

# SERIES 89 NANOMINIATURE Dual-Row Rectangular Connectors



891-031 Straight, 45°, or 90° with Factory-Installed Backshell and Insulated Wire

DUAL-ROW RECTANGULAR CONNECTORS



**Nano Connectors with Pre-installed Backshell and Insulated Wires.** Factory terminated to provide premium performance, reliability and functionality for demanding applications. .025" contact spacing. 1 amp current rating, 250 volts AC DWV rating.

**Wire Type and Shield/Jacket Options** Size 30 and 32 wire gage. Ultra lightweight XLETFE insulation, extruded PTFE insulation and cross linked modified ETFE insulation available. Shield options include Amberstrand®, AmorLite™ and nickel plated copper with or without E-CTFE halar jacket

HOW TO ORDER	
Sample Part Number	891-031 -25P A2 N -0 B 7 -12 J C
Series	891-031 = Plug or Receptacle
Contact Layout	Plugs: 9P, 15P, 21P, 25P, 31P, 37P, 41P, 51P, 65P, 69P, 85P, 91P Receptacles: 9S, 15S, 21S, 25S, 31S, 37S, 41S, 51S, 65S, 69S, 85S, 91S
Backshell/Shell Material and Finish	A1 = Aluminum Shell, Cadmium A2 = Aluminum Shell, Electroless Nickel A31 = Aluminum Shell, Zinc Nickel, Black A33 = Aluminum Shell, Nickel PTFE T = Titanium Shell, Unplated S = Stainless Steel Shell, Passivated
Backshell Orientation	N = Straight, No Orientation H = 45°, Lobe Side Exit L = 90°, Lobe Side Exit K = 45°, Major Side Exit M = 90°, Major Side Exit
Wire Gage	0 = #30 AWG (Wire types A, B, C, E, and F) 2 = #32 AWG (Wire Type B Only)
Wire Type	A = Ultra Lightweight XLETFE Insulation, Silver Coated Ultra High Strength Copper. B = Extruded PTFE Insulation, Silver Coated Copper NEMA HP3-ETX (MIL-W-16878/6) C = Cross Linked Modified ETFE Insulation, Silver Coated High Strength Copper. SAE AS22759/33-30 E = Cross Linked Modified ETFE Insulation, Low Fluoride, Lightweight, Silver Coated High Strength Copper Alloy. SAE AS22759/51-30 F = Cross Linked Modified ETFE Insulation, Low Fluoride, Lightweight, Silver-Coated Copper, SAE AS22759/52-30
Wire Color	1 = White 2 = Yellow 7 = 10 Color Repeating (wire type A is striped, types B, C, E, and F are solid colors)
Wire Length	Wire Length in Inches, i.e. 12 = 12 inches
Hardware	J = Jackscrew T = Female Thread
Shield/Jacket Options	N = No Shield, No Jacket A = Braided Shield Installed (Nickel Plated Copper) C = Braided Shield Installed (Nickel Plated Copper), with E-CTFE Halar "Expando" Jacket (+150° C) D = No Shield, with E-CTFE Halar "Expando" Jacket (+150° C) S = 100% Braided Amberstrand Shield Installed T = 100% Braided Amberstrand Shield Installed, with E-CTFE Halar "Expando" Jacket (+150° C) V = 75% Braided Amberstrand Shield Installed W = Armorlite Braided Microfilament SST Shield Installed X = Armorlite Braided Microfilament SST Shield Installed with E-CTFE Halar "Expando" Jacket (+150° C) Z = 75% Braided Amberstrand Shield Installed, with E-CTFE Halar "Expando" Jacket (+150° C)

PLUG HARDWARE	
J - Jackscrew	T - Female Thd
RECEPTACLE HARDWARE	
J - Jackscrew	T - Female Thd

PERFORMANCE SPECIFICATIONS
<b>Contact Spacing:</b> .025" (0.64) contact centers
<b>Wire Accommodation:</b> #30-#32 AWG
<b>Current Rating:</b> 1 AMP maximum tested per EIA-364-70
<b>DWV:</b> 250 VAC RMS sea level, 100 VAC RMS 70,000 feet per EIA-364 Procedure 20
<b>Insulation Resistance:</b> 5000 Megohms minimum test voltage 100 VDC, per EIA-364 Procedure 21
<b>Operating Temperature:</b> -55° C. to +125° C.
<b>Contact Resistance:</b> 71 millivolt drop maximum, 1 AMP current, any catalog supported wire type
<b>Vibration:</b> 20 g's, IAW EIA-364-28, Condition IV
<b>Shock:</b> 100 g's, IAW EIA-364-27, Condition G
<b>Durability:</b> 200 mating cycles per test procedure EIA-364-09
<b>Corrosion Resistance:</b> 48 hours salt spray IAW EIA-364-26, Condition B
<b>Humidity:</b> 240 hours, IAW EIA-364-31, Test Condition B
<b>Contact Engaging/Separation Force:</b> 5 ounce maximum, 0.4 ounce minimum
<b>Thermal Vacuum Outgassing:</b> Total mass loss (TML) 1.0% max., volatile condensable material (VCM) 0.1% max. IAW ASTM E595

## NOTES

- Material and Finish
  - Shell: see part number break down
  - Insulator: LCP/N/A
  - Contacts: gold alloy / unplated
  - Wire: see part number break down
  - Hardware: stainless steel, passivated
- Band clamp: (shield termination when applicable) stainless steel
- Inspected and tested IAW MIL-DTL-32139
- Interface dimensions per MIL-DTL-32139/3 and MIL-DTL-32139/4

# SERIES 89 NANOMINIATURE Dual-Row Rectangular Connectors

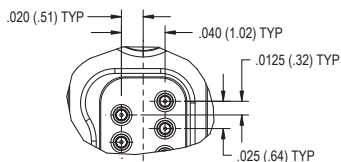


891-031 Straight, 45°, or 90° with Factory-Installed Backshell and Insulated Wire

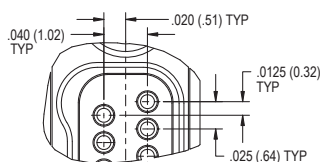
## DIMENSIONS

891-031 Plug (Pin), Straight Backshell								891-031 Straight Receptacle (Socket), Straight Backshell							
Layout	A BSC.	B BSC.	C	D	E	F	G	Layout	A BSC.	B BSC.	C	D	E	F	G
9	.270 (6.86)	.160 (4.06)	.395 (10.03)	.145 (3.68)	.068 (1.73)	.140 (3.56)	#0-80 UNF	9	.270 (6.86)	.163 (4.14)	.395 (10.03)	.145 (3.68)	.068 (1.73)	.140 (3.56)	#0-80 UNF
15	.345 (8.76)	.235 (5.97)	.470 (11.94)	.145 (3.68)	.068 (1.73)	.215 (5.46)	#0-80 UNF	15	.345 (8.76)	.238 (6.05)	.470 (11.94)	.145 (3.68)	.068 (1.73)	.215 (5.46)	#0-80 UNF
21	.420 (10.67)	.310 (7.87)	.545 (13.84)	.145 (3.68)	.068 (1.73)	.290 (7.37)	#0-80 UNF	21	.420 (10.67)	.313 (7.95)	.545 (13.84)	.145 (3.68)	.068 (1.73)	.290 (7.37)	#0-80 UNF
25	.470 (11.94)	.360 (9.14)	.595 (15.11)	.145 (3.68)	.068 (1.73)	.340 (8.64)	#0-80 UNF	25	.470 (11.94)	.363 (9.22)	.595 (15.11)	.145 (3.68)	.068 (1.73)	.340 (8.64)	#0-80 UNF
31	.545 (13.84)	.435 (11.05)	.670 (17.02)	.145 (3.68)	.068 (1.73)	.415 (10.54)	#0-80 UNF	31	.545 (13.84)	.438 (11.13)	.670 (17.02)	.145 (3.68)	.068 (1.73)	.415 (10.54)	#0-80 UNF
37	.620 (15.75)	.510 (12.95)	.745 (18.92)	.145 (3.68)	.068 (1.73)	.490 (12.45)	#0-80 UNF	37	.620 (15.75)	.513 (13.03)	.745 (18.92)	.145 (3.68)	.068 (1.73)	.490 (12.45)	#0-80 UNF
41	.670 (17.02)	.560 (14.22)	.795 (20.19)	.145 (3.68)	.068 (1.73)	.540 (13.72)	#0-80 UNF	41	.670 (17.02)	.563 (14.30)	.795 (20.19)	.145 (3.68)	.068 (1.73)	.540 (13.72)	#0-80 UNF
51	.795 (20.19)	.685 (17.40)	.920 (23.37)	.145 (3.68)	.068 (1.73)	.665 (16.89)	#0-80 UNF	51	.795 (20.19)	.688 (17.48)	.920 (23.37)	.145 (3.68)	.068 (1.73)	.665 (16.89)	#0-80 UNF
65	.970 (24.64)	.860 (21.84)	1.095 (27.81)	.145 (3.68)	.068 (1.73)	.840 (21.34)	#0-80 UNF	65	.970 (24.64)	.863 (21.92)	1.095 (27.81)	.145 (3.68)	.068 (1.73)	.840 (21.34)	#0-80 UNF
69	1.020 (25.91)	.910 (23.11)	1.145 (29.08)	.145 (3.68)	.068 (1.73)	.890 (22.61)	#0-80 UNF	69	1.020 (25.91)	.913 (23.19)	1.145 (29.08)	.145 (3.68)	.068 (1.73)	.890 (22.61)	#0-80 UNF
85	1.246 (31.65)	1.110 (28.19)	1.397 (35.48)	.170 (4.32)	.081 (2.06)	1.091 (27.71)	#2-56 UNC	85	1.246 (31.65)	1.113 (28.27)	1.397 (35.48)	.170 (4.32)	.081 (2.06)	1.091 (27.71)	#2-56 UNC
91	1.321 (33.55)	1.185 (30.10)	1.472 (37.39)	.170 (4.32)	.081 (2.06)	1.166 (29.62)	#2-56 UNC	91	1.321 (33.55)	1.188 (30.18)	1.472 (37.39)	.170 (4.32)	.081 (2.06)	1.166 (29.62)	#2-56 UNC

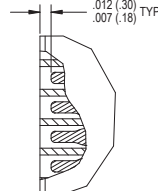
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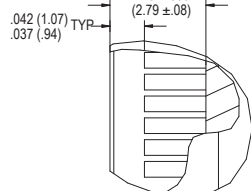
### DETAIL B



### DETAIL C



### DETAIL D

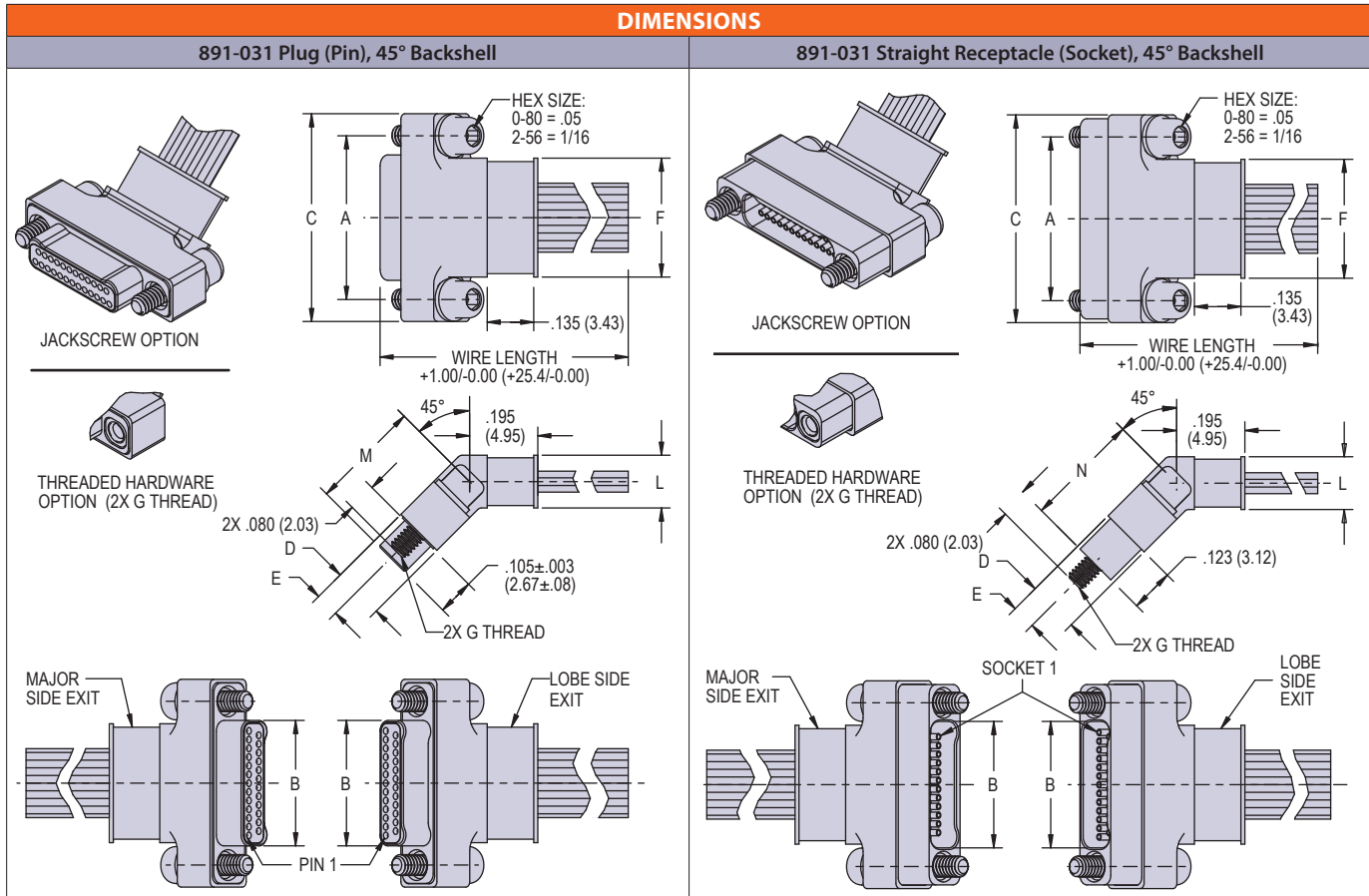


# SERIES 89 NANOMINIATURE Dual-Row Rectangular Connectors



891-031 Straight, 45°, or 90° with Factory-Installed Backshell and Insulated Wire

DUAL-ROW RECTANGULAR CONNECTORS



**SPECIFY EXIT SIDE IN P/N**

Layout	A BSC.	B BSC.	C	D	E	F	G	L	M
9	.270 (6.86)	.160 (4.06)	.395 (10.03)	.145 (3.68)	.068 (1.73)	.140 (3.56)	#0-80 UNF	.150 (3.81)	.313 (7.94)
15	.345 (8.76)	.235 (5.97)	.470 (11.94)	.145 (3.68)	.068 (1.73)	.215 (5.46)	#0-80 UNF	.150 (3.81)	.313 (7.94)
21	.420 (10.67)	.310 (7.87)	.545 (13.84)	.145 (3.68)	.068 (1.73)	.290 (7.37)	#0-80 UNF	.150 (3.81)	.313 (7.94)
25	.470 (11.94)	.360 (9.14)	.595 (15.11)	.145 (3.68)	.068 (1.73)	.340 (8.64)	#0-80 UNF	.150 (3.81)	.313 (7.94)
31	.545 (13.84)	.435 (11.05)	.670 (17.02)	.145 (3.68)	.068 (1.73)	.415 (10.54)	#0-80 UNF	.150 (3.81)	.313 (7.94)
37	.620 (15.75)	.510 (12.95)	.745 (18.92)	.145 (3.68)	.068 (1.73)	.490 (12.45)	#0-80 UNF	.150 (3.81)	.313 (7.94)
41	.670 (17.02)	.560 (14.22)	.795 (20.19)	.145 (3.68)	.068 (1.73)	.540 (13.72)	#0-80 UNF	.150 (3.81)	.313 (7.94)
51	.795 (20.19)	.685 (17.40)	.920 (23.37)	.145 (3.68)	.068 (1.73)	.665 (16.89)	#0-80 UNF	.150 (3.81)	.313 (7.94)
65	.970 (24.64)	.860 (21.84)	1.095 (27.81)	.145 (3.68)	.068 (1.73)	.840 (21.34)	#0-80 UNF	.150 (3.81)	.313 (7.94)
69	1.020 (25.91)	.910 (23.11)	1.145 (29.08)	.145 (3.68)	.068 (1.73)	.890 (22.61)	#0-80 UNF	.150 (3.81)	.313 (7.94)
85	1.246 (31.65)	1.110 (28.19)	1.397 (35.48)	.170 (4.32)	.081 (2.06)	1.091 (27.71)	#2-56 UNC	.176 (4.47)	.318 (8.08)
91	1.321 (33.55)	1.185 (30.10)	1.472 (37.39)	.170 (4.32)	.081 (2.06)	1.166 (29.62)	#2-56 UNC	.176 (4.47)	.318 (8.08)

Layout	A BSC.	B BSC.	C	D	E	F	G	L	N
9	.270 (6.86)	.163 (4.14)	.395 (10.03)	.145 (3.68)	.068 (1.73)	.140 (3.56)	#0-80 UNF	.150 (3.81)	.328 (8.33)
15	.345 (8.76)	.238 (6.05)	.470 (11.94)	.145 (3.68)	.068 (1.73)	.215 (5.46)	#0-80 UNF	.150 (3.81)	.328 (8.33)
21	.420 (10.67)	.313 (7.95)	.545 (13.84)	.145 (3.68)	.068 (1.73)	.290 (7.37)	#0-80 UNF	.150 (3.81)	.328 (8.33)
25	.470 (11.94)	.363 (9.22)	.595 (15.11)	.145 (3.68)	.068 (1.73)	.340 (8.64)	#0-80 UNF	.150 (3.81)	.328 (8.33)
31	.545 (13.84)	.438 (11.13)	.670 (17.02)	.145 (3.68)	.068 (1.73)	.415 (10.54)	#0-80 UNF	.150 (3.81)	.328 (8.33)
37	.620 (15.75)	.513 (13.03)	.745 (18.92)	.145 (3.68)	.068 (1.73)	.490 (12.45)	#0-80 UNF	.150 (3.81)	.328 (8.33)
41	.670 (17.02)	.563 (14.30)	.795 (20.19)	.145 (3.68)	.068 (1.73)	.540 (13.72)	#0-80 UNF	.150 (3.81)	.328 (8.33)
51	.795 (20.19)	.688 (17.48)	.920 (23.37)	.145 (3.68)	.068 (1.73)	.665 (16.89)	#0-80 UNF	.150 (3.81)	.328 (8.33)
65	.970 (24.64)	.863 (21.92)	1.095 (27.81)	.145 (3.68)	.068 (1.73)	.840 (21.34)	#0-80 UNF	.150 (3.81)	.328 (8.33)
69	1.020 (25.91)	.913 (23.19)	1.145 (29.08)	.145 (3.68)	.068 (1.73)	.890 (22.61)	#0-80 UNF	.150 (3.81)	.328 (8.33)
85	1.246 (31.65)	1.113 (28.27)	1.397 (35.48)	.170 (4.32)	.081 (2.06)	1.091 (27.71)	#2-56 UNC	.176 (4.47)	.333 (8.46)
91	1.321 (33.55)	1.188 (30.18)	1.472 (37.39)	.170 (4.32)	.081 (2.06)	1.166 (29.62)	#2-56 UNC	.176 (4.47)	.333 (8.46)

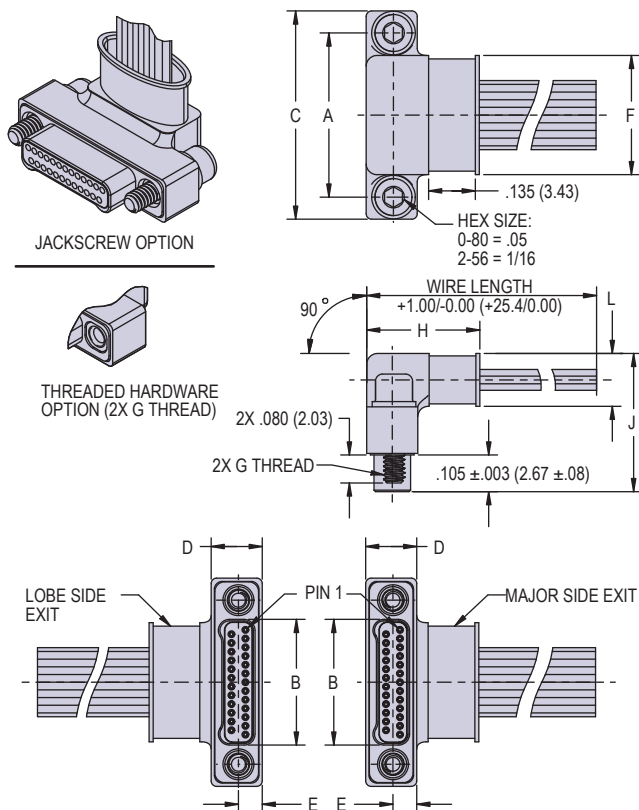
# SERIES 89 NANOMINIATURE Dual-Row Rectangular Connectors



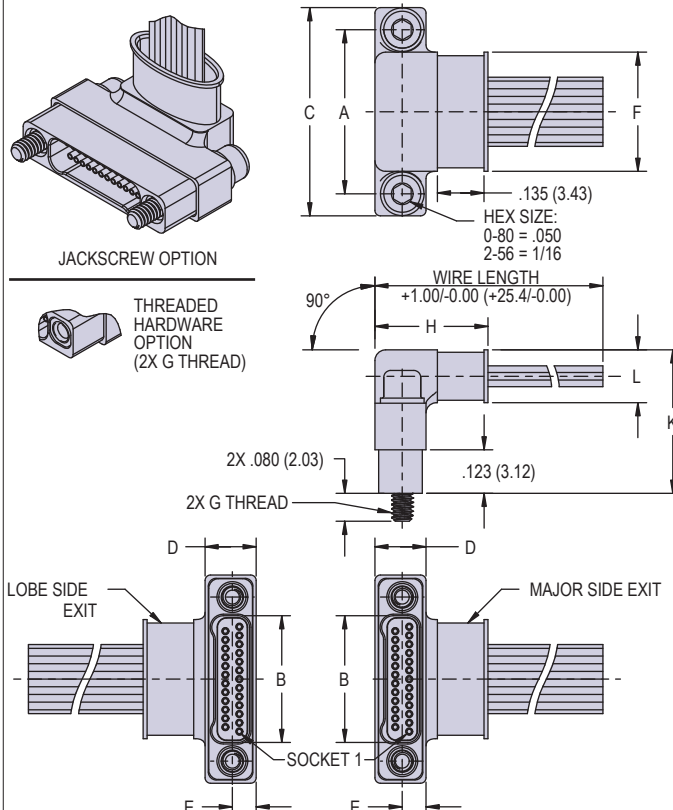
891-031 Straight, 45°, or 90° with Factory-Installed Backshell and Insulated Wire

## DIMENSIONS

891-031 Plug (Pin), 90° Backshell



891-031 Straight Receptacle (Socket), 90° Backshell



SPECIFY EXIT SIDE IN P/N

Layout	A BSC.	B BSC.	C	D	E	F	G	H	J	L
9	.270 (6.86)	.160 (4.06)	.395 (10.03)	.145 (3.68)	.068 (1.73)	.140 (3.56)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
15	.345 (8.76)	.235 (5.97)	.470 (11.94)	.145 (3.68)	.068 (1.73)	.215 (5.46)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
21	.420 (10.67)	.310 (7.87)	.545 (13.84)	.145 (3.68)	.068 (1.73)	.290 (7.37)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
25	.470 (11.94)	.360 (9.14)	.595 (15.11)	.145 (3.68)	.068 (1.73)	.340 (8.64)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
31	.545 (13.84)	.435 (11.05)	.670 (17.02)	.145 (3.68)	.068 (1.73)	.415 (10.54)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
37	.620 (15.75)	.510 (12.95)	.745 (18.92)	.145 (3.68)	.068 (1.73)	.490 (12.45)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
41	.670 (17.02)	.560 (14.22)	.795 (20.19)	.145 (3.68)	.068 (1.73)	.540 (13.72)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
51	.795 (20.19)	.685 (17.40)	.920 (23.37)	.145 (3.68)	.068 (1.73)	.665 (16.89)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
65	.970 (24.64)	.860 (21.84)	1.095 (27.81)	.145 (3.68)	.068 (1.73)	.840 (21.34)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
69	1.020 (25.91)	.910 (23.11)	1.145 (29.08)	.145 (3.68)	.068 (1.73)	.890 (22.61)	#0-80 UNF	.323 (8.20)	.395 (10.03)	.150 (3.81)
85	1.246 (31.65)	1.110 (28.19)	1.397 (35.48)	.170 (4.32)	.081 (2.06)	1.091 (27.71)	#2-56 UNC	.348 (8.84)	.421 (10.69)	.176 (4.47)
91	1.321 (33.55)	1.185 (30.10)	1.472 (37.39)	.170 (4.32)	.081 (2.06)	1.166 (29.62)	#2-56 UNC	.348 (8.84)	.421 (10.69)	.176 (4.47)

Layout	A BSC.	B BSC.	C	D	E	F	G	H	K	L
9	.270 (6.86)	.163 (4.14)	.395 (10.03)	.145 (3.68)	.068 (1.73)	.140 (3.56)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
15	.345 (8.76)	.238 (6.05)	.470 (11.94)	.145 (3.68)	.068 (1.73)	.215 (5.46)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
21	.420 (10.67)	.313 (7.95)	.545 (13.84)	.145 (3.68)	.068 (1.73)	.290 (7.37)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
25	.470 (11.94)	.363 (9.22)	.595 (15.11)	.145 (3.68)	.068 (1.73)	.340 (8.64)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
31	.545 (13.84)	.438 (11.13)	.670 (17.02)	.145 (3.68)	.068 (1.73)	.415 (10.54)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
37	.620 (15.75)	.513 (13.03)	.745 (18.92)	.145 (3.68)	.068 (1.73)	.490 (12.45)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
41	.670 (17.02)	.563 (14.30)	.795 (20.19)	.145 (3.68)	.068 (1.73)	.540 (13.72)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
51	.795 (20.19)	.688 (17.48)	.920 (23.37)	.145 (3.68)	.068 (1.73)	.665 (16.89)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
65	.970 (24.64)	.863 (21.92)	1.095 (27.81)	.145 (3.68)	.068 (1.73)	.840 (21.34)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
69	1.020 (25.91)	.913 (23.19)	1.145 (29.08)	.145 (3.68)	.068 (1.73)	.890 (22.61)	#0-80 UNF	.323 (8.20)	.408 (10.36)	.150 (3.81)
85	1.246 (31.65)	1.113 (28.27)	1.397 (35.48)	.170 (4.32)	.081 (2.06)	1.091 (27.71)	#2-56 UNC	.348 (8.84)	.433 (11.00)	.176 (4.47)
91	1.321 (33.55)	1.188 (30.18)	1.472 (37.39)	.170 (4.32)	.081 (2.06)	1.166 (29.62)	#2-56 UNC	.348 (8.84)	.433 (11.00)	.176 (4.47)

DUAL-ROW RECTANGULAR CONNECTORS