



APPLICATION NOTE

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APPLICATION NOTE Proper Rectangular Connector Mating Technique

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APPLICATION NOTE

Proper Rectangular Connector Mating Technique

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REVISION HISTORY

REVISION	DATE	REVISED PAGES	REVISIONS
A	4/20/23		Initial Release
B	12/19/24		DCN 103673: Revise from 1 full to ½ turn

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The RIGHT Way to Mate Micro and Nano

By Carl Foote

Ever changed a tire on your car? If so, you know to loosen and tighten the lug nuts in an alternating pattern, commonly referred to as a star pattern, to ensure uniform distribution of the load across the wheel mounting surface.

Mating and de-mating of Micro-D and Nano connectors requires a similar approach. The mating force of a size 24 AWG Twist-Pin connector is 10 ounces per contact when mating a connector – the higher density layouts require a higher mating or de-mating force. It's tempting to just jam the connector halves together, but force resistance almost always makes you push one side of the connector down, and then the other, and back and forth until fully seated. This approach can often bend the socket contacts because of the "zipper" effect of walking the connector apart. When these connectors are de-mated and re-mated, sockets will often mash pins together causing connector problems.

The correct approach is to use mating hardware to mate and de-mate the connector halves. Whether a hex head, flat head, or finger screws, here's what you do (see figures):

1. Place connector halves together so that the mating screws are both touching the jackposts.
(See Figure 1)

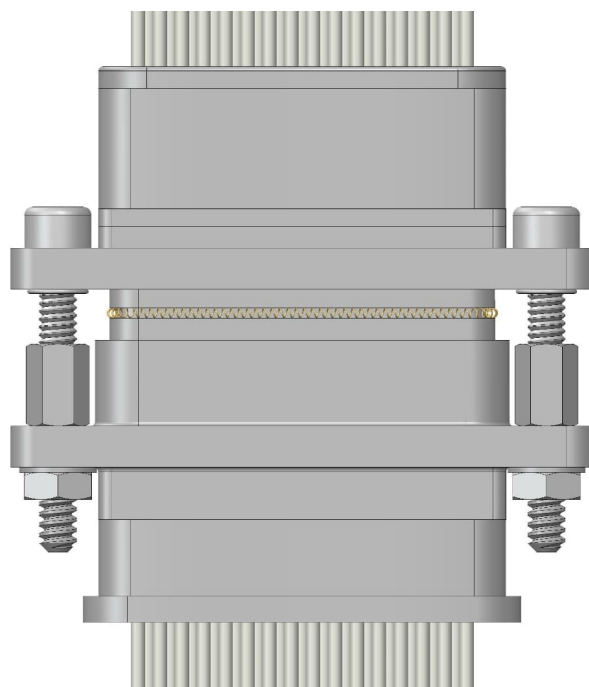


Figure 1

2. Using a driver or fingers, turn one screw $\frac{1}{2}$ a full revolution (180°), then turn the other screw $\frac{1}{2}$ a full revolution (See Figure 2).

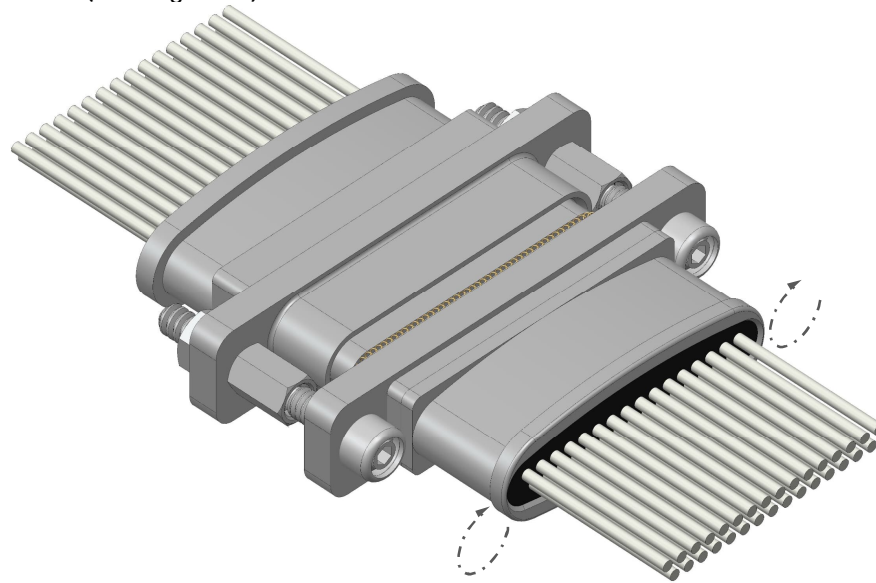


Figure 2

3. Continue this back-and-forth tightening process.

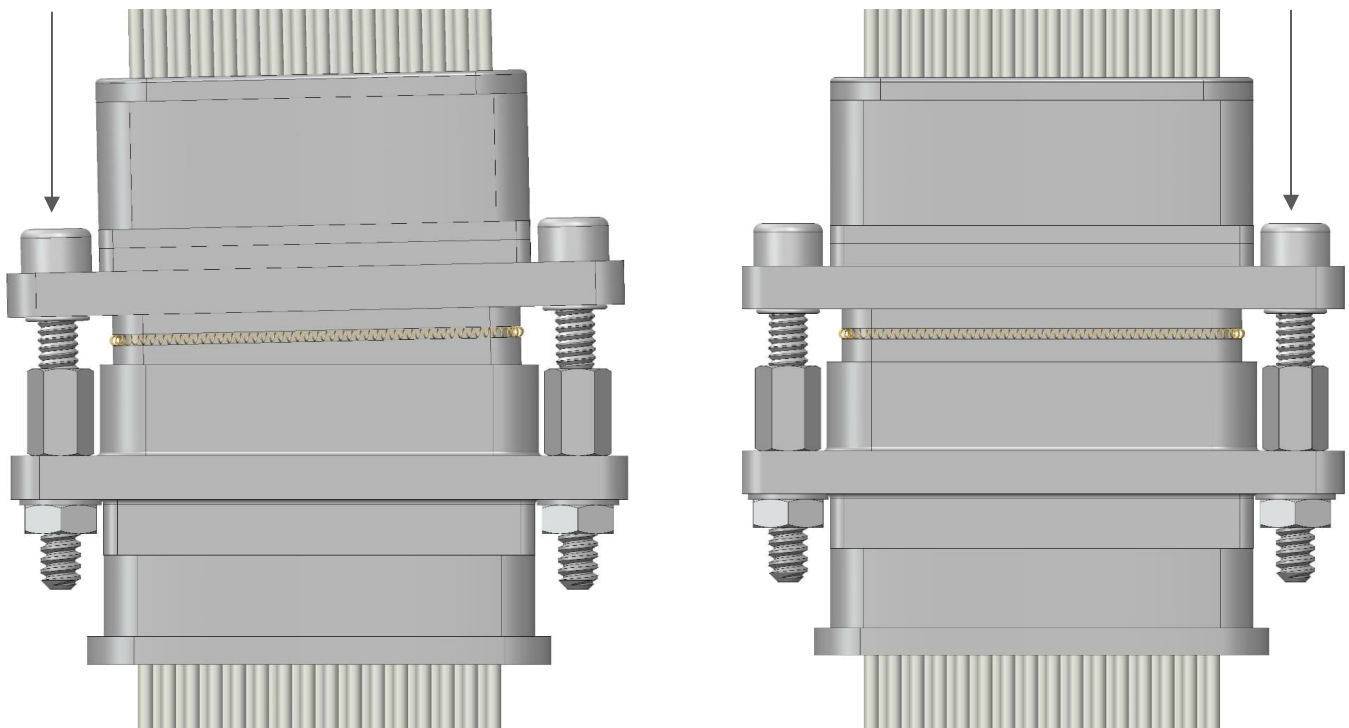


Figure 3

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4. Tighten until you feel the connector bottom and torque screws to the following values (See Figure 4):

Series 17 (Micro-D)
metal shell
#2-56 – 1.0 to 2.5 in*lb
#4-40 – 4.0 to 4.5 in*lb
plastic shell
#2-56 – 1.0 to 1.75 in*lb

Series 79 (Micro Crimp)
#2-56 – 1.0 to 2.5 in*lb
#4-40 – 3.5 to 4.0 in*lb
#6-32 – 5.0 to 6.0 in*lb
#8-32 – 7.0 to 8.0 in*lb
#10-32 – 9.0 to 10.0 in*lb

Series 28 (HiPer-D)
#4-40 – 3.5 to 4.0 in*lb

Series 89 (Nanominiature)
#0-80 – 0.5 to 1.0 in*lb
#2-56 – 1.0 to 2.0 in*lb

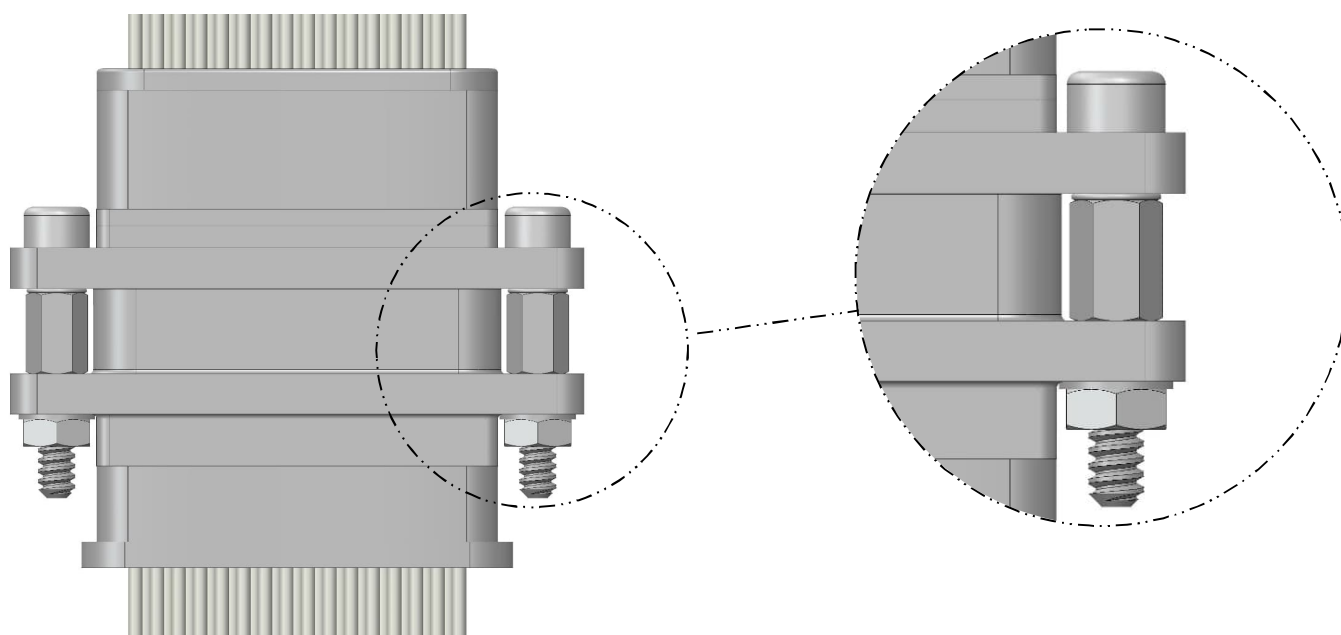


Figure 4

5. De-mate using the same process in reverse.

For connectors with guide pins, the pins force you to mate squarely even without mating hardware and will not allow you to “zipper” the connector.