



## The THDM<sup>®</sup> is a MIL-PRF-28876 derived mechanical transfer (MT) rugged fiber optic connector for military and aerospace applications.

THDM<sup>®</sup> is modular, allowing multiple combinations of fiber types to be used in the same connector. The THDM<sup>®</sup> connectors are available in 1, 2, 4 and 8 MT configurations, which can support 12 to 192 fiber channels using industry standard MT ferrules. The connector features M28876 strain relief options.

The THDM<sup>®</sup> connectors also feature a ratcheting coupling nut, as well as insert to insert bottoming to provide superior optical performance in high shock and high vibration applications. The connectors are sealed to IP68 standards to resist fluids and dust penetration. A variety of protective finishes are available to ensure durability over a wide range of environmental conditions. As with most AFSI products, they are available in stainless steel, brass or marine bronze.

## Performance:

| Parameter                           | Typical                                                             |
|-------------------------------------|---------------------------------------------------------------------|
| Attenuation (Insertion Loss)        | 0.75dB max per connection (1.5 total), TIA/EIA-455-171              |
| Return Loss                         | -65dB Max RL HD-Optyx™ APC, TIA/EIA-455-107                         |
| Mating Durability                   | 500 Cycles, TIA/EIA-455-21                                          |
| Vibration                           | Test Conditions II and VI, TIA/EIA-455-11                           |
| Mechanical Shock                    | Test Condition A, TIA/EIA-455-14                                    |
| Thermal Shock                       | -55 C to +85 C, MIL-STD-1344A                                       |
| Thermal Cycling                     | -40 C to 85 C, TIA/EIA-455-A                                        |
| Ozone Exposure                      | Per MIL-STD-1344, Method 1007                                       |
| Humidity                            | 10 cycles, TIA/EIA-455-5                                            |
| Fluid Immersion                     | TIA/EIA-455-11                                                      |
| Cable Retention                     | 400 pounds, TIA/EIA-455-6                                           |
| Impact                              | TIA/EIA-455-2                                                       |
| Crush Resistance                    | MIL-STD-1344, Method 2008.1, 7 tests @ 1250 Newton                  |
| Cable Sealing Flexing               | MIL-STD-1344, Method 2017                                           |
| Corrosion Resistance                | 500 hour TIA/EIA-455-14 (CAD)                                       |
| Connector, Backshells, & Dust Cover | Aluminum alloy, cad plate, 316 stainless steel, 303 stainless steel |
| Cable Sealing Strain Relief         | Polyolefin, self-encapsulating                                      |

## Features & Benefits:

- Fluted Ratcheting coupling nut for improved grip and enhanced performance in vibration environments
- Configurations for 1, 2, 4 and 8 MT ferrules for up to 192 fiber channels
- Removable and replaceable MT ferrules
- Expanded beam capable
- Environmental
  - Operating temperature -46°C to + 71°C
  - 500 cycles mating durability
  - Vibration per MIL-STD-1344, method 200
- Available in a variety of materials and finishes
  - *Contact for more specific details*
- Performance:
  - IL: 0.75dB max per connection per TIA/EIA-455-171

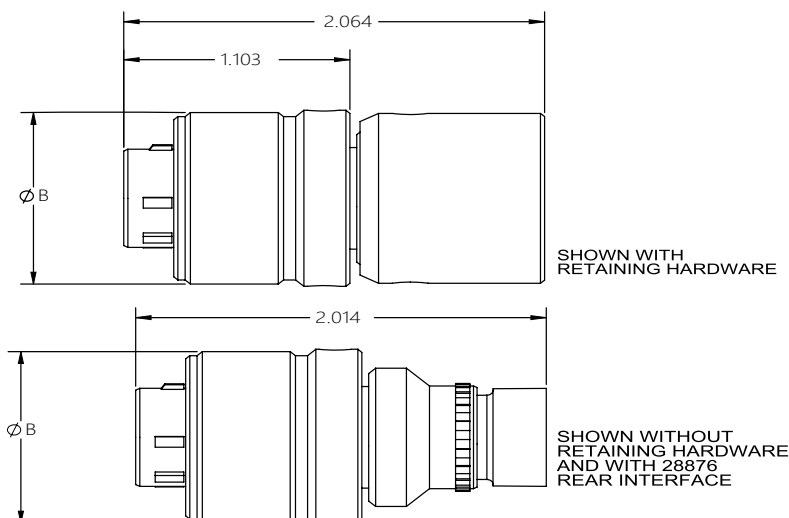
## Applications:

- Military radars
- Ground vehicles
- C4ISR
- SATCOM Systems
- Industrial
- Oil & Gas

## THDM<sup>®</sup> Series MT Connector System

### Product Drawings

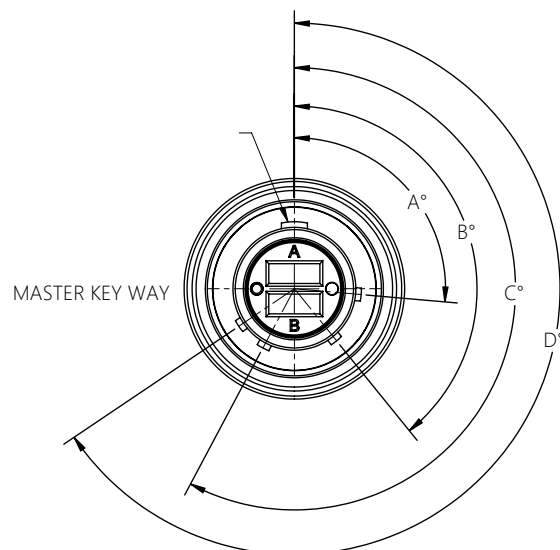
### THDM<sup>®</sup> Plug:



### Part Number Schemes:

#### THDMP - Plug

| PART NO.          | DESCRIPTION                                              |
|-------------------|----------------------------------------------------------|
| THDMP - #####     |                                                          |
| ↑                 | DASH NUMBER COLUMN 1 = SHELL SIZE                        |
| THDMP - A #####   | A = SHELL SIZE 11                                        |
| THDMP - B #####   | B = SHELL SIZE 13                                        |
| THDMP - C #####   | C = SHELL SIZE 15                                        |
| THDMP - F #####   | F = SHELL SIZE 23                                        |
| ↑                 | DASH NUMBER COLUMN 2 = INSERT CONFIGURATION              |
| THDMP - # 1 ##### | 1 = 1 BLADE (SHELL SIZE 11)                              |
| THDMP - # 2 ##### | 2 = 2 BLADES (SHELL SIZE 13)                             |
| THDMP - # 4 ##### | 4 = 4 BLADES (SHELL SIZE 15)                             |
| THDMP - # 8 ##### | 8 = 8 BLADES (SHELL SIZE 23)                             |
| ↑                 | DASH NUMBER COLUMN 3 = MATERIAL / PLATING                |
| THDMP - ## C ##   | C = CAD PLATED ALUMINUM                                  |
| THDMP - ## S ##   | S = 303 STAINLESS STEEL, PASSIVATED                      |
| THDMP - ## N ##   | N = NICKEL PLATED ALUMINUM                               |
| THDMP - ## T ##   | T = 6061-T6 AL ALLY BLACK ANODIZE WITH PTFE              |
| THDMP - ## D ##   | D = PTFE NICKEL PLATED ALUMINUM                          |
| THDMP - ## E ##   | E = BLACK ZINC NICKEL PLATED ALUMINUM                    |
| ↑                 | DASH NUMBER COLUMN 4 = KEY                               |
| THDMP - ### 1 #   | 1 = KEY OPTION 1                                         |
| THDMP - ### 2 #   | 1 = KEY OPTION 2                                         |
| THDMP - ### 3 #   | 1 = KEY OPTION 3                                         |
| THDMP - ### 4 #   | 1 = KEY OPTION 4                                         |
| THDMP - ### 5 #   | 1 = KEY OPTION 5                                         |
| THDMP - ### 6 #   | 1 = KEY OPTION 6                                         |
| THDMP - ### U #   | 1 = UNIVERSAL KEY OPTION                                 |
| ↑                 | DASH NUMBER COLUMN 5 = REAR CONNECTION / HARDWARE OPTION |
| THDMP - ### 6     | 6 = 28876 HARDWARE                                       |
| THDMP - ### 2     | 2 = 28876 WITHOUT HARDWARE                               |

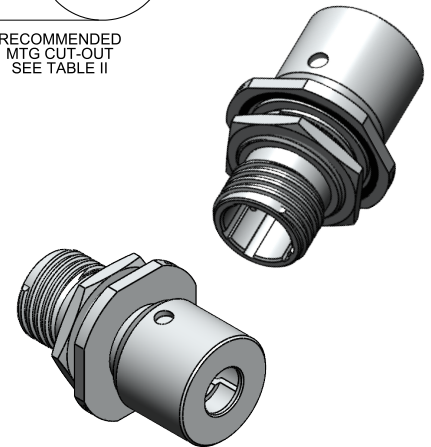
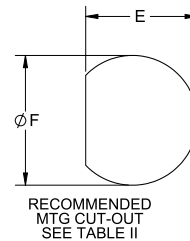
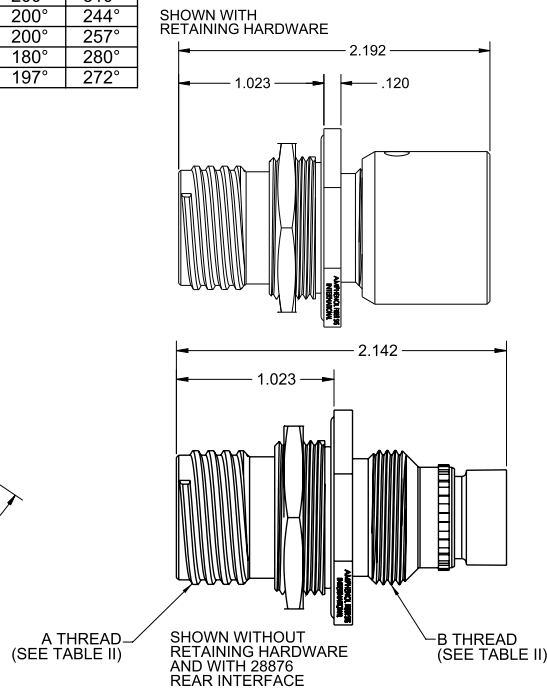
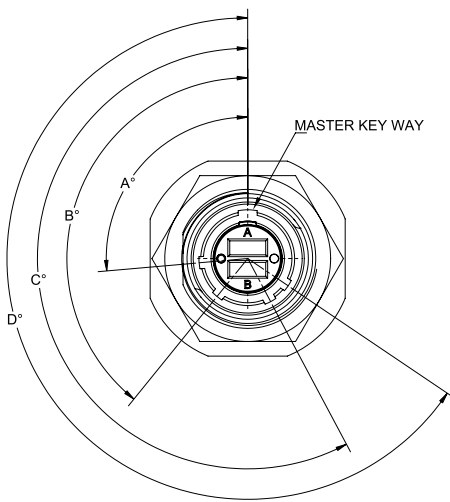


## Product Drawings

## THDM<sup>®</sup> Jam Nut Receptacle:

| SHELL SIZE | KEYING POSITION DESIGNATOR | A°   | B°   | C°   | D°   |
|------------|----------------------------|------|------|------|------|
| 11 AND 13  | 1                          | 95°  | 141° | 208° | 236° |
|            | 2                          | 113° | 156° | 182° | 292° |
|            | 3                          | 90°  | 145° | 195° | 252° |
|            | 4                          | 53°  | 156° | 220° | 255° |
|            | 5                          | 119° | 146° | 176° | 298° |
|            | 6                          | 51°  | 141° | 184° | 242° |
| 15 AND 23  | 1                          | 80°  | 142° | 196° | 293° |
|            | 2                          | 135° | 170° | 200° | 310° |
|            | 3                          | 49°  | 169° | 200° | 244° |
|            | 4                          | 66°  | 140° | 200° | 257° |
|            | 5                          | 62°  | 145° | 180° | 280° |
|            | 6                          | 79°  | 153° | 197° | 272° |

| SHELL SIZE | SHELL SIZE DESIGNATOR | E              | ØF             | A THREAD 2A-1P-2L-D-S | B THREAD      |
|------------|-----------------------|----------------|----------------|-----------------------|---------------|
| 11         | A                     | .853<br>.843   | .890<br>.880   | 0.750                 | .750-20UNEF   |
| 13         | B                     | .978<br>.968   | 1.015<br>1.005 | 0.875                 | .875-20UNEF   |
| 15         | C                     | 1.165<br>1.155 | 1.203<br>1.193 | 1.062                 | 1.000-20UNEF  |
| 23         | F                     | 1.598<br>1.588 | 1.635<br>1.625 | 1.500                 | 1.4375-18UNEF |



## Part Number Schemes:

### THDMJ - Jamnut Receptacle

| PART NO.          | DESCRIPTION                                 |
|-------------------|---------------------------------------------|
| THDMJ - #####     | DASH NUMBER COLUMN 1 = SHELL SIZE           |
| THDMJ - A #####   | A = SHELL SIZE 11                           |
| THDMJ - B #####   | B = SHELL SIZE 13                           |
| THDMJ - C #####   | C = SHELL SIZE 15                           |
| THDMJ - F #####   | F = SHELL SIZE 23                           |
| THDMJ - #####     | DASH NUMBER COLUMN 2 = INSERT CONFIGURATION |
| THDMJ - # 1 ##### | 1 = 1 BLADE (SHELL SIZE 11)                 |
| THDMJ - # 2 ##### | 2 = 2 BLADES (SHELL SIZE 13)                |
| THDMJ - # 4 ##### | 4 = 4 BLADES (SHELL SIZE 15)                |
| THDMJ - # 8 ##### | 8 = 8 BLADES (SHELL SIZE 23)                |
| THDMJ - #####     | DASH NUMBER COLUMN 3 = MATERIAL / PLATING   |
| THDMJ - ## C ###  | C = CAD PLATED ALUMINUM                     |
| THDMJ - ## S ###  | S = 303 STAINLESS STEEL, PASSIVATED         |
| THDMJ - ## N ###  | N = NICKEL PLATED ALUMINUM                  |
| THDMJ - ## T ###  | T = 6061-T6 AL ALLY BLACK ANODIZE WITH PTFE |
| THDMJ - ## D ###  | D = PTFE NICKEL PLATED ALUMINUM             |
| THDMJ - ## E ###  | E = BLACK ZINC NICKEL PLATED ALUMINUM       |

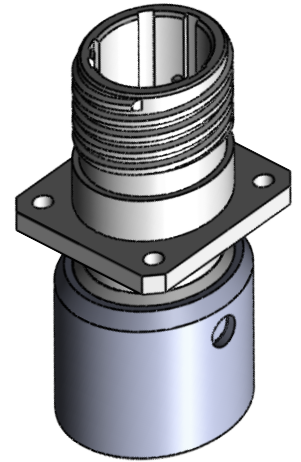
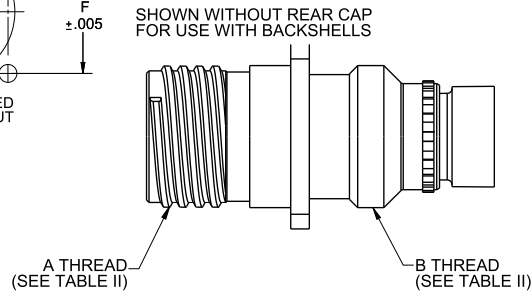
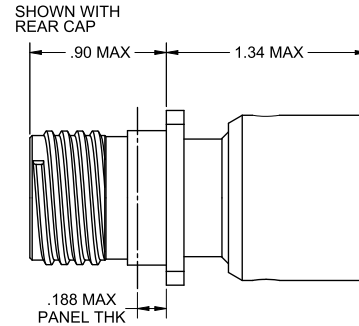
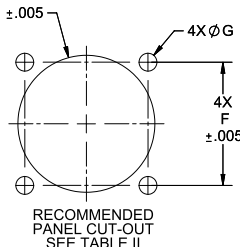
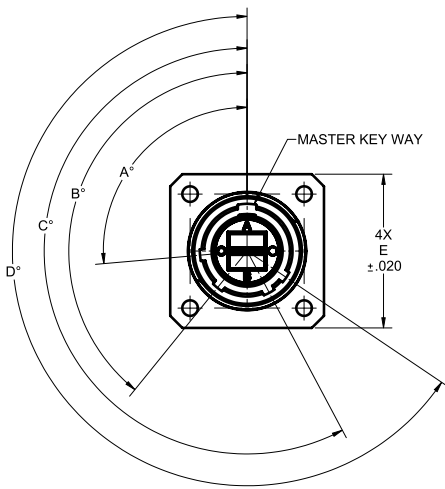
| PART NO.         | DESCRIPTION                                              |
|------------------|----------------------------------------------------------|
| THDMJ - #####    | DASH NUMBER COLUMN 4 = KEY                               |
| THDMJ - ### 1 ## | 1 = KEY OPTION 1                                         |
| THDMJ - ### 2 ## | 2 = KEY OPTION 2                                         |
| THDMJ - ### 3 ## | 3 = KEY OPTION 3                                         |
| THDMJ - ### 4 ## | 4 = KEY OPTION 4                                         |
| THDMJ - ### 5 ## | 5 = KEY OPTION 5                                         |
| THDMJ - ### 6 ## | 6 = KEY OPTION 6                                         |
| THDMJ - ### U ## | U = UNIVERSAL KEY OPTION                                 |
| THDMJ - #####    | DASH NUMBER COLUMN 5 = REAR CONNECTION / HARDWARE OPTION |
| THDMJ - #### 6 # | 6 = 28876 HARDWARE                                       |
| THDMJ - #### 2 # | 2 = 28876 WITHOUT HARDWARE                               |
| THDMJ - #### 9 # | 9 = 38876 REAR ADAPTER                                   |
| THDMJ - #####    | DASH NUMBER COLUMN 6 = SEAL MATERIAL (O-RING)            |
| THDMJ - #####    | BLANK = NON-CONDUCTIVE PANEL SEAL                        |
| THDMJ - ##### A  | A = CONDUCTIVE PANEL SEAL                                |

## Product Drawings

## THDM<sup>®</sup> Flange Mount Receptacle:

| SHELL SIZE | KEYING POSITION DESIGNATOR | A°   | B°   | C°   | D°   |
|------------|----------------------------|------|------|------|------|
| 11 AND 13  | 1                          | 95°  | 141° | 208° | 236° |
|            | 2                          | 113° | 156° | 182° | 292° |
|            | 3                          | 90°  | 145° | 195° | 252° |
|            | 4                          | 53°  | 156° | 220° | 255° |
|            | 5                          | 119° | 146° | 176° | 298° |
|            | 6                          | 51°  | 141° | 184° | 242° |
| 15 AND 23  | 1                          | 80°  | 142° | 196° | 293° |
|            | 2                          | 135° | 170° | 200° | 310° |
|            | 3                          | 49°  | 169° | 200° | 244° |
|            | 4                          | 66°  | 140° | 200° | 257° |
|            | 5                          | 62°  | 145° | 180° | 280° |
|            | 6                          | 79°  | 153° | 197° | 272° |

| SHELL SIZE | SHELL SIZE DESIGNATOR | E     | F     | (ØG)  | (ØJ)  | A THREAD          | B THREAD         |
|------------|-----------------------|-------|-------|-------|-------|-------------------|------------------|
| 11         | A                     | 1.023 | .750  | 0.125 | .812  | .750-1P-2L-DS-2A  | .750-20UNEF-2A   |
| 13         | B                     | 1.138 | .843  |       | .937  | .875-1P-2L-DS-2A  | .875-20UNEF-2A   |
| 15         | C                     | 1.258 | .968  |       | 1.124 | 1.062-1P-2L-DS-2A | 1.000-20UNEF-2A  |
| 23         | F                     | 1.718 | 1.281 |       | 1.562 | 1.500-1P-2L-DS-2A | 1.4375-18UNEF-2A |



## Part Number Schemes:

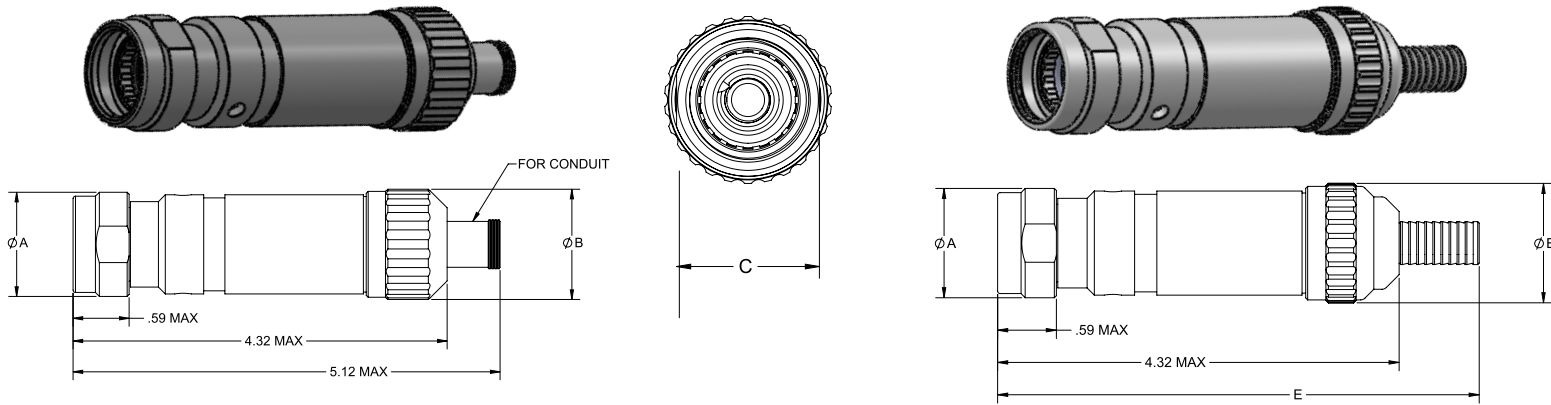
### THDMC - Flange Mount Receptacle

| PART NO.        | DESCRIPTION                                 |
|-----------------|---------------------------------------------|
| THDMC - #####   | DASH NUMBER COLUMN 1 = SHELL SIZE           |
| THDMC - A ##### | A = SHELL SIZE 11                           |
| THDMC - B ##### | B = SHELL SIZE 13                           |
| THDMC - C ##### | C = SHELL SIZE 15                           |
| THDMC - F ##### | F = SHELL SIZE 23                           |
| THDMC - #####   | DASH NUMBER COLUMN 2 = INSERT CONFIGURATION |
| THDMC - # 1 ### | 1 = 1 BLADE (SHELL SIZE 11)                 |
| THDMC - # 2 ### | 2 = 2 BLADES (SHELL SIZE 13)                |
| THDMC - # 4 ### | 4 = 4 BLADES (SHELL SIZE 15)                |
| THDMC - # 8 ### | 8 = 8 BLADES (SHELL SIZE 23)                |
| THDMC - #####   | DASH NUMBER COLUMN 3 = MATERIAL / PLATING   |
| THDMC - ## C ## | C = CAD PLATED ALUMINUM                     |
| THDMC - ## S ## | S = 303 STAINLESS STEEL, PASSIVATED         |
| THDMC - ## N ## | N = NICKEL PLATED ALUMINUM                  |
| THDMC - ## T ## | T = 6061-T6 AL ALLY BLACK ANODIZE WITH PTFE |
| THDMC - ## D ## | D = PTFE NICKEL PLATED ALUMINUM             |
| THDMC - ## E ## | E = BLACK ZINC NICKEL PLATED ALUMINUM       |

| PART NO.        | DESCRIPTION                                              |
|-----------------|----------------------------------------------------------|
| THDMC - #####   | DASH NUMBER COLUMN 4 = KEY                               |
| THDMC - ### 1 # | 1 = KEY OPTION 1                                         |
| THDMC - ### 2 # | 1 = KEY OPTION 2                                         |
| THDMC - ### 3 # | 1 = KEY OPTION 3                                         |
| THDMC - ### 4 # | 1 = KEY OPTION 4                                         |
| THDMC - ### 5 # | 1 = KEY OPTION 5                                         |
| THDMC - ### 6 # | 1 = KEY OPTION 6                                         |
| THDMC - ### U # | 1 = UNIVERSAL KEY OPTION                                 |
| THDMC - #####   | DASH NUMBER COLUMN 5 = REAR CONNECTION / HARDWARE OPTION |
| THDMC - ### 6   | 6 = 28876 HARDWARE                                       |
| THDMC - ### 2   | 2 = 28876 WITHOUT HARDWARE                               |

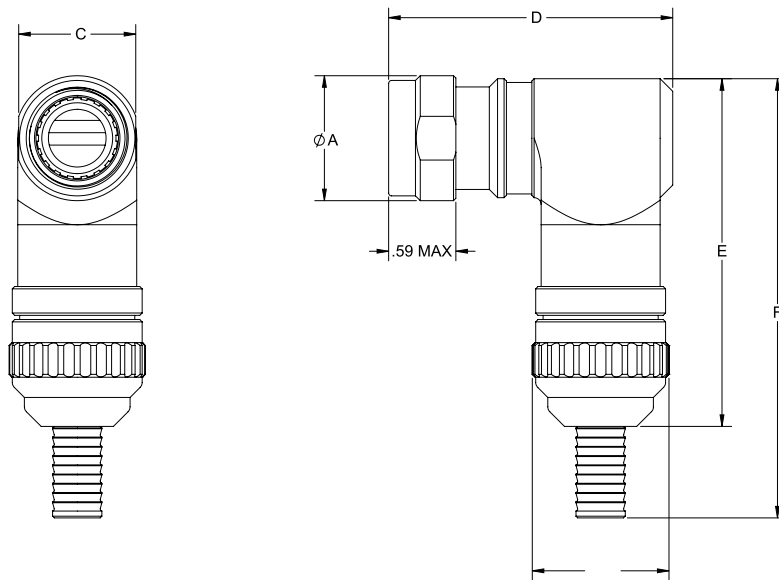
## Product Drawings: Backshells

### Straight Backshell Options:



| TABLE II - STRAIGHT BODY STYLE |        |        |       |       |
|--------------------------------|--------|--------|-------|-------|
| SHELL SIZE                     | ØA MAX | ØB MAX | C MAX | E MAX |
| 13                             | 1.71   | 1.17   | 1.02  | 4.82  |
| 15                             | 1.71   | 1.50   | 1.18  | 5.12  |
| 23                             | 1.71   | 1.75   | 1.61  | 6.07  |

### 90° Backshell Options:

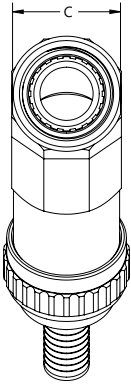


90° BACKSHELL

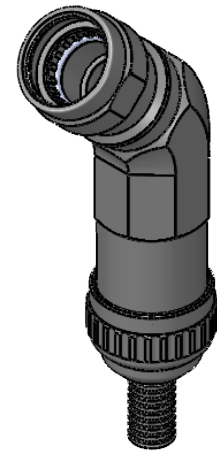
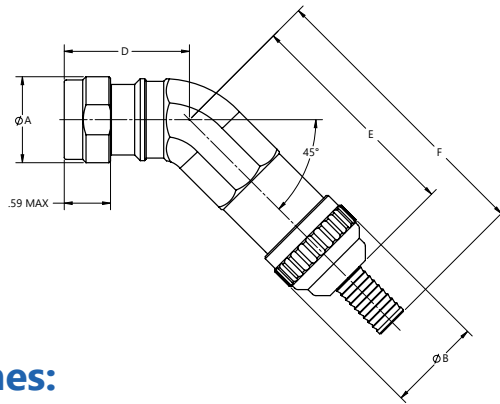
| TABLE III- 90° BODY STYLE |        |        |       |       |       |       |
|---------------------------|--------|--------|-------|-------|-------|-------|
| SHELL SIZE                | ØA MAX | ØB MAX | C MAX | D MAX | E MAX | F MAX |
| 13                        | 1.09   | 1.17   | 1.02  | 2.50  | 3.02  | 3.82  |
| 15                        | 1.25   | 1.50   | 1.18  | 3.25  | 3.55  | 4.35  |
| 23                        | 1.71   | 2.07   | 1.61  | 3.45  | 4.15  | 5.44  |

## Product Drawings: Backshells

### 45° Backshell Options:



| TABLE III- 45° BODY STYLE |        |        |       |       |       |       |
|---------------------------|--------|--------|-------|-------|-------|-------|
| SHELL SIZE                | ØA MAX | ØB MAX | C MAX | D MAX | E MAX | F MAX |
| 13                        | 1.09   | 1.17   | 1.02  | 1.61  | 2.83  | 3.65  |
| 15                        | 1.25   | 1.50   | 1.18  | 2.06  | 2.70  | 3.50  |
| 23                        | 1.71   | 2.07   | 1.61  | 2.41  | 3.16  | 4.50  |



45° BACKSHELL

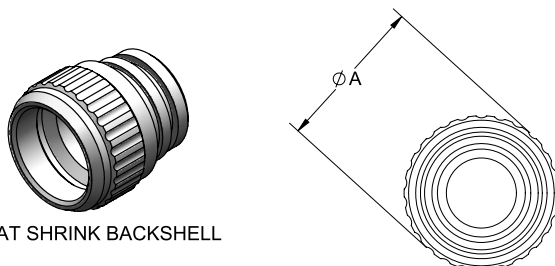
## Part Number Schemes:

### THDMBS - Backshell

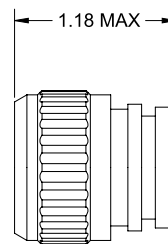
| PART NO.         | DESCRIPTION                                 |
|------------------|---------------------------------------------|
| THDMBS - #####   | DASH NUMBER COLUMN 1 = SHELL SIZE           |
| THDMBS - A ##### | A = SHELL SIZE 11                           |
| THDMBS - B ##### | B = SHELL SIZE 13                           |
| THDMBS - C ##### | C = SHELL SIZE 15                           |
| THDMBS - F ##### | F = SHELL SIZE 23                           |
| THDMBS - #####   | DASH NUMBER COLUMN 2 = MATERIAL / PLATING   |
| THDMBS - # C ### | C = CAD PLATED ALUMINUM                     |
| THDMBS - # S ### | S = 303 STAINLESS STEEL, PASSIVATED         |
| THDMBS - # N ### | N = NICKEL PLATED ALUMINUM                  |
| THDMBS - # T ### | T = 6061-T6 AL ALLY BLACK ANODIZE WITH PTFE |
| THDMBS - # D ### | D = PTFE NICKEL PLATED ALUMINUM             |
| THDMBS - # E ### | E = BLACK ZINC NICKEL PLATED ALUMINUM       |
| THDMBS - #####   | DASH NUMBER COLUMN 3 = BACKSHELL TYPE       |
| THDMBS - # S #   | S = STRAIGHT BACKSHELL                      |
| THDMBS - # N #   | N = 90° BACKSHELL                           |
| THDMBS - # F #   | F = 45° BACKSHELL                           |
| THDMBS - # H #   | H = HEAT SHRINK BACKSHELL                   |
| THDMBS - # K #   | K = STRIAIGHT BACKSHELL FOR CONDUIT         |

| PART NO.        | DESCRIPTION                                                           |
|-----------------|-----------------------------------------------------------------------|
| THDMBS - #####  | DASH NUMBER COLUMN 4 = CABLE SIZE OPTION                              |
| THDMBS - ### H1 | H1 = HEAT SHRINK                                                      |
| THDMBS - ### G1 | G1 = CABLE SIZE .460 GLAND SPECIAL FOR CABLE LWSE-144-9-C-144-1-00N1D |
| THDMBS - ### B1 | B1 = CABLE SIZE .280/ .315 (SHELL 13 ONLY)                            |
| THDMBS - ### B2 | B2 = CABLE SIZE .305/ .346 (SHELL 13 ONLY)                            |
| THDMBS - ### B3 | B3 = CABLE SIZE .385/ .402 CRIMP (SHELL 13 ONLY FOR CONDUIT)          |
| THDMBS - ### B4 | B4 = CABLE SIZE .351 SPECIAL (SHELL 13 ONLY FOR CONDUIT LLPA-10A.50)  |
| THDMBS - ### B5 | B5 = CABLE SIZE .3125 (SHELL 13 ONLY FOR CONDUIT)                     |
| THDMBS - ### B6 | B6 = CABLE SIZE .439/ .456 (SHELL 13 ONLY)                            |
| THDMBS - ### B7 | B7 = CABLE SIZE .481/ .501 (SHELL 13 ONLY)                            |
| THDMBS - ### C1 | C1 = CABLE SIZE .250/ .304 (SHELL 15 ONLY)                            |
| THDMBS - ### C1 | C2 = CABLE SIZE .305/ .346 (SHELL 15 ONLY)                            |
| THDMBS - ### C3 | C3 = CABLE SIZE .347/ .304 (SHELL 15 ONLY)                            |
| THDMBS - ### C4 | C4 = CABLE SIZE .380/ .423 (SHELL 15 ONLY)                            |
| THDMBS - ### C5 | C5 = CABLE SIZE .424/ .465 (SHELL 15 ONLY)                            |
| THDMBS - ### C6 | C6 = CABLE SIZE .466/ .515 (SHELL 15 ONLY)                            |
| THDMBS - ### C7 | C7 = CABLE SIZE .450 SPECIAL (SHELL 15 ONLY)                          |
| THDMBS - ### C8 | C8 = CABLE SIZE .500 CRIMP SPECIAL (SHELL 15 ONLY)                    |
| THDMBS - ### F1 | F1 = CABLE SIZE .347/ .379 (SHELL 23 ONLY)                            |
| THDMBS - ### F2 | F2 = CABLE SIZE .540/ .600 (SHELL 23 ONLY)                            |
| THDMBS - ### F3 | F3 = CABLE SIZE .550/ .660 (SHELL 23 ONLY)                            |
| THDMBS - ### F4 | F4 = CABLE SIZE .660/ .768 (SHELL 23 ONLY)                            |
| THDMBS - ### F5 | F5 = CABLE SIZE .768/ .866 (SHELL 23 ONLY)                            |
| THDMBS - ### F6 | F6 = CABLE SIZE .900/ 1.000 (SHELL 23 ONLY)                           |

## Heat Shrink Backshell Options:



HEAT SHRINK BACKSHELL



| TABLE 5 - HEAT SHRINK BODY STYLE |        |
|----------------------------------|--------|
| SHELL SIZE                       | ØA MAX |
| 11                               | 1.03   |
| 13                               | 1.17   |
| 15                               | 1.50   |
| 23                               | 2.07   |

## MT Blade™ Assembly Technology:

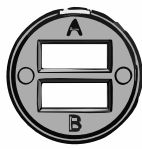
At the heart of the THDM<sup>®</sup> connectors are AFSI's MT THDM blades™.

The THDM<sup>®</sup> blade design allows for direct termination of aramid to support both round or flat ribbons without the need for an additional backshell. The blades make each MT ferrule easily removable from the connector, as with traditional fiber optic termini. This allows for re-pinning, thorough cleaning, and light re-polishing when necessary. Each blade carries an MT ferrule compliant with IEC Standard 61754-5 (fiber pitch 0.25mm) providing low optical insertion loss (typically 0.5dB) and excellent return loss when angle polished (typically >65dB).

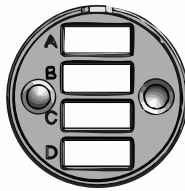
## MT Position Layout Options



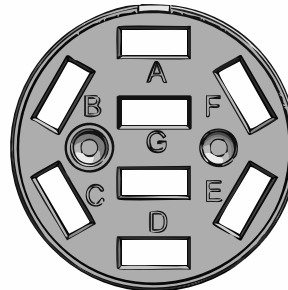
Shell 11



Shell 13



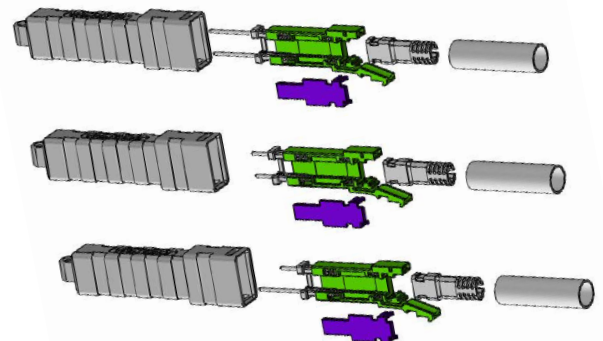
Shell 15



Shell 23

### MTXB -

- CHICKLET
  - N = NONE
  - C = YES - 12/24 FIBER
- CARRIER COLOR
  - BL = BLUE
  - OR = ORANGE
  - GR = GREEN
  - BR = BROWN
  - SL = SLATE
  - WH = WHITE
  - RD = RED
  - YL = YELLOW
  - VI = VIOLET
  - RO = ROSE
  - AQ = AQUA
- DUST COVER
  - 0 = NONE
  - 1 = YES
- LOCK
  - N = NONE
- GENDER
  - M = MALE
  - F = FEMALE
  - H = HERMAPHRODITIC
- PIN TOLERANCE
  - 1 = MM
  - 2 = MM ELITE / SM
  - 3 = MM ELITE



## How to Order:

For more information on how to order or to obtain a price quote on our THDM<sup>®</sup> products, call toll free (U.S. only) at 800.472.4225  
International calls please use 1.214.547.2400  
or e-mail [info@fibersystems.com](mailto:info@fibersystems.com).