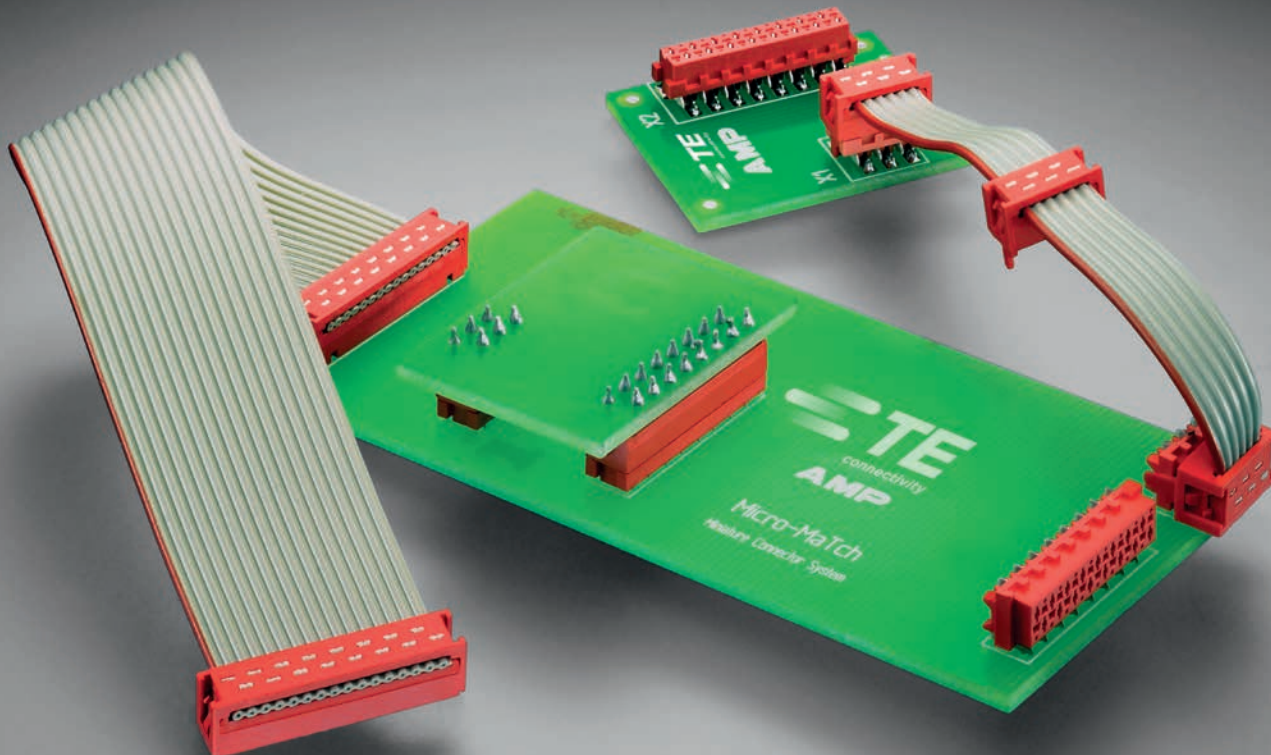




## Quick Reference Guide

### .050 CENTERLINE MICRO-MATCH CONNECTOR SERIES

The TE Connectivity (TE) Micro-MaTch connector family, with its contact spacing of 1.27 mm, offers a variety of wire-to-board and board-to-board interconnections. The Micro-MaTch contact helps prevent fretting corrosion, the traditional failure mode in tin-plated connections. Relative movements caused by vibrations/thermal expansion between male and female contacts are absorbed by an additional positioning spring in the female part. By preventing movements on the contact spot, a gas tight connection can make the Micro-MaTch contact spring system fretting corrosion resistant.

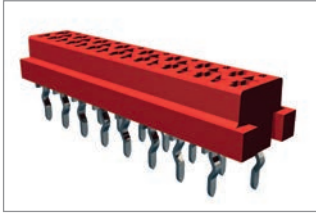
#### Features and Benefits

- Wire connectors supplied on-tape and suitable for mass termination of 28 AWG [0.08 mm2 to 0.09 mm2] ribbon cable
- Tin plated contact design
- Gas tight connections
- Fretting corrosion resistant
- Full range of application tooling from hand tool to fully automated equipment
- Wire to Board, and Board to Board Interconnection system

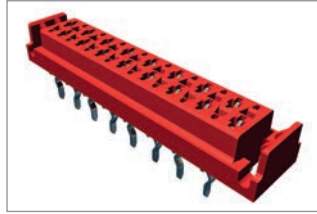
#### Product Applications

- Production & Material Handling equipment
- Control Units
- Robots & Motors
- Central Heating Units
- Car Radios
- Navigation Systems
- Dashboard Systems
- Base Stations
- Set Top Boxes
- Audio equipment

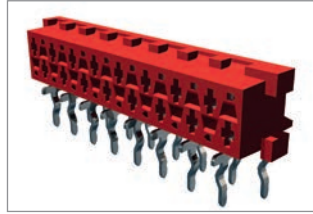
# MICRO-MATCH PRODUCT PORTFOLIO



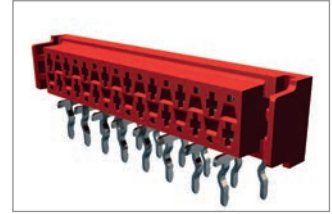
**215079**  
Female-on-Board Connector  
Top Entry



**338068**  
Female-on-Board Connector  
Top Entry with Latches



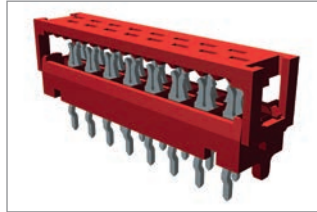
**215460**  
Female-on-Board Connector  
Side Entry



**338070**  
Female-on-Board Connector  
Side Entry with Latches



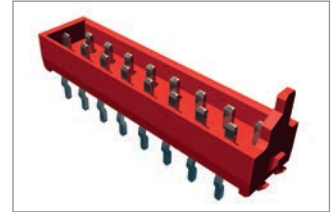
**338095 & 338096 or  
338097 (COSI)** Crimp on  
Snap in (COS) Connector



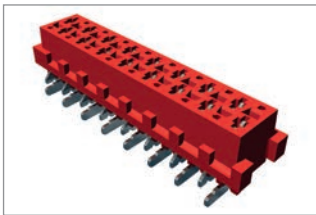
**215570**  
Paddle Board Connector



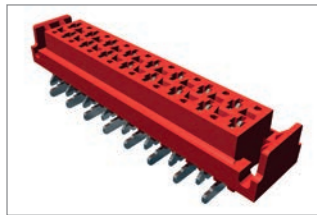
**215083**  
Male-on-Wire Connector



**215464**  
Male-on-Board Connector



**188275**  
Female-on-Board Connector  
Surface Mount Device (SMD)



**338069**  
Female-on-Board Connector  
Top Entry SMD with Latches



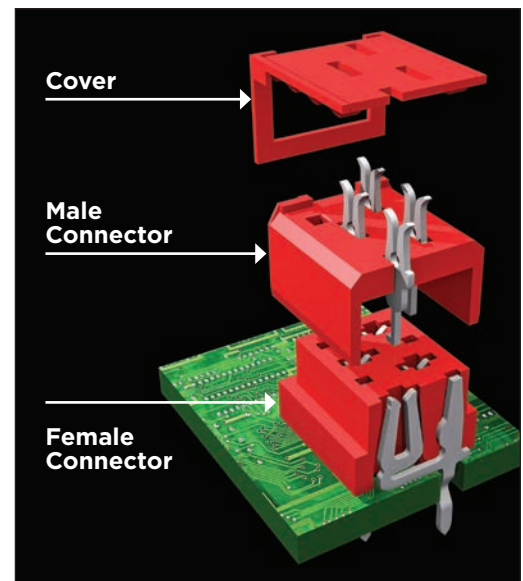
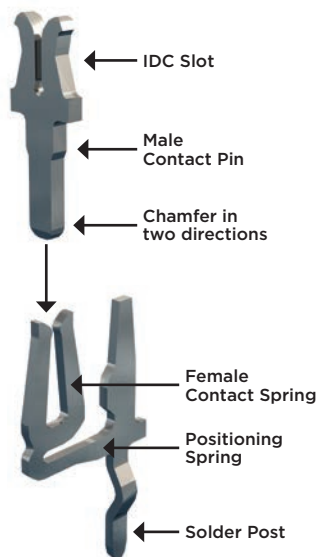
**188431**  
Female-in-Board SMD  
Connector



**338728**  
Male SMD Connector

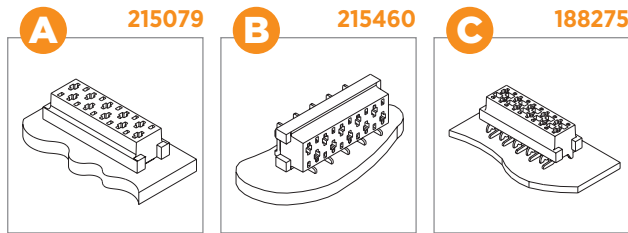
## HOW MICRO-MATCH CONNECTORS WORK

The Micro-MaTch connector design helps prevent fretting corrosion which is the traditional failure mode in tin plated connections. Due to an additional positioning spring in the female part, relative movements caused by vibrations and thermal expansion between male and female contacts are absorbed. By preventing movements on the contact spot, a gas tight connection is made. This contact spring system featuring the positioning spring, compensates positional tolerances and provides the high contact force required for tin plated contact systems. The Micro-MaTch contact spring system is fretting corrosion resistant.

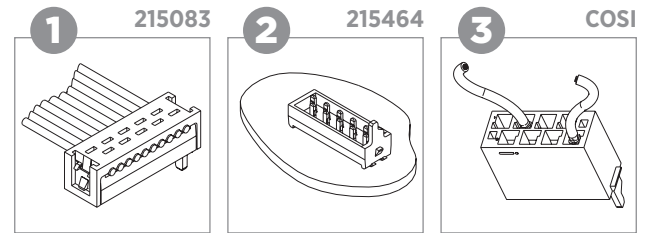


# FEMALE AND MALE CONNECTOR APPLICATIONS

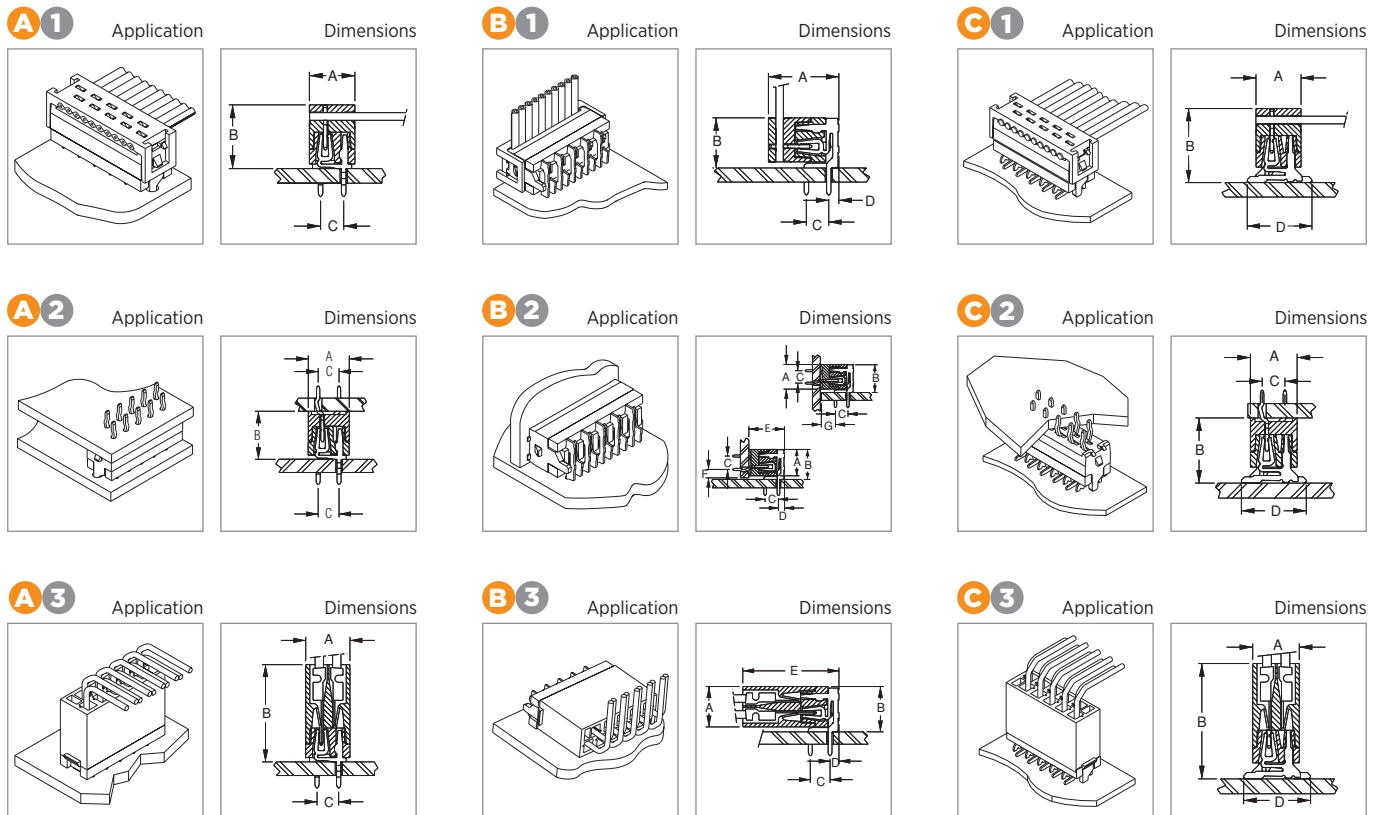
## Female Connectors



## Male Connectors



## Mated Female and Male Connectors (application and dimension drawings)



| Female and Male Connector Dimensions |                                                         |         |         |      |         |         |         |         |
|--------------------------------------|---------------------------------------------------------|---------|---------|------|---------|---------|---------|---------|
| Image                                | Description                                             | A (max) | B (max) | C    | D (max) | E (max) | F (max) | G (max) |
| A1                                   | Wire-to-Board through hole                              | 5.2     | 7.5     | 2.54 | -       | -       | -       | -       |
| A2                                   | Board-to-Board through hole                             | 5.2     | 6.2     | 2.54 | -       | -       | -       | -       |
| A3                                   | Wire-to-Board (discrete wire), through hole             | 5.2     | 9.7     | 2.54 | -       | -       | -       | -       |
| B1                                   | Wire-to-Board right angle, through hole                 | 8.4     | 5.9     | 2.54 | 1.5     | -       | -       | -       |
| B2                                   | Board-to-Board right angle, through hole                | 5.2     | 5.9     | 2.54 | 1.5     | 7.0     | 1.6     | -       |
| B2                                   | Board-to-Board right angle, through hole                | 5.2     | 5.9     | 2.54 | 1.5     | -       | -       | 2.8     |
| B3                                   | Wire-to-Board right angle (discrete wire), through hole | 5.2     | 5.9     | 2.54 | 1.5     | 10.6    | -       | -       |
| C1                                   | Wire-to-Board surface mount                             | 5.2     | 8.5     | -    | 7.1     | -       | -       | -       |
| C2                                   | Board-to-Board surface mount, through hole              | 5.2     | 7.1     | 2.54 | 7.1     | -       | -       | -       |
| C3                                   | Wire-to-Board (discrete wire), surface mount            | 5.2     | 10.7    | -    | 7.1     | -       | -       | -       |

| FEMALE-ON-BOARD CONNECTOR: TOP ENTRY                             |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
|------------------------------------------------------------------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Position Size                                                    |        | 4    |     | 6    |     | 8    |     | 10   |     | 12   |     | 14   |     | 16   |     | 18   |     | 20   |     |
| Base Number                                                      | 215079 | -4   | -74 | -6   | -76 | -8   | -78 | -10  | -80 | -12  | -82 | -14  | -84 | -16  | -86 | -18  | -88 | -20  | -90 |
|                                                                  | 338068 | -4   |     | -6   |     | -8   |     | -10  |     | -12  |     | -14  |     | -16  |     | -18  |     | -20  |     |
| Package Size                                                     |        | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box |
|                                                                  |        | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 |
| Mates With: 215083, 338095+338096, 338095+338097, 215464, 338728 |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |

| FEMALE-ON-BOARD CONNECTOR: SIDE ENTRY                            |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
|------------------------------------------------------------------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Position Size                                                    |        | 4    |     | 6    |     | 8    |     | 10   |     | 12   |     | 14   |     | 16   |     | 18   |     | 20   |     |
| Base Number                                                      | 215460 | -4   | -74 | -6   | -76 | -8   | -78 | -10  | -80 | -12  | -82 | -14  | -84 | -16  | -86 | -18  | -88 | -20  | -90 |
|                                                                  | 338070 | -4   |     | -6   |     | -8   |     | -10  |     | -12  |     | -14  |     | -16  |     | -18  |     | -20  |     |
| Package Size                                                     |        | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box |
|                                                                  |        | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 |
| Mates With: 215083, 338095+338096, 338095+338097, 215464, 338728 |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |

| FEMALE-ON-BOARD CONNECTOR: SURFACE MOUNT DEVICE (SMD)                                                             |        |             |          |             |          |             |          |             |          |             |          |             |          |             |          |             |          |             |          |             |          |
|-------------------------------------------------------------------------------------------------------------------|--------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| Position Size                                                                                                     |        | 4           |          | 6           |          | 8           |          | 10          |          | 12          |          | 14          |          | 16          |          | 18          |          | 20          |          | 24          |          |
| Base Number                                                                                                       | 188275 | -4          | -74      | -6          | -76      | -8          | -78      | -10         | -80      | -12         | -82      | -14         | -84      | -16         | -86      | -18         | -88      | -20         | -90      |             |          |
|                                                                                                                   | 338069 | -4          | -74      | -6          | -76      | -8          | -78      | -10         | -80      | -12         | -82      | -14         | -84      | -16         | -86      | -18         | -88      | -20         | -90      | -24         | -94      |
| Package Size                                                                                                      |        | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape | No vac tape | Vac tape |
|                                                                                                                   |        | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      | 900         | 900      |
| Note: Vac Tape = With vacuum pick and place tape Mates With: 215083, 338095+338096, 338095+338097, 215464, 338728 |        |             |          |             |          |             |          |             |          |             |          |             |          |             |          |             |          |             |          |             |          |

| MALE-ON-BOARD CONNECTOR                                                    |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
|----------------------------------------------------------------------------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Position Size                                                              |        | 4    |     | 6    |     | 8    |     | 10   |     | 12   |     | 14   |     | 16   |     | 18   |     | 20   |     |
| Base Number                                                                | 215464 | -4   | -74 | -6   | -76 | -8   | -78 | -10  | -80 | -12  | -82 | -14  | -84 | -16  | -86 | -18  | -88 | -20  | -90 |
|                                                                            |        | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box |
| Package Size                                                               |        | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 |
|                                                                            |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Mates With: 215079, 215460, 188275, 215079, 338068, 338069, 338070, 188431 |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |

| MALE-ON-WIRE CONNECTOR                                                                                                        |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
|-------------------------------------------------------------------------------------------------------------------------------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Position Size                                                                                                                 |        | 4    |     | 6    |     | 8    |     | 10   |     | 12   |     | 14   |     | 16   |     | 18   |     | 20   |     | 24   |     |
| Base Number                                                                                                                   | 215083 | -4   | -74 | -6   | -76 | -8   | -78 | -10  | -80 | -12  | -82 | -14  | -84 | -16  | -86 | -18  | -88 | -20  | -90 | -24  | -94 |
|                                                                                                                               |        | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box |
| Package Size                                                                                                                  |        | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 |
|                                                                                                                               |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Application Spec: 114-19016 Matching Cable: 167019 Mates With: 215079, 215460, 188275, 215079, 338068, 338069, 338070, 188431 |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |

| MALE PADDLE BOARD CONNECTOR                                                                                    |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
|----------------------------------------------------------------------------------------------------------------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Position Size                                                                                                  |        | 4    |     | 6    |     | 8    |     | 10   |     | 12   |     | 14   |     | 16   |     | 18   |     | 20   |     | 24   |     |
| Base Number                                                                                                    | 215570 | -4   | -74 | -6   | -76 | -8   | -78 | -10  | -80 | -12  | -82 | -14  | -84 | -16  | -86 | -18  | -88 | -20  | -90 | -24  | -94 |
|                                                                                                                |        | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box | Reel | Box |
| Package Size                                                                                                   |        | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 | 2500 | 250 |
|                                                                                                                |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Application Spec: 114-19016 Matching Cable: 167019 NO MATES - Direct Soldering of ribbon cable to the PC board |        |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |

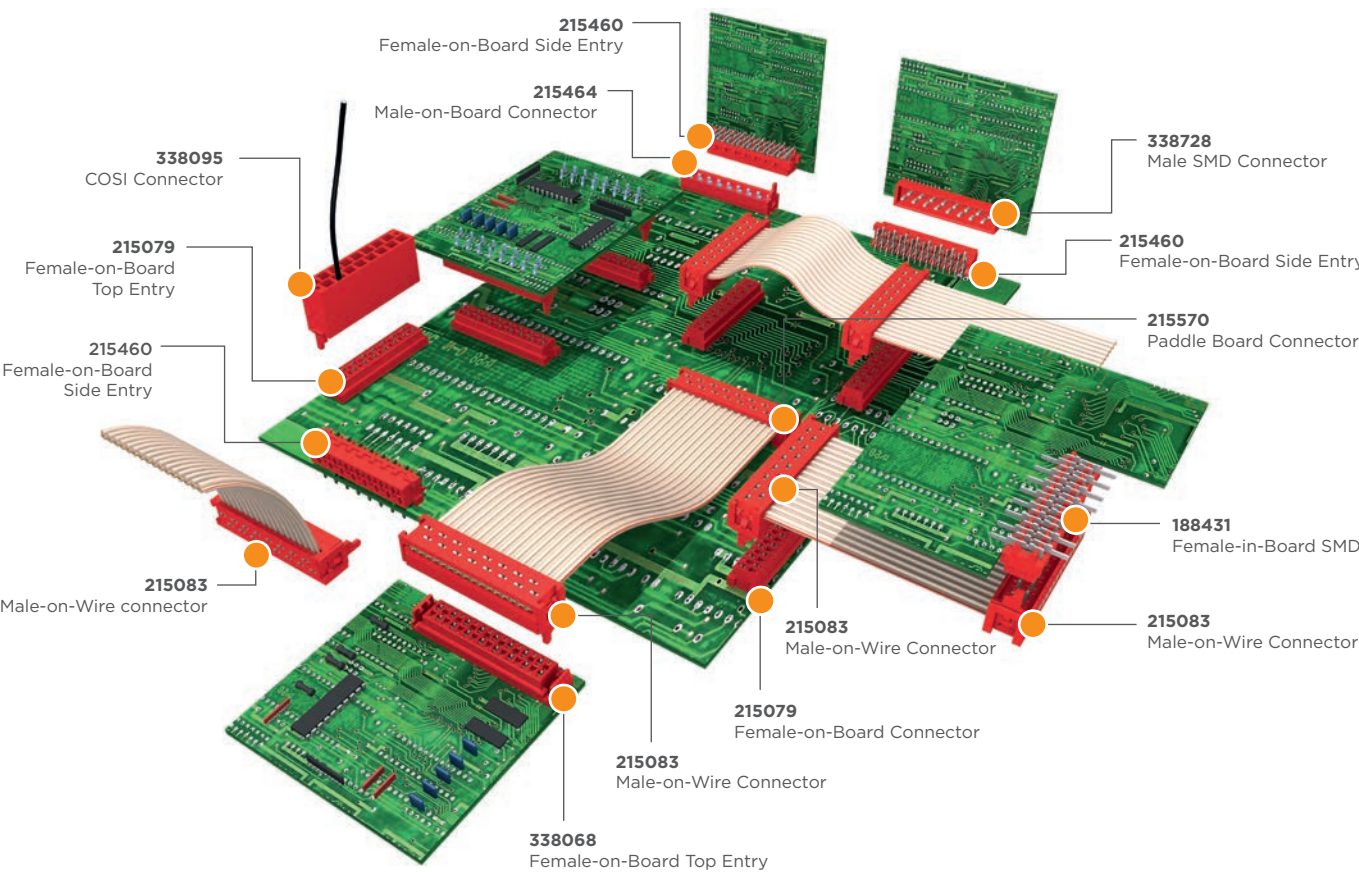
| CRIMP ON SNAP IN (COSI) CONNECTOR                                          |        |     |     |     |     |     |     |     |     |     |
|----------------------------------------------------------------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Position Size                                                              |        | 4   | 6   | 8   | 10  | 12  | 14  | 16  | 18  | 20  |
| Base Number                                                                | 338095 | -4  | -6  | -8  | -10 | -12 | -14 | -16 | -18 | -20 |
| Package Size                                                               |        | Box | Box | Box | Box | Box | Box | Box | Box | Box |
|                                                                            |        | 900 | 700 | 450 | 450 | 400 | 350 | 300 | 250 | 200 |
| Mates With: 215079, 215460, 188275, 215079, 338068, 338069, 338070, 188431 |        |     |     |     |     |     |     |     |     |     |

| CONTACTS    |           |           |            |          |
|-------------|-----------|-----------|------------|----------|
| Base Number | Wire Size | ID        | 15000/Reel | 750/Reel |
| 338096      | 28-24 AWG | 0.76-1.00 | -1         | -11      |
| 338097      | 24-20 AWG | 1.27-1.52 | -1         | -11      |
|             |           |           |            |          |
|             |           |           |            |          |

| FEMALE-IN-BOARD SMD CONNECTOR                                    |        |      |      |      |      |      |      |      |  |
|------------------------------------------------------------------|--------|------|------|------|------|------|------|------|--|
| Position Size                                                    |        | 4    | 6    | 8    | 10   | 14   | 16   | 20   |  |
| Base Number                                                      | 188431 | -74  | -76  | -78  | -80  | -84  | -86  | -90  |  |
| Package Size                                                     |        | Reel | Reel | Reel | Reel | Reel | Reel | Reel |  |
|                                                                  |        | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 |  |
| Mates With: 215083, 338095+338096, 338095+338097, 215464, 338728 |        |      |      |      |      |      |      |      |  |

| MALE SMD CONNECTOR                                                         |        |          |           |          |           |          |           |          |           |          |           |          |           |          |           |          |           |          |           |  |
|----------------------------------------------------------------------------|--------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|--|
| Position Size                                                              |        | 4        |           | 6        |           | 8        |           | 10       |           | 12       |           | 14       |           | 16       |           | 18       |           | 20       |           |  |
| Base Number                                                                | 338728 | -4       | -74       | -6       | -76       | -8       | -78       | -10      | -80       | -12      | -82       | -14      | -84       | -16      | -86       | -18      | -88       | -20      | -90       |  |
| Package Size                                                               |        | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover | No cover | Vac cover |  |
|                                                                            |        | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      | 1500     | 1500      |  |
| Mates With: 215079, 215460, 188275, 215079, 338068, 338069, 338070, 188431 |        |          |           |          |           |          |           |          |           |          |           |          |           |          |           |          |           |          |           |  |

# PRODUCT/APPLICATION SPECIFICATION



## APPLICATION TOOLING

| Hand Tools  |             |                |                |                         |  |
|-------------|-------------|----------------|----------------|-------------------------|--|
| 734155-1    | 734024-1    | 734870-1       | 734870-2       | 654061-1                |  |
| Pistol grip | Adapter set | COSI 24-20 AWG | COSI 28-24 AWG | Flat Cable cutting tool |  |

| Bench Tools         |                          |                                   |  |  |  |
|---------------------|--------------------------|-----------------------------------|--|--|--|
| 733280-3            | 733278-2                 | 1-547008-7                        |  |  |  |
| Termination Die Set | Sub-assy toolset (4-20p) | Lever press incl. toolset (4-24p) |  |  |  |

| Semi-Automatic Tools |                                          |                                          |                           |                    |                    |
|----------------------|------------------------------------------|------------------------------------------|---------------------------|--------------------|--------------------|
| 2161400-1            | 2151688                                  | 2151689                                  | 677412-7                  | 519708-1           | 438685-1           |
| 3K40 Terminator      | Applicator for 3K40 Terminator 28-24 AWG | Applicator for 3K40 Terminator 24-20 AWG | Semi Automatic Base Press | Toolset for 215083 | Toolset for 215570 |

## SAMPLE BOXES

**Large Sample Box** with various connectors: **1377074-1** (available on order at TE)  
**Micro Sample Kit** with 3 samples incl. cable assembly: **4-1773465-8** (available via Media Resource Center)

# FREQUENTLY ASKED QUESTIONS

Can we make Micro-MaTch connectors with contacts in Gold plating?

No. The Micro-MaTch receptacle contact spring is designed to deliver a high normal-force as required for tinplated contact interconnections. This pressure is too high for gold plated interconnections, where much lower normal-forces are required.

We have noticed that the kinks of the Micro-MaTch thru-hole solder contacts on Top Entry as well as Side Entry Thru-hole solder Connectors, start with random direction. Is this technically OK?

Yes, this is OK and does not affect contact retention. For those connectors the kink direction in each row can start random, but sequential contacts within each row have kinks pointing in opposite directions.

Which flat ribbon cable is suitable for Micro-MaTch male-on-wire and paddle-board connectors and why?

TE Connectivity (TE) part number 167019-series Flat Ribbon Cable. The cable insulation's round shape at each position

and the flat transition between the positions, both exactly match with corresponding shape in the cover. This enables accurate pre-positioning of the conductors regarding to the IDC-slots during the termination process. It is also Important that the conductor's pitch is within tolerance and that they are symmetrically positioned in the round insulation shape.

Are Micro-MaTch male-on-wire and paddle-board connectors also suitable for discrete wire termination?

No. For discrete wires, Micro-MaTch connectors offer the Crimp-On Snap-In (COSI) connectors in 2 wire ranges.

Is there retention force performance information available for the female connector versions with locking latches?

No. The plastic latches were not designed to retain the connectors but to produce an audible click when the connectors are fully mated.

## Let's connect

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit [www.te.com/industrial](http://www.te.com/industrial) to chat with a Product Information Specialist.

## Technical Support

[te.com/support-center](http://te.com/support-center)

## For more Information

[te.com/products/micromatch](http://te.com/products/micromatch)

## te.com

© 2014 Tyco Electronics Corporation, a TE Connectivity Ltd. Company. All Rights Reserved. 4-1773457-1 IND WR 11/2014

MICRO-MATCH, TE Connectivity and the TE connectivity (logo) are trademarks of the TE Connectivity Ltd. family of companies. Other logos, product and Company names mentioned herein may be trademarks of their respective owners. While TE has made every reasonable effort to ensure the accuracy of the information in this brochure, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this brochure are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.