

DETAIL SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, RECTANGULAR, NANOMINIATURE, SINGLE ROW, RECEPTACLE, POLARIZED SHELL, SOCKET CONTACTS, VERTICAL PCB THROUGH-HOLE TYPE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirement for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-32139.

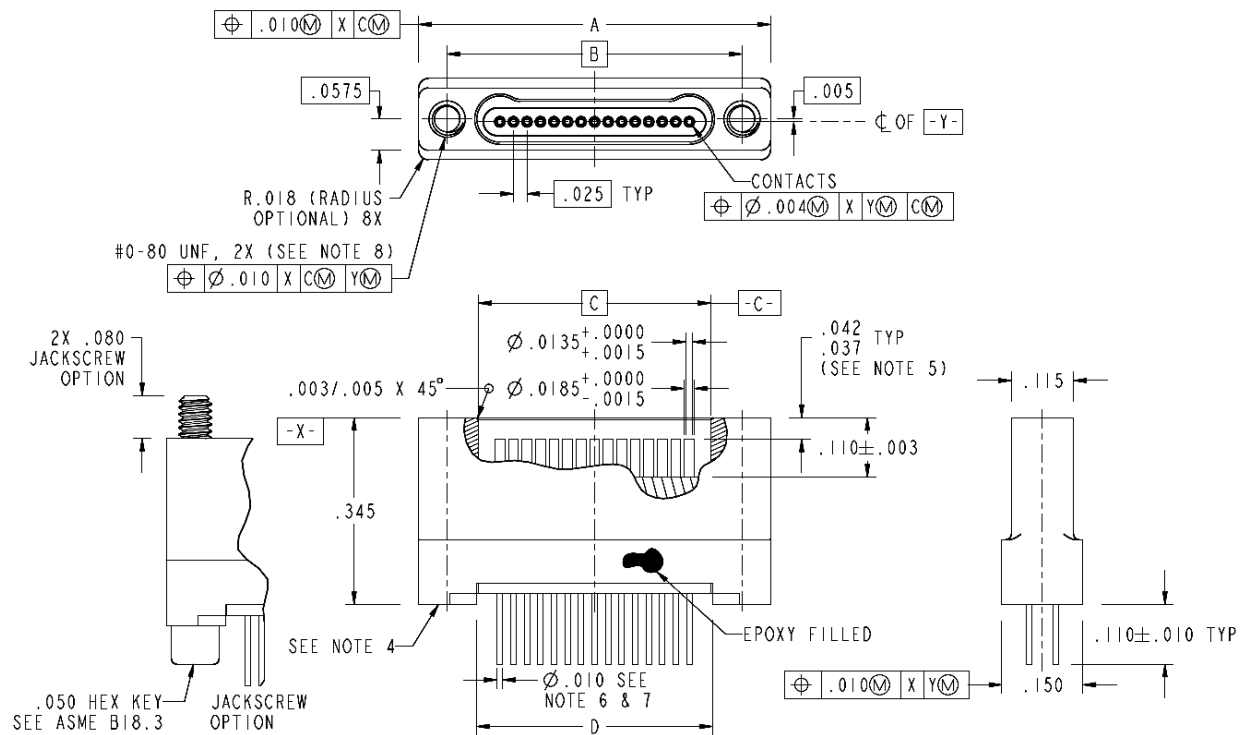


FIGURE 1. Nano connector dimensions and configurations.



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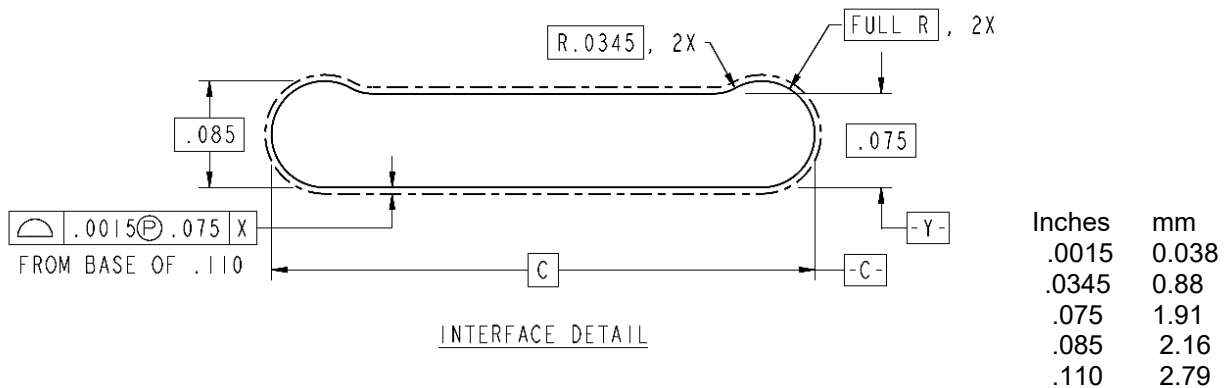
Insert arrangement	A	B BSC	C BSC	D MAX
9	.500 (12.70)	.395 (10.03)	.285 (7.24)	.295 (7.49)
15	.650 (16.51)	.545 (13.84)	.435 (11.05)	.445 (11.30)
21	.800 (20.32)	.695 (17.65)	.585 (14.86)	.595 (15.11)
25	.900 (22.86)	.795 (20.19)	.685 (17.40)	.695 (17.65)
31	1.050 (26.67)	.945 (24.00)	.835 (21.21)	.845 (21.46)
37	1.200 (30.48)	1.095 (27.81)	.985 (25.02)	.995 (25.27)
51	1.550 (39.37)	1.445 (36.70)	1.335 (33.91)	1.345 (34.16)

Inches	mm
.0015	0.038
.003	0.08
.004	0.10
.005	0.13
.010	0.25
.0135	0.34
.018	0.46
.0185	0.47
.025	0.64
.037	0.94
.042	1.07
.0575	1.46
.080	2.03
.110	2.79
.115	2.92
.150	3.81
.345	8.76

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified tolerances are $\pm .005$ inch (0.13 mm) angular tolerance $\pm 2^\circ$.
4. Surface from which the lead length is measured.
5. Shell shall be flush to insulator within $\pm .004$ inch (0.10 mm).
6. Tail finish is tin/lead or gold.
7. Leads may be flat tails that fit into the thru hole as specified in the PCB layout (Figure 4).
8. Male Threads shall be class 2A, Female threads shall be class 2B.

FIGURE 1. Nano connector dimensions and configurations – Continued.

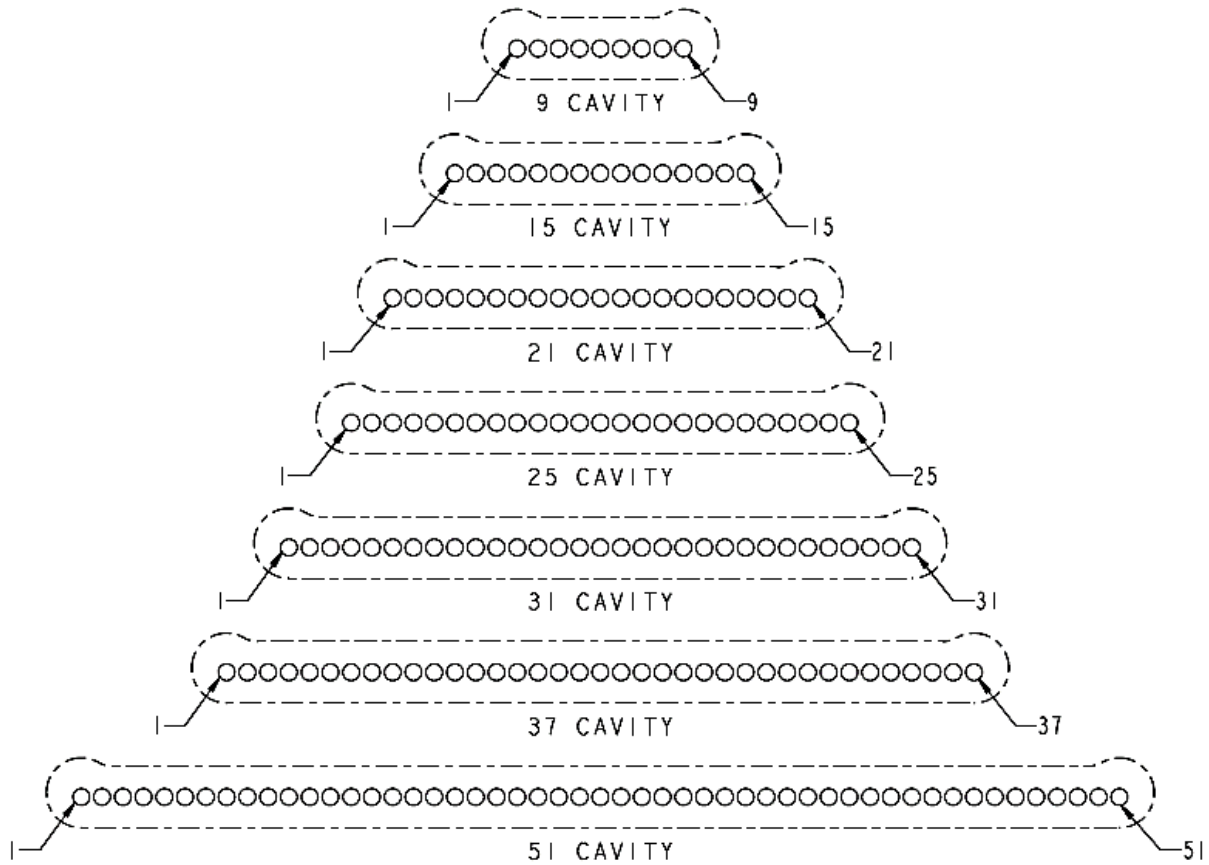


NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified tolerances are $\pm .005$ inch (.13 mm).

FIGURE 2. Nano connector interface.

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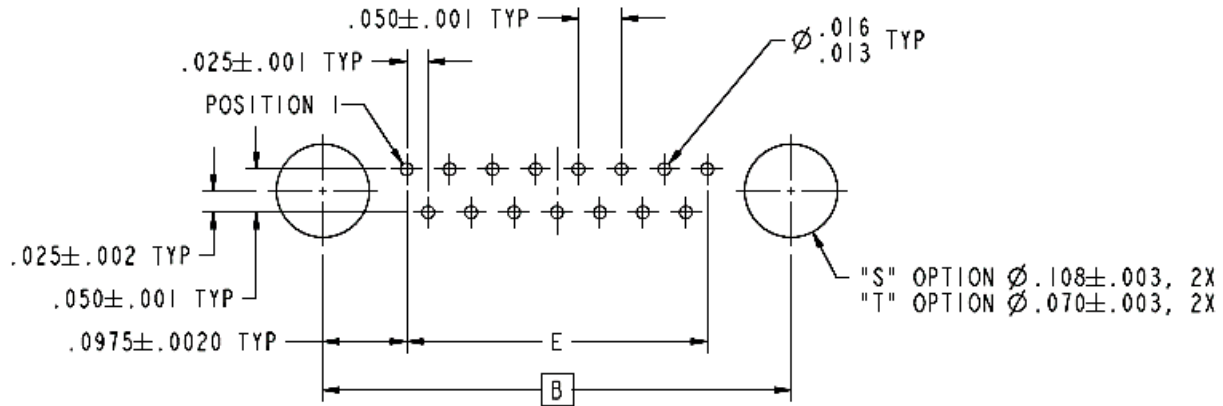


NOTES:

1. Engaging face of insert shown.
2. Cavity identification numbers are for reference only and do not appear on the part.

FIGURE 3. Nano connector insert arrangement.

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Insert arrangement	B BSC	E
9	.395 (10.03)	.200 (5.08)
15	.545 (13.84)	.350 (8.89)
21	.695 (17.65)	.500 (12.70)
25	.795 (20.19)	.600 (15.24)
31	.945 (24.00)	.750 (19.05)
37	1.095 (27.81)	.900 (22.86)
51	1.445 (36.70)	1.250 (31.75)

Inches	mm
.001	0.03
.002	0.05
.003	0.08
.013	0.33
.016	0.41
.025	0.64
.050	1.27
.070	1.78
.0975	2.477
.108	2.74

NOTES:

1. Suggested hole pattern shown facing board from connector insertion side specified on figure 3.
2. Dimensions are in inches.
3. Metric equivalents are given for information only.
4. Unless otherwise specified tolerances are $\pm .005$ inch (0.13 mm) angular tolerance $\pm 2^\circ$.

FIGURE 4. Nano connector suggested PCB hole pattern.

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REQUIREMENTS

Dimensions and configuration see figures 1, 2, and 3.

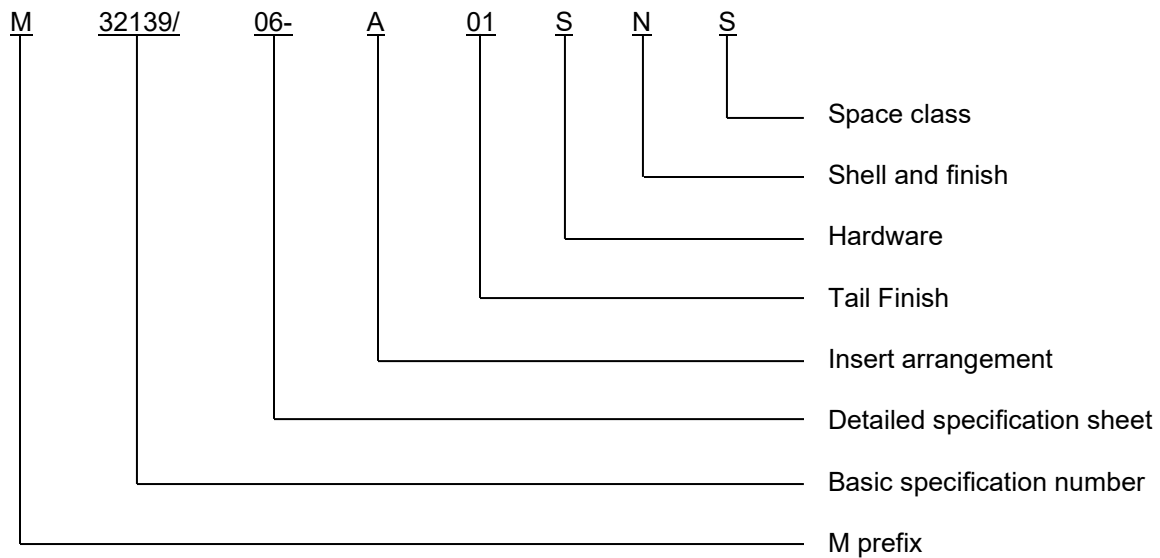
This specification sheet describes the socket side of a rectangular connector. This connector uses reverse gender contacts, i.e., the live pin is recessed in the insulator with the static socket protruding from a shrouded interface.

Contact connection: The socket contact, which is exposed in the insulator, is normally connected to the neutral side of the circuit.

Sockets are terminated to a printed circuit board (PCB) as specified on figure 4.

Mating plug: Shall be in accordance with MIL-DTL-32139/1, MIL-DTL-32139/5, or MIL-DTL-32139/7.

Part or Identifying Number (PIN):



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Insert arrangement

A = 9
B = 15
C = 21
D = 25
E = 31
F = 37
G = 51

Tail Finish

01 = Tin/Lead
02 = Gold

Hardware ^{1/}

S = Jackscrew Captivated ^{4/}
T = Thread hole ^{3/}

Shell and finish

C = Aluminum shell, cadmium finish
N = Aluminum shell, electroless nickel finish ^{2/}
S = Passivated stainless steel shell
T = Titanium shell
A = Pure Electrodeposited Aluminum
F = Nickel Fluorocarbon Polymer
Z = Zinc Nickel

Space class

Blank for non-space applications.
S = Space class

^{1/} Supplied installed.

^{2/} When aluminum shells are required for space applications, electroless nickel shall be used. Cadmium finish is not acceptable (see MIL-DTL-32139).

^{3/} The aluminum shell may require additional thread component which may affect the minimum and maximum mounting screw length. Check with manufacture for recommended mounting screw length.

^{4/} The only mechanical retention for connectors with jackscrew option, is the collective solder joints of the thru hole leads. Consider designing other means of fastening, i.e. epoxy.

Alternate shell finishes:

Pure Electrodeposited Aluminum. Pure dense electrodeposited aluminum shall be in accordance with MIL-DTL-83488, type II shall withstand 48 hour salt spray. Color shall be non-reflective and shall meet the requirements as specified herein.

Nickel Fluorocarbon Polymer. High phosphate nickel with fluorocarbon polymer additive over a suitable underplate shall be able shall withstand 48 hour salt spray. Color shall be non-reflective and shall meet the requirements as specified herein.

Zinc Nickel. Zinc Nickel Alloy shall be in accordance with ASTM B841, over a suitable underplate shall withstand 48 hour salt spray. Color shall be non-reflective and shall meet the requirements as specified herein.

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Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Referenced documents: In addition to MIL-DTL-32139, this document references the following:

MIL-DTL-32139/1
MIL-DTL-32139/5
MIL-DTL-32139/7
MIL-DTL-83488
ASME B18.3
ASTM B841

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-2021-127)

Review activities:

Army - AV, MI

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.