as defined by NES 713
- High-temp index as defined by NES 715

* Please consult an authorized distributor for other high-temperature materials and adhesive options.

Environmental protection, low-profile design

A shrink boot provides complete IP67 environmental protection and strain relief. Must be used with a boot adapter.

Boot Size Recommendations

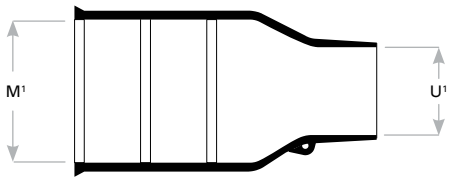
Boot Size	Cable Range Min	Cable Range Max	Shell Size 10	12	14	16	18	20	22	24	28	32	36
2	.220 (5.6)	.550 (14.0)	✓ ✶	✓ ✶									
3	.230 (5.9)	.590 (15.0)			✓ ✶	✓ ✶							
4	.280 (7.1)	.710 (18.0)					✶	✶					
5	.330 (8.4)	.830 (21.0)					✓	✓	✶	✶			
6	.390 (9.9)	.980 (25.0)							✓	✓	✶	✶	
7	.620 (15.7)	1.540 (39.0)									✓		✶
8	.660 (16.8)	1.650 (42.0)										✓	✓

Dimensions are in inches (mm). ✓ Recommended boot size for (TFAB) Boot Adapter, p. X-51. ✶ Recommended boot size for (TFD2, TFD3, TFD4) EMI/RFI Banding Boot Adapter, p. X-52.

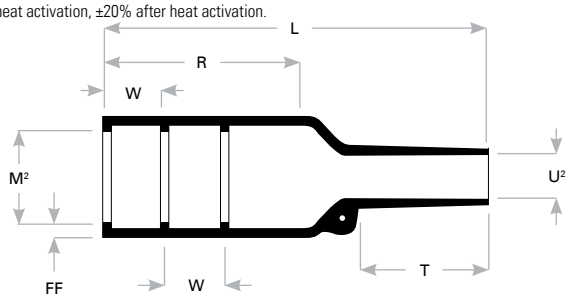
Boot Dimensions

Boot Size	M[1]	U[1]	M[2]	U[2]	L‡	R‡	T*	W‡	FF*
2	.940 (24.0)	.550 (14.0)	.410 (10.4)	.220 (5.6)	1.500 (38.0)	.830 (21.0)	.330 (8.5)	.470 (12.0)	.060 (1.6)
3	1.180 (30.0)	.590 (15.0)	.560 (14.2)	.230 (5.9)	2.170 (55.0)	1.260 (32.0)	.450 (11.5)	.470 (12.0)	.070 (1.8)
4	1.220 (31.0)	.710 (18.0)	.710 (18.0)	.280 (7.1)	2.640 (67.0)	1.380 (35.0)	.670 (17.0)	.790 (20.0)	.070 (1.8)
5	1.420 (36.0)	.830 (21.0)	.880 (22.4)	.330 (8.4)	3.150 (80.0)	1.650 (42.0)	.760 (19.5)	.790 (20.0)	.080 (2.0)
6	1.690 (43.0)	.980 (25.0)	1.110 (28.2)	.390 (9.9)	3.900 (99.0)	2.400 (61.0)	.820 (21.0)	.790 (20.0)	.090 (2.2)
7	2.050 (52.0)	1.540 (39.0)	1.380 (35.1)	.620 (15.7)	5.120 (130.0)	2.830 (72.0)	1.530 (39.0)	.790 (20.0)	.130 (3.2)
8	2.600 (66.0)	1.650 (42.0)	1.750 (44.5)	.660 (16.8)	6.690 (170.0)	3.540 (90.0)	2.020 (51.5)	.790 (20.0)	.150 (3.8)

Dimensions are in inches (mm). ‡ Dimensions ±10% before and after heat activation. ✶ Dimensions ±10% before heat activation, ±20% after heat activation.



Before Heat Activation



After Heat Activation

Rev. 2208

TFK4 - 4 - 100

1 2 3

1 BASIC PART NUMBER

TFK4 90° shrink boot

2 BOOT SIZE

See Boot Dimensions table below

3 STANDARD MATERIAL

100 Halogen-free, semi-flexible elastomer pre-coated with hot-melt adhesive. Material has excellent fire-safety characteristics and is especially suited where people are confined in enclosed spaces (mass transit, aviation, vehicles, offshore, etc).

- Temp: -22° to +302°F (-30° to +150°C)
- Low-smoke index as defined by NES 711
- Low-toxicity index as defined by NES 713
- High-temp index as defined by NES 715

* Please consult an authorized distributor for other high-temperature materials and adhesive options.

Angled boot for simple cable management

90° shrink boot provides complete IP67 environmental protection and strain relief in a low-profile backshell design. A boot adapter must be used for proper installation.

Boot Size Recommendations

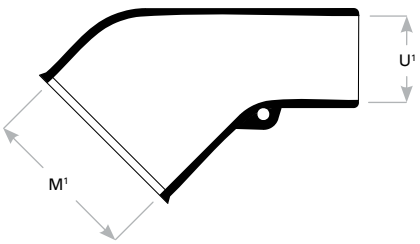
Boot Size	Cable Range		Shell Size										
	Min	Max	10	12	14	16	18	20	22	24	28	32	36
2	.220 (5.6)	.550 (14.0)	✓ ✶	✓ ✶									
3	.230 (5.9)	.590 (15.0)			✓ ✶	✓ ✶							
4	.280 (7.1)	.710 (18.0)					✶	✶					
5	.330 (8.4)	.830 (21.0)					✓	✓	✶	✶			
6	.390 (9.9)	.980 (25.0)							✓	✓	✶	✶	
7	.620 (15.7)	1.540 (39.0)									✓		✶
8	.660 (16.8)	1.650 (42.0)										✓	✓

Dimensions are in inches (mm). ✓ Recommended boot size for (TFAB) Boot Adapter, p. X-51. ✶ Recommended boot size for (TFD2, TFD3, TFD4) EMI/RFI Banding Boot Adapter, p. X-52.

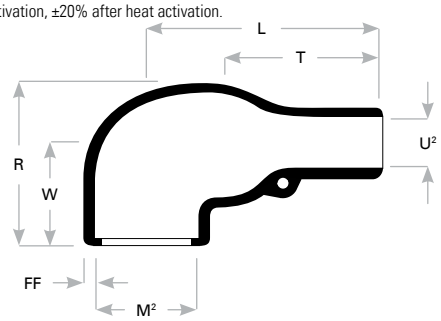
Boot Dimensions

Boot Size	M[1]	U[1]	M[2]	U[2]	L‡	R‡	T*	W‡	FF*
2	.940 (24.0)	.550 (14.0)	.410 (10.4)	.220 (5.6)	.980 (25.0)	.980 (25.0)	.630 (16.0)	.750 (19.0)	.050 (1.3)
3	1.180 (30.0)	.590 (15.0)	.560 (14.2)	.230 (5.9)	1.260 (32.0)	1.060 (27.0)	.790 (20.0)	.790 (20.0)	.060 (1.5)
4	1.220 (31.0)	.710 (18.0)	.710 (18.0)	.280 (7.1)	1.540 (39.0)	1.220 (31.0)	.790 (20.0)	.830 (21.0)	.070 (1.8)
5	1.420 (36.0)	.830 (21.0)	.880 (22.4)	.330 (8.4)	1.810 (46.0)	1.500 (38.0)	.980 (25.0)	1.020 (26.0)	.070 (1.8)
6	1.690 (43.0)	.980 (25.0)	1.110 (28.2)	.390 (9.9)	2.171 (55.0)	1.770 (45.0)	1.180 (30.0)	1.180 (30.0)	.080 (2.0)
7	2.050 (52.0)	1.540 (39.0)	1.380 (35.1)	.620 (15.7)	3.150 (80.0)	2.130 (54.0)	1.770 (45.0)	1.380 (35.0)	.130 (3.3)
8	2.600 (66.0)	1.650 (42.0)	1.750 (44.5)	.660 (16.8)	4.250 (108.0)	2.680 (68.0)	2.760 (70.0)	1.650 (42.0)	.150 (3.8)

Dimensions are in inches (mm). ‡ Dimensions ±10% before and after heat activation. ✶ Dimensions ±10% before heat activation, ±20% after heat activation.



Before Heat Activation



After Heat Activation

Rev. 2208

Boot Adapter

TF Series • MIL-DTL-5015 Crimp Type Connectors

TFAB - 16 N - K2

1 2 3 4

1 **BASIC PART NUMBER**
- **TFAB** Boot adapter

2 **SHELL SIZE**
- See Adapter Dimensions table below

3 **MATERIAL & FINISH**
- **N** Aluminum, electroless nickel
- **W** Aluminum, olive drab cadmium

4 **OPTIONAL BOOT KIT** (OMIT FOR NONE)
- **K2** Includes recommended straight shrink boot in standard material 100, p. X-49
- **K4** Includes recommended 90° shrink boot in standard material 100, p. X-50

TFAB Compatibility

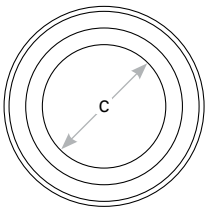
Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496

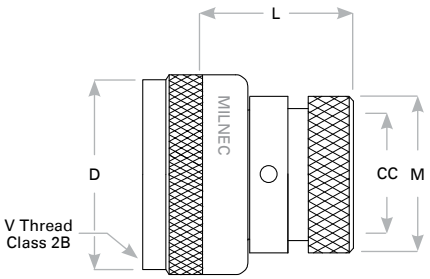
Note: See part builder (p. X-11) for additional kit options.

Adapter Dimensions

Shell Size	CC Cable Clearance	M	D	L	V Thread Class 2B
10	.355 (9.0)	.605 (15.4)	.770 (19.6)	.832 (21.1)	.625-24 UNEF
12	.491 (12.5)	.774 (19.7)	.860 (21.8)	.832 (21.1)	.750-20 UNEF
14	.565 (14.4)	.838 (21.3)	1.020 (25.9)	.832 (21.1)	.875-20 UNEF
16	.690 (17.5)	.963 (24.5)	1.210 (30.7)	.832 (21.1)	1.000-20 UNEF
18	.769 (19.5)	1.042 (26.5)	1.230 (31.2)	.832 (21.1)	1.062-18 UNEF
20	.894 (22.7)	1.217 (30.9)	1.360 (34.5)	.832 (21.1)	1.188-18 UNEF
22	1.019 (25.9)	1.355 (34.4)	1.480 (37.6)	.832 (21.1)	1.313-18 UNEF
24	1.134 (28.8)	1.443 (36.7)	1.730 (43.9)	.832 (21.1)	1.438-18 UNEF
28	1.369 (34.8)	1.709 (43.4)	1.970 (50.0)	.994 (25.3)	1.750-18 UNS
32	1.615 (41.0)	1.919 (48.7)	2.220 (56.4)	.994 (25.3)	2.000-18 UNS
36	1.830 (46.5)	2.169 (55.1)	2.470 (62.7)	.994 (25.3)	2.250-16 UN

Dimensions are in inches (mm).





TFD2 - 16 N - K2

1 2 3 4

1 BASIC PART NUMBER

- **TFD2** Straight EMI/RFI banding boot adapter
- **TFD3** 45° EMI/RFI banding boot adapter
- **TFD4** 90° EMI/RFI banding boot adapter

(Includes shield termination band TB250, p. X-60)

2 SHELL SIZE

See Backshell Dimensions table below

3 MATERIAL & FINISH

- **N** Aluminum, electroless nickel
- **W** Aluminum, olive drab cadmium

4 OPTIONAL BOOT KIT (OMIT FOR NONE)

- **K2** Includes recommended straight shrink boot in standard material 100, p. X-49

Note: Designed for use with straight shrink boot (TFK2, p. X-49). See part builder (p. X-11) for additional kit options.

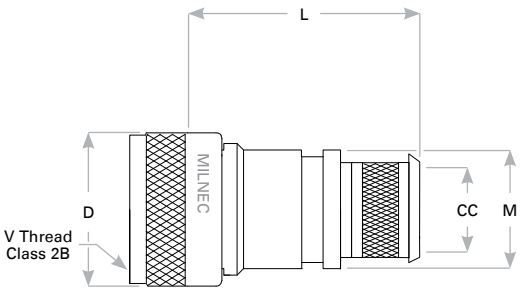
TFD2 Compatibility

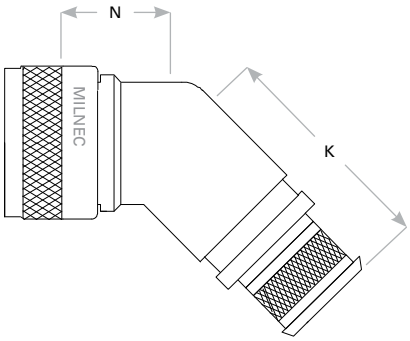
Compatible Brands	Connectors
MIL-DTL-5015 Crimp	MS3400, MS3401, MS3404, MS3406, MS3496

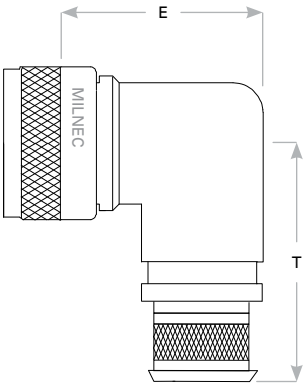
Backshell Dimensions

Shell Size	CC Cable Clearance	M	D	L	N	K	E	T	V Thread Class 2B
10	.312 (7.9)	.500 (12.7)	1.010 (25.7)	1.350 (34.3)	.890 (22.6)	1.180 (30.0)	1.281 (32.5)	1.480 (37.6)	.625-24 UNEF
12	.438 (11.1)	.624 (15.8)	1.130 (28.7)	1.350 (34.3)	.920 (23.4)	1.200 (30.5)	1.406 (35.7)	1.542 (39.2)	.750-20 UNEF
14	.562 (14.3)	.750 (19.1)	1.260 (32.0)	1.350 (34.3)	.940 (23.9)	1.220 (31.0)	1.531 (38.9)	1.605 (40.8)	.875-20 UNEF
16	.625 (15.9)	.812 (20.6)	1.380 (35.1)	1.350 (34.3)	.960 (24.4)	1.250 (31.8)	1.656 (42.1)	1.667 (42.3)	1.000-20 UNEF
18	.750 (19.1)	.937 (23.8)	1.510 (38.4)	1.350 (34.3)	.980 (24.9)	1.260 (32.0)	1.718 (43.6)	1.730 (43.9)	1.062-18 UNEF
20	.812 (20.6)	1.000 (25.4)	1.630 (41.4)	1.350 (34.3)	1.000 (25.4)	1.290 (32.8)	1.844 (46.8)	1.792 (45.5)	1.188-18 UNEF
22	.938 (23.8)	1.124 (28.5)	1.760 (44.7)	1.350 (34.3)	1.030 (26.2)	1.310 (33.3)	1.938 (49.2)	1.850 (47.0)	1.313-18 UNEF
24	1.000 (25.4)	1.187 (30.1)	1.880 (47.8)	1.350 (34.3)	1.050 (26.7)	1.340 (34.0)	2.093 (53.2)	1.917 (48.7)	1.438-18 UNEF
28	1.125 (28.6)	1.312 (33.3)	2.130 (54.1)	1.350 (34.3)	1.100 (27.9)	1.380 (35.1)	2.531 (64.3)	2.042 (51.9)	1.750-18 UNS
32	1.250 (31.8)	1.437 (36.5)	2.220 (56.4)	1.375 (34.8)	1.092 (27.7)	1.620 (41.1)	1.593 (40.5)	1.651 (41.9)	2.000-18 UNS
36	1.375 (34.9)	1.562 (39.7)	2.470 (62.7)	1.500 (38.1)	1.136 (28.9)	1.750 (44.5)	1.718 (43.6))	1.781 (45.2)	2.250-16 UN

Dimensions are in inches (mm).







Rev. 2208

TFCP - 16 B

1 2 3

1 **BASIC PART NUMBER**
- **TFCP** Plug cover w/ sash chain
- **TFCR** Receptacle cover w/ sash chain

2 **SHELL SIZE**
- See Protective Cover Dimensions table below

3 **MATERIAL & FINISH**
- **B** Aluminum, anodize hardcoat

Note: See part builder (p. X-11) for additional kit options.

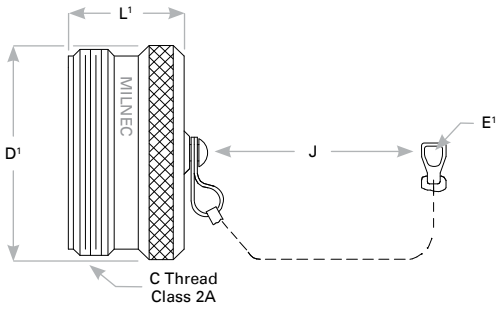
TFCP & TFCR Compatibility

Compatible Brands	Plugs	Receptacles
MIL-DTL-5015 Crimp	MS3406, MS3408, MS3409, MS3496	MS3400, MS3401, MS3402, MS3404, MS3454

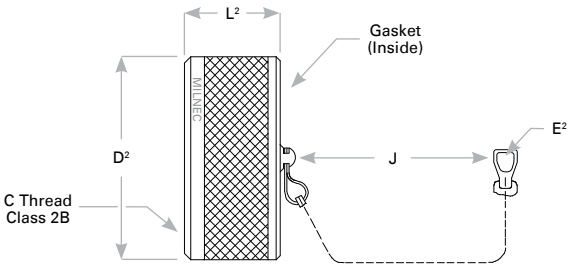
Protective Cover Dimensions

Shell Size	C Thread Class 2A	L¹	D¹	E¹	J Chain Length	C Thread Class 2B	L²	D²	E²
10	.625-24 UNEF	.656 (16.7)	.687 (17.4)	.151 (3.8)	4.00 (101.6)	.625-24 UNEF	.469 (11.9)	.815 (20.7)	.135 (3.4)
12	.750-20 UNEF	.844 (21.4)	.812 (20.6)	.151 (3.8)	4.50 (114.3)	.750-20 UNEF	.469 (11.9)	1.000 (25.4)	.135 (3.4)
14	.875-20 UNEF	.844 (21.4)	.937 (23.8)	.151 (3.8)	4.50 (114.3)	.875-20 UNEF	.469 (11.9)	1.125 (28.6)	.135 (3.4)
16	1.000-20 UNEF	.844 (21.4)	1.062 (27.0)	.151 (3.8)	4.50 (114.3)	1.000-20 UNEF	.469 (11.9)	1.188 (30.2)	.135 (3.4)
18	1.125-18 UNEF	.844 (21.4)	1.187 (30.1)	.151 (3.8)	5.00 (127.0)	1.125-18 UNEF	.469 (11.9)	1.344 (34.1)	.135 (3.4)
20	1.250-18 UNEF	.844 (21.4)	1.312 (33.3)	.182 (4.6)	5.00 (127.0)	1.250-18 UNEF	.469 (11.9)	1.469 (37.3)	.135 (3.4)
22	1.375-18 UNEF	.844 (21.4)	1.437 (36.5)	.182 (4.6)	5.50 (139.7)	1.375-18 UNEF	.469 (11.9)	1.594 (40.5)	.135 (3.4)
24	1.500-18 UNEF	.844 (21.4)	1.562 (39.7)	.182 (4.6)	7.75 (196.9)	1.500-18 UNEF	.469 (11.9)	1.719 (43.7)	.166 (4.2)
28	1.750-18 UNS	.844 (21.4)	1.812 (46.0)	.182 (4.6)	7.75 (196.9)	1.750-18 UNS	.531 (13.5)	1.969 (50.0)	.166 (4.2)
32	2.000-18 UNS	.844 (21.4)	2.062 (52.4)	.213 (5.4)	7.75 (196.9)	2.000-18 UNS	.531 (13.5)	2.219 (56.4)	.182 (4.6)
36	2.250-16 UN	.844 (21.4)	2.312 (58.7)	.213 (5.4)	7.75 (196.9)	2.250-16 UN	.531 (13.5)	2.469 (62.7)	.182 (4.6)

Dimensions are in inches (mm).



Plug Cover



Receptacle Cover

Rev. 2208

TFCD - 16 W - 02

1 2 3 4

1 BASIC PART NUMBER

- **TFCD** Stowage receptacle (thru-hole flange)
- **TFCC** Stowage receptacle (solid flange)

2 SHELL SIZE

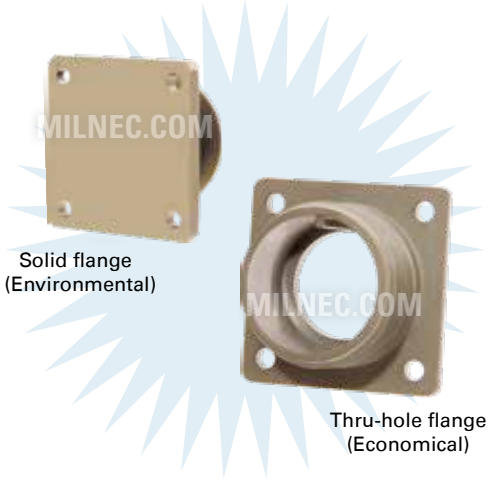
See Stowage Receptacle Dimensions table below

3 MATERIAL & FINISH

- **W** Aluminum, olive drab cadmium
- **N** Aluminum, electroless nickel

4 OPTIONAL ACCESSORY KIT (OMIT FOR NONE)

- **02** Protective cover + mounting gasket
- **03** 02 kit + mounting bracket + sealing screws



Note: See part builder (p. X-11) for additional kit options.

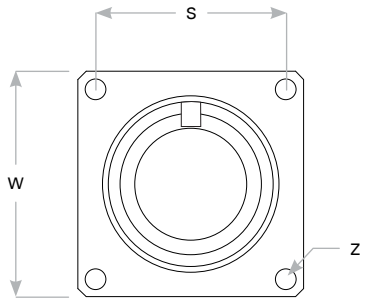
TFCD Compatibility

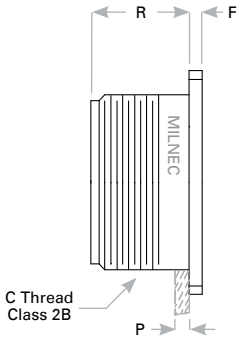
Compatible Brands	Plugs
MIL-DTL-5015 Crimp	MS3406, MS3408, MS3409, MS3496

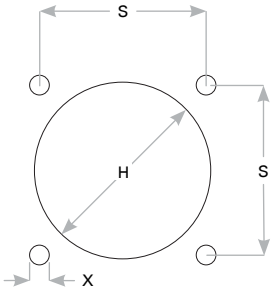
Stowage Receptacle Dimensions

Shell Size	W	S	Z	C Thread Class 2B	R	F	P Max Rear Panel‡	S	X	H
10S	1.031 (26.2)	.719 (18.3)	.130 (3.3)	.625-24 UNEF	.593 (15.1)	.156 (4.0)	.125 (3.2)	.719 (18.3)	.120 (3.1)	.688 (17.5)
12S	1.125 (28.6)	.812 (20.6)	.130 (3.3)	.750-20 UNEF	.593 (15.1)	.156 (4.0)	.125 (3.2)	.812 (20.6)	.120 (3.1)	.812 (20.6)
14S	1.219 (31.0)	.906 (23.0)	.130 (3.3)	.875-20 UNEF	.593 (15.1)	.156 (4.0)	.125 (3.2)	.906 (23.0)	.120 (3.1)	.938 (23.8)
16S	1.312 (33.3)	.969 (24.6)	.130 (3.3)	1.000-20 UNEF	.593 (15.1)	.156 (4.0)	.125 (3.2)	.969 (24.6)	.120 (3.1)	1.062 (27.0)
18	1.406 (35.7)	1.062 (27.0)	.130 (3.3)	1.125-18 UNEF	.781 (19.8)	.203 (5.2)	.125 (3.2)	1.062 (27.0)	.120 (3.1)	1.188 (30.2)
20	1.531 (38.9)	1.156 (29.4)	.130 (3.3)	1.250-18 UNEF	.781 (19.8)	.203 (5.2)	.125 (3.2)	1.156 (29.4)	.120 (3.1)	1.312 (33.3)
22	1.656 (42.1)	1.250 (31.8)	.130 (3.3)	1.375-18 UNEF	.781 (19.8)	.203 (5.2)	.125 (3.2)	1.250 (31.8)	.120 (3.1)	1.438 (36.5)
24	1.781 (45.2)	1.375 (34.9)	.157 (4.0)	1.500-18 UNEF	.843 (21.4)	.203 (5.2)	.125 (3.2)	1.375 (34.9)	.147 (3.7)	1.562 (39.7)
28	2.031 (51.6)	1.562 (39.7)	.157 (4.0)	1.750-18 UNS	.843 (21.4)	.203 (5.2)	.125 (3.2)	1.562 (39.7)	.147 (3.7)	1.812 (46.0)
32	2.281 (57.9)	1.750 (44.5)	.183 (4.6)	2.000-18 UNS	.906 (23.0)	.359 (9.1)	.125 (3.2)	1.750 (44.5)	.173 (4.4)	2.062 (52.4)
36	2.531 (64.3)	1.938 (49.2)	.183 (4.6)	2.250-16 UN	.906 (23.0)	.359 (9.1)	.125 (3.2)	1.938 (49.2)	.173 (4.4)	2.312 (58.7)

Dimensions are in inches (mm). ‡ Max panel thickness applies only to rear mount applications to ensure proper coupling clearance.







Panel Cutout

Rev. 2208

Mounting Gasket

TF Series • MIL-DTL-5015 Crimp Type Connectors

RFI Gasket's Conductive Weave

TFGE - 16

1 2

1 BASIC PART NUMBER

TFGE Neoprene environmental (weather resistant)
Temp. range -40˚F to +230˚F (-40˚C to +110˚C)

TFGS Conductive EMI-RFI neoprene, Ni-Cu mesh
Temp. range -40˚F to +230˚F (-40˚C to +110˚C)

TFGL Fluorosilicone (jet fuel & oil resistant)
Temp. range -70˚F to +392˚F (-56˚C to +200˚C)
Per MIL-DTL-25988, Class 1, Grade 6

TFGD Conductive EMI-RFI fluorosilicone, Al-Ag filled
Temp. range -70˚F to +392˚F (-56˚C to +200˚C)
Shielding effectiveness at 90 dB @ 10 GHz
Per MIL-DTL-83528, Type D

2 SHELL SIZE

See Gasket Dimensions table below

Note: See part builder (p. X-11) for additional kit options.

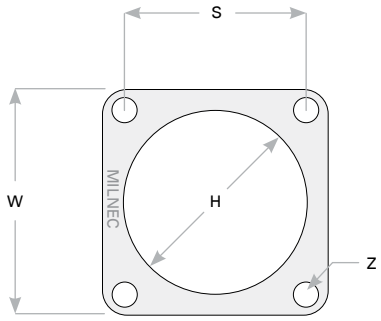
TFGE Compatibility

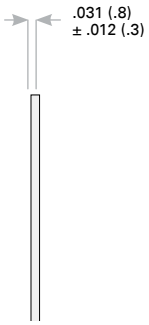
Compatible Brands	Receptacles
MIL-DTL-5015 Crimp	MS3400, MS3402

Gasket Dimensions

Shell Size	W	S	Z	H
10	1.000 (25.4)	.719 (18.3)	.172 (4.4)	.625 (15.9)
12	1.094 (27.8)	.813 (20.7)	.172 (4.4)	.750 (19.1)
14	1.188 (30.2)	.906 (23.0)	.172 (4.4)	.875 (22.2)
16	1.281 (32.5)	.969 (24.6)	.172 (4.4)	1.000 (25.4)
18	1.375 (34.9)	1.063 (27.0)	.203 (5.2)	1.125 (28.6)
20	1.500 (38.1)	1.156 (29.4)	.203 (5.2)	1.250 (31.8)
22	1.625 (41.3)	1.250 (31.8)	.203 (5.2)	1.375 (34.9)
24	1.750 (44.5)	1.375 (34.9)	.203 (5.2)	1.500 (38.1)
28	2.000 (50.8)	1.563 (39.7)	.203 (5.2)	1.750 (44.5)
32	2.250 (57.2)	1.750 (44.5)	.219 (5.6)	2.000 (50.8)
36	2.500 (63.5)	1.938 (49.2)	.219 (5.6)	2.188 (55.6)
40	2.750 (70.0)	2.188 (55.6)	.219 (5.6)	2.438 (62.0)

Dimensions are in inches (mm).





Rev. 2208

TFMB - 16 - A

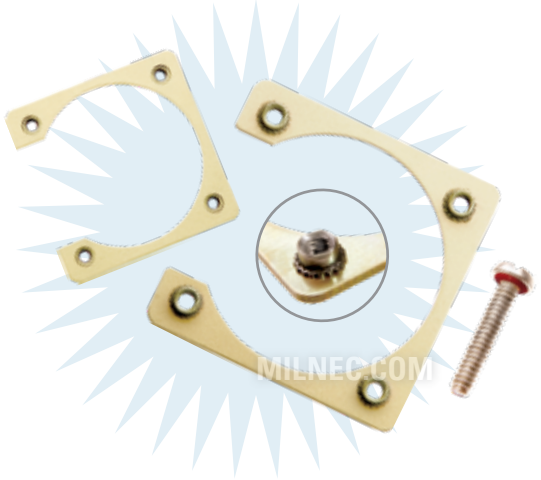
1 2 3

1 **BASIC PART NUMBER**
- **TFMB** Mounting bracket, aluminium alloy with SST locking nuts

2 **SHELL SIZE**
- See Bracket Dimensions table below

3 **OPTIONAL ACCESSORY KIT** (OMIT FOR NONE)
- **A** Self-sealing SST fillister head screws (4x)
- **B** A kit + environmental gasket
- **D** A kit + fluorosilicone EMI/RFI gasket

Note: See part builder (p. X-11) for additional kit options.



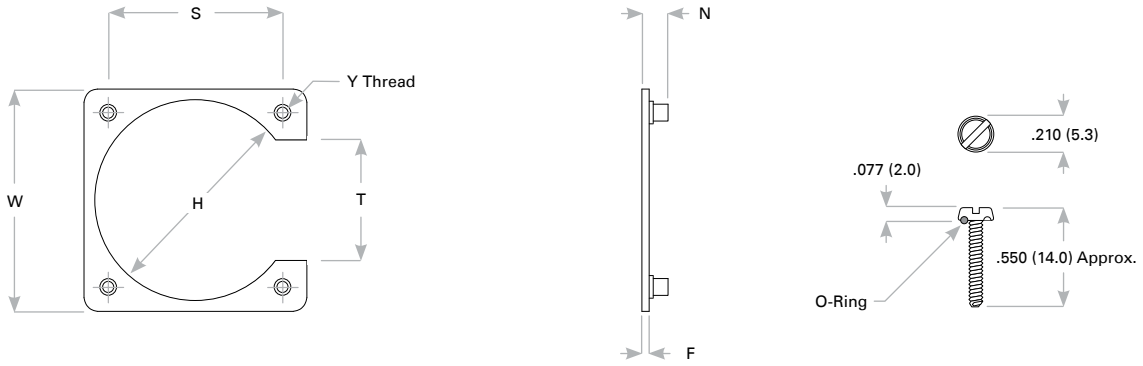
TFMB Compatibility

Compatible Brands	Receptacles
MIL-DTL-5015 Crimp	MS3400, MS3402

Bracket Dimensions

Shell Size	W	S	H	T	N	F	Screw Size	Y Thread
10	1.019 (25.9)	.719 (18.3)	.720 (18.3)	.433 (11.0)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
12	1.104 (28.0)	.812 (20.6)	.855 (21.7)	.530 (13.5)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
14	1.198 (30.4)	.906 (23.0)	.984 (25.0)	.624 (15.8)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
16	1.280 (32.5)	.969 (24.6)	1.094 (27.8)	.687 (17.4)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
18	1.406 (35.7)	1.062 (27.0)	1.220 (31.0)	.780 (19.8)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
20	1.535 (39.0)	1.156 (29.4)	1.345 (34.2)	.874 (22.2)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
22	1.665 (42.3)	1.250 (31.8)	1.478 (37.5)	.968 (24.6)	.136 (3.5)	.040 (1.0)	#4	4-40 UNJC-3B
24	1.738 (44.1)	1.375 (34.9)	1.483 (37.7)	.907 (23.0)	.153 (3.9)	.040 (1.0)	#6	6-32 UNJC-3B
28	2.000 (50.8)	1.562 (39.7)	1.820 (46.2)	1.125 (28.6)	.153 (3.9)	.040 (1.0)	#6	6-32 UNJC-3B
32	2.312 (58.7)	1.750 (44.5)	2.062 (52.4)	1.188 (30.2)	.153 (3.9)	.040 (1.0)	#6	6-32 UNJC-3B
36	2.500 (63.5)	1.938 (49.2)	2.312 (58.7)	1.375 (34.9)	.153 (3.9)	.040 (1.0)	#6	6-32 UNJC-3B
40	2.925 (74.3)	2.188 (55.6)	2.675 (68.0)	1.500 (38.1)	.210 (5.3)	.040 (1.0)	#8	8-32 UNJC-3B

Dimensions are in inches (mm).



Rev. 2208

Precision Hand Crimpers

A crimp tool provides reliable crimp termination of contacts for mission-critical applications. A hand crimper is suitable for contacts from size #12 to #22D. For production environments, pneumatic crimpers are also available.

Our tools feature an 8-impression crimp, which ensures maximum tensile strength between wire and contact. Their cycle controlled ratchets are consistent and accurate and do not permit half crimps, ensuring complete and precise crimping every time.

The tool frames have a built-in 8-step selector knob for easy adjustment of crimp depth to accommodate the size of wire being used. Data plates on positioners provide setting information specific to the size of wires and contacts being used.

There are a variety of crimp tools and positioners available to fit the various sized contacts within each connector series. We have paired our most popular models with their required positioner(s) to ensure complete compatibility.

Hand Crimper & Positioner Kits

Part Number	Kit Includes the Following Items	Contacts Sizes	Milnec Series Compatibility	Mil-Spec Series Compatibility
TK101-KIT	TK101A crimp tool with TP104 turret positioner	#20, #16, #12	DL Series, DS, Series, TX Series	MIL-DTL-38999 Series I, II, III
TK101B-KIT	TK101A crimp tool with TP102 turret positioner	#20, #16, #12	BM Series, EV Series, TM Series, TF Series, HR Series	MIL-DTL-26482 Series I, II MIL-DTL-83723 Series III MIL-DTL-5015 Crimp*
TK201-KIT	TK201 crimp tool with the following positioners: TP209 (for pins), TP207 (for sockets)	#22, #22M, #22D	DL Series, TX Series	MIL-DTL-38999 Series I MIL-DTL-38999 Series III
TK201B-KIT	TK201 crimp tool with the following positioners: TP209 (for pins), TP206 (for sockets)	#22, #22M, #22D	DS Series	MIL-DTL-38999 Series II

* Contacts size #8 and larger require pneumatic crimper. When this is not an option, wires may be soldered directly into contact wire well. For mission critical applications, crimping is preferred termination method.

Rev. 2208

CONFUSED BY MIL-CONNECTORS? RELAX, WE'VE MADE IT EASY.

Design, Build, & Buy Connectors Like a Pro

Our catalogs allows you to quickly create custom connectors and kit them with matching components, including backshells, covers, and mounting accessories. With a wide variety of connector series, and the easiest part builders in the industry, you can quickly select the ideal components for your most challenging design.

MILNEC
INTERCONNECT SYSTEMS

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TH1910E Professional Heat Gun

Our professional heat gun kit provides a complete solution for installing shrink boots. Interchangeable nozzles help to concentrate heat flow or to direct hot air evenly around a target while protecting sensitive equipment nearby.

Features & Benefits

- Temperature range 120° to 1,100°F (49° to 593°C)
- 3 interchangeable nozzle attachments
- Adjustable temperature control dial
- 3 stage switch to control airflow from 3.6 to 17.6 ft^3/min
- Ergonomic design for ease and comfort

Note: The above lists standard options readily available in stock. Please consult an authorized distributor for full range of heat guns and specialized nozzle accessories.

Heat Gun Kit

Part Number	Kit Includes The Following Items
TH1910E	120V / 1,500W variable temperature heat gun, ring holder, and 3 interchangeable nozzles

Consult with authorized distributor for 220V, 230V, & 240V models suitable for your region.

Nozzle Attachments

Part Number	Description
TH101	10mm reduction nozzle
TH102	39mm reflector nozzle
TH103	13mm reflector nozzle

Rev. 2208

TB058 Banding Tool

The TB058 banding tool is the only tool needed to professionally install shielding termination bands to all Milnec EMI/RFI banding adapters. This simple hand tool positions, tightens, and trims the shield termination band with just a few easy steps for a foolproof, high-precision installation.

Features & Benefits

- One tool for all adapter sizes
- Ergonomic & lightweight: 1.18 lbs (0.5 kg)
- Tension range: 100 to 180 lbs (45.3 to 81.6 kg)

Banding Tool

Part Number	Kit Includes The Following Items
TB058	Banding tool for TB250 shield termination bands

Note: Please consult an authorized distributor for full range of pneumatic banding tools for high-volume production environments.

TB250 Shield Termination Band

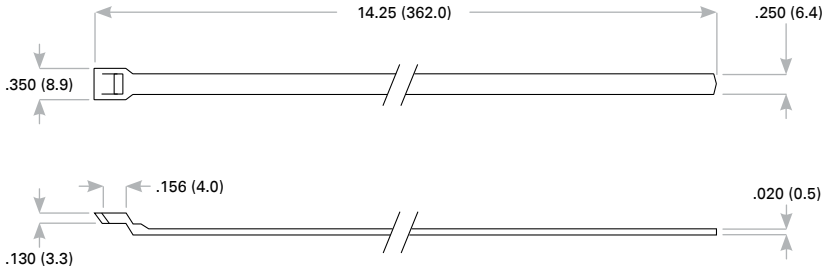
The TB250 band will professionally attach shielding to Milnec EMI/RFI banding boot adapters of all sizes. The TB250 band can be quickly and reliably installed with the specially designed TB058 banding tool. Bands come pre-coiled for faster installation.

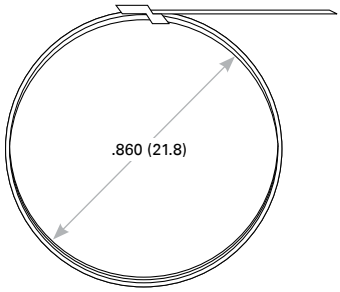
Features & Benefits

- Double-wrapped bands will accommodate diameters up to approximately 0.88 inches (22.4 mm)
- 300 series stainless steel single-piece construction

Shield Termiantion Band

Part Number	Kit Includes The Following Items
TB250	Single stainless steel shield termination band



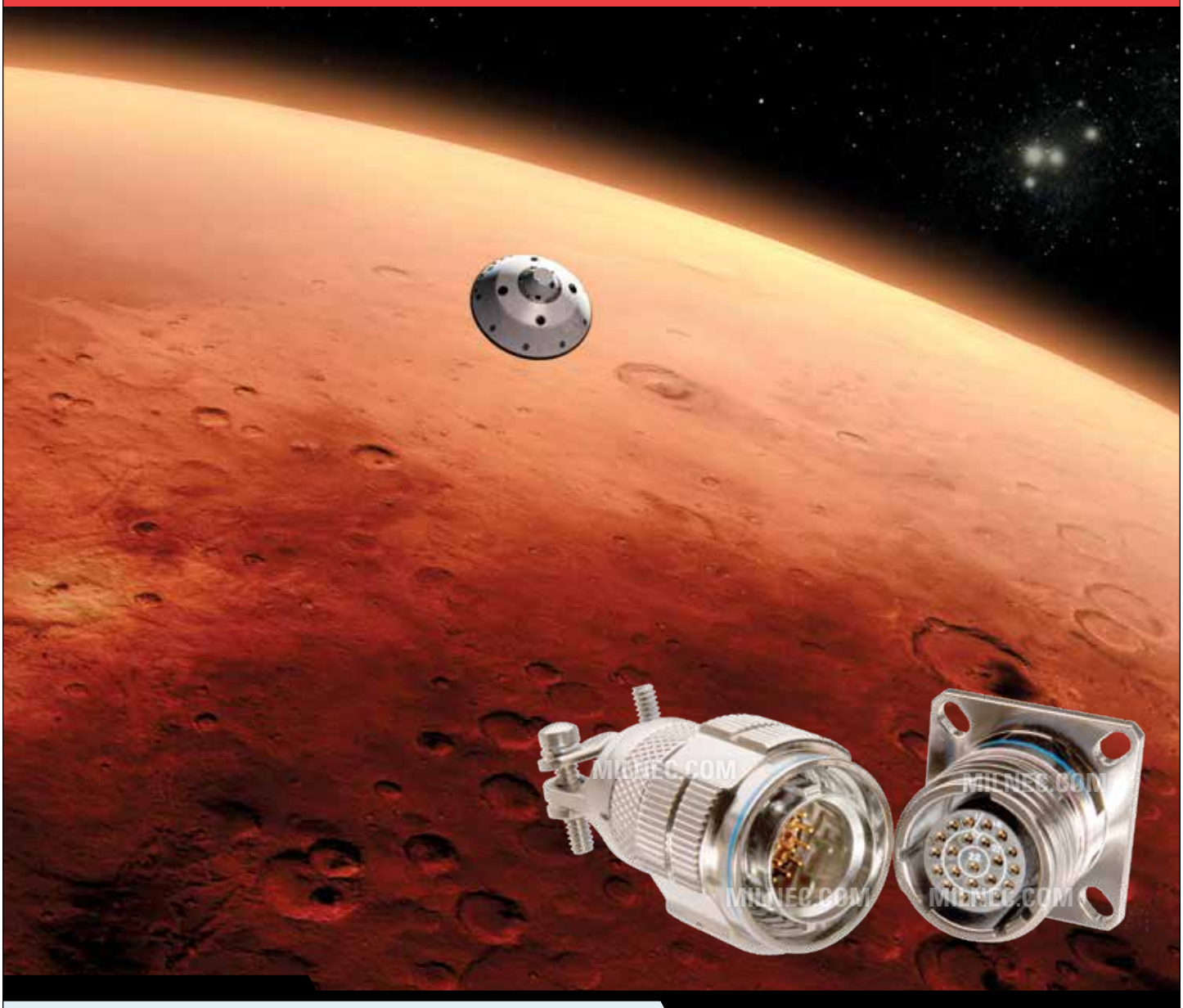


Pre-coiled Band

Dimensions are in inches (mm).

Rev. 2208

SPACE-GRADE CONNECTORS FOR THE FINAL FRONTIER



Don't Lose Touch With Mission Control

Rely on Milnec space-grade connectors for all your high-altitude and space applications. Our space-grade connectors meet all NASA specifications for outgassing and feature triple-start and impact resistant stub threads with self-locking ratchet coupling to ensure secure mating, even in high-vibration environments.

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Project: _____ **Date:** _____

Application: _____ **Engineer:** _____

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Revision: 01/13

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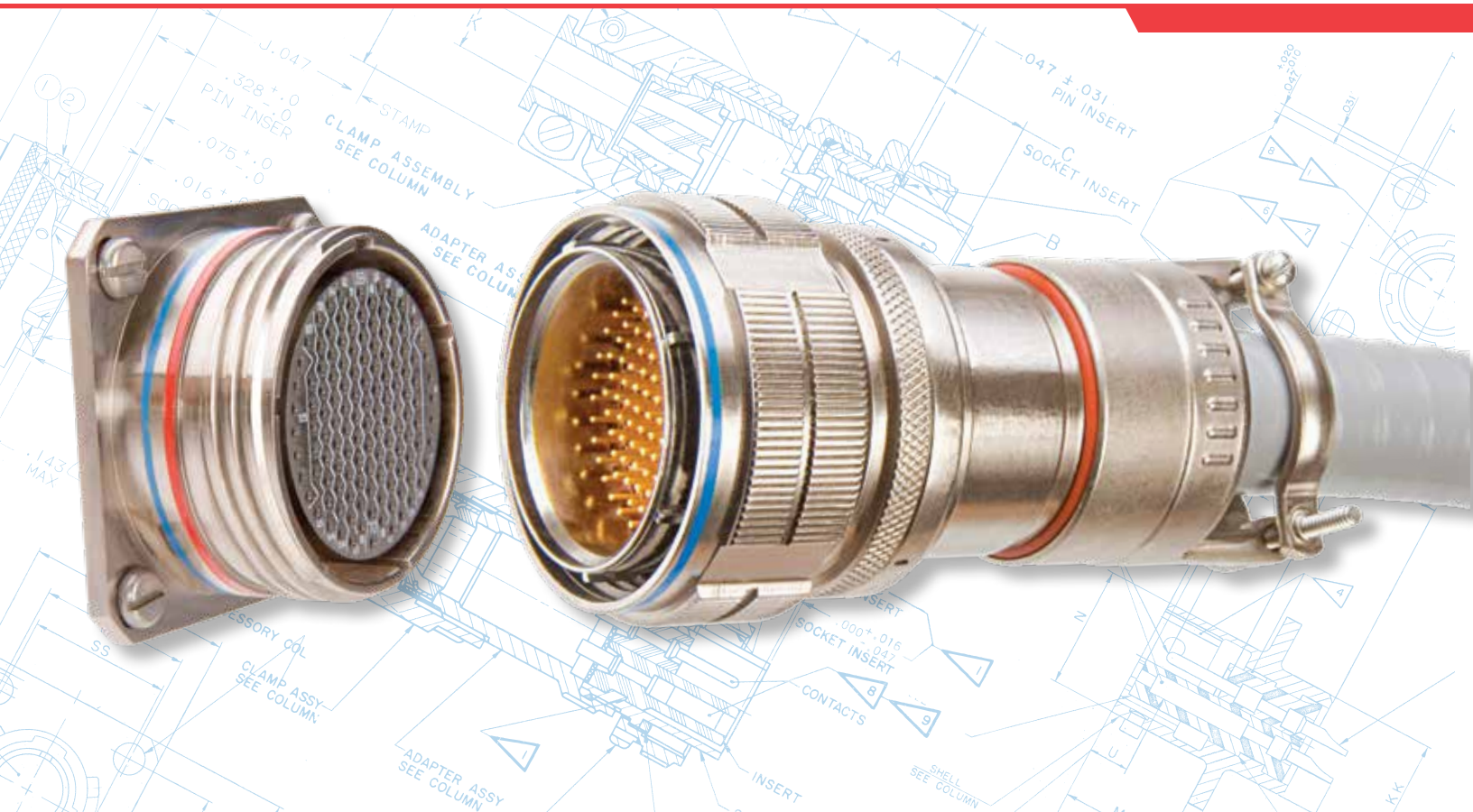
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