

MILITARY & DEFENSE EDITION

MD Series
MIL-DTL-83513 Micro-D
MILITARY STYLE CONNECTORS

- Lightweight, High-Density Connectors
- Pre-Assembled Wire Harnesses
- PCB Angled & Straight Contacts

About Us

MILNEC INTERCONNECT SYSTEMS is a leader in the design, manufacture, and supply of high-performance cylindrical interconnect systems. From research stations in the Antarctic to spacecraft on the plains of Mars, our high-reliability connector systems conquer the most demanding environments. Milnec is a supplier to leading companies in 24 countries in the following industries:

- Military & Defense
- Aerospace & Space
- Railway & Mass Transit
- Industrial & Heavy Equipment
- Alternative Energy, Nuclear, Oil & Gas



Logistics Solutions for Global Applications

Global logistics and support means we deliver products on time every time to any destination. To support your immediate requirements, we have extensive inventories, making most systems readily available for today's compressed design and production schedules. On average, custom connector solutions made to your exact configuration ship within seven days from the time of order placement.

- Worldwide shipping (restricted to NATO countries only)
- Web access to inventory, prices, & delivery information
- A large stock of popular parts for greater availability
- Competitive pricing and short lead times
- Impeccable customer service & technical support

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U.S. Military Cage Code: 6STX5

NAICS Code: 423690

High Reliability—Simplified

Just because your interconnect problem is complicated does not mean acquiring the solution has to be. Milnec connector systems and our "all-in-one" kits provide engineers the most complete and professional connector solutions with ease and technical clarity.

- Complete, high-reliability solutions
- Simple to understand technical data & configurations
- Online part builder tools, drawings, & documentation
- Field installable & serviceable



Performance With Environmental Responsibility

RoHS compliant products are available to support environmental responsibility and legislative conformity. Through simple modification codes, Milnec provides a wide variety of material options to easily provide customers with fully compliant and eco-friendly connector components.

- RoHS compliant materials & finishes
- Simple material modification codes
- Lead-free solder contacts



Highest Manufacturing Quality

We invest in the finest equipment and modern production processes to ensure that our connectors will exceed your quality and performance expectations. Our production processes include advanced computer numerical control machining, cosmetic and metal finishing, heat treatment, and stainless steel passivation.

- Traceability on 100% of the parts
- Quick production lead times
- Quantity support from R&D to production
- "Just-in-time" delivery, kitting, & special packaging
- Rapid tooling & prototyping for custom designs



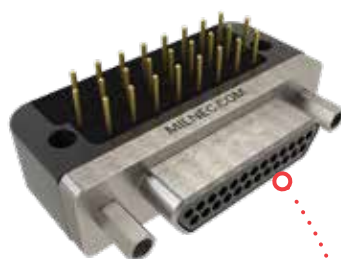
MIL-DTL-83513 Sub-Miniature Performance

The MD Series is Milnec's Micro-D solution for applications in which small, high-density connectors are required and standard D-Subminiature connectors are too large and too heavy. The MD Series meets and exceeds the MIL-DTL-83513 specification for performance and durability. MD connectors are manufactured with a strong yet lightweight aluminum shell and a variety of high-reliability, high-density contact configurations. The connectors are designed with size #24 contacts on .050 inch (1.3 mm) centers and are typically half the size of standard D-Sub connectors. Milnec MD Series connectors are ready for the rigors of your next advanced interconnect application.



Environmental Protection With Ease

MD Series Micro-D connectors are manufactured to withstand harsh environments. They are environmentally sealed when mated. The wire side of the connectors is protected by high-quality epoxy that encapsulates the contacts in the insulator, preventing any contact pullout.



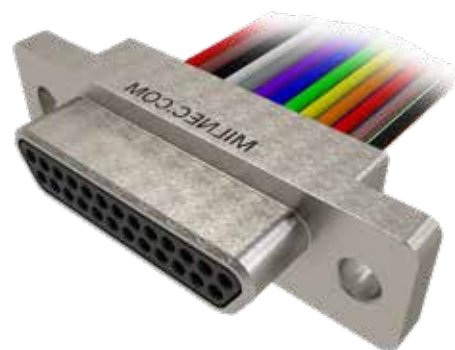
PCB Contact Variety

MD connectors can be built with PC tail contacts in either straight or 90-degree configurations. Contacts are available in a variety of lengths.



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Pre-Wired Connectors for Quick Assembly

MD connectors are available in three styles: solder, printed circuit board (PCB or PC tail), and pre-wired. The pre-wired connectors come in a variety of wire lengths and types to meet the demands of modern interconnect applications.

- Solder connectors
- PC tail connectors
- Pre-wired connectors



Series Specifications

MD Series • MIL-DTL-83513 Micro-D Style Connectors

Environmental Characteristics

Operating Temperature Range

-67° to +257°F (-55° to +125°C).

Fluid Immersion

Connectors shall meet mating force requirements following 20 hours immersion in synthetic lubricating oil and 1 hour immersion in coolanol 25 when tested in accordance with MIL-DTL-83513F paragraph 4.5.18.

Thermal Vacuum Outgassing

The assembled connector mass excluding metallic parts shall not exceed 1.0% total mass loss (TML) or 0.1% total volatile condensable materials (CVM) when tested in accordance with ASTM E595.

Salt Spray Rating

See Materials & Finishes, p. Y-8.

Humidity

Wired, mated connectors shall be subjected to humidity conditioning in accordance with EIA-364-31, Test Condition IV. After a minimum of 3 hours of step 7a of the final cycle, and while the connectors are still subjected to high humidity, the insulation resistance shall be measured when the chamber temperature reaches 68°F [$\pm 5^\circ\text{F}$ ($20^\circ\text{C} \pm 5^\circ\text{C}$)]. Insulation resistance shall not be less than 100 megohms, and connectors shall pass a DWV test of 360 volts (RMS 60 Hertz AC).

Endurance Characteristics

Coupling Cycles

Connectors shall be capable of 500 cycles of mating with no damage or degradation to electrical performance.

Shock

Connectors, when mated, wired in series and fixtured in accordance with MIL-DTL-83513F, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-27, Test Condition E, which specifies an amplitude of 50 g peak. Connectors shall not be damaged and no loosening of parts shall occur.

High-Impact Shock

Per MIL-S-901, a 400 lbs (181 kg) hammer dropped onto assembly from a height of 1 ft (30 cm), 3 ft (91 cm), and 5 ft (152 cm) applied to connector assembly in 3 axes, totaling 9 impacts; connector assembly experienced less than 1 microsecond maximum discontinuity with no cracking, loosening of parts, or other failures.

Thermal Shock

Unmated connectors shall withstand 5 cycles of thermal shock with a minimum temperature of -85°F (-65°C) and a maximum temperature of 302°F (150°C) when tested in accordance with EIA-364-32, Condition IV. Connectors shall not exhibit any detrimental damage or degradation of electrical performance.

Sine Vibration

Connectors, when mated, wired in series and fixtured in accordance with MIL-DTL-83513F, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-28 Test Condition IV, which specifies 12 hour duration, 10 Hz to 2000 Hz, and amplitude of 20 g peak. Connectors shall not be damaged and no loosening of parts shall occur.

Physical Characteristics

Contact Engagement and Separation Force

Maximum engaging force shall be 6.0 ounces when tested in accordance with EIA-364-37, except with a .0221 ($\pm .0001$) diameter sleeve with a 6-10 microfinish. Minimum separation force shall be 0.5 ounces when tested in accordance with EIA-364-37, except with a .0230 ($\pm .0001$) diameter sleeve with a 6-10 microfinish.

Connector Mating and Unmating Force

The maximum mating and unmating force shall not exceed a value equal to 10 ounces times the number of contacts, when tested per EIA-364-13. Mate connectors three times before initial measurements are taken.

Resistance to Soldering Heat

Connectors with solder cup contacts shall not be damaged following soldering with a 680°F (360°C) solder iron for at least 4 seconds in accordance with EIA-364-56 Procedure 1. Connectors with printed circuit board terminations shall withstand immersion in a solder bath for 9-11 seconds at 500°F (260°C) when tested in accordance with EIA-364-56 Procedure 3 Test Condition B. Connectors, after cooling, shall not exhibit damage or warpage when examined at 10X magnification.

Solderability

Solder cup and printed circuit terminals shall meet the solderability requirements of MIL-STD-202 Method 208.

Material Characteristics

Shell

Aluminum Alloy 6061 in accordance with SAE AMS-QQ-A-250/11.

Shell Plating (Standard Finishes)

C Finish

Cadmium with yellow chromate conversion coating in accordance with SAE-AMS-QQ-P-416, Type II, Class 3.

N, G Finish

Electroless nickel in accordance with ASTM B733.

B Finish

Black anodize in accordance with MIL-A-8625 Type II Class 2.

P Finish

Stainless steel, 300 Series. Passivated in accordance with SAE AMS 2700.

Terminal Block

Liquid crystal polymer, 30% glass-filled or polyphenyl sulfide, 40% glass-filled in accordance with MIL-M-24519.

Encapsulant (Potting)

Epoxy resin, hysol EE4215/HD3561.

Jackscrews, Jackposts, Float Mounts

Stainless steel, 300 series, passivated in accordance with SAE AMS 2700.

Pigtail Wire, Insulated

Wire Type T

Silver-coated copper wire, extruded PTFE insulation, 600 volts rms, 392°F (200°C), in accordance with NEMA HP3 (Replaces MIL-W-16878/4) with SAE AS 22759/11.

Wire Type Z

High-strength silver-coated copper alloy wire, crosslinked modified ETFE insulation, 600 volts rms, 392°F (200°C), in accordance with SAE AS 22759/33.

Pigtail Wire, Uninsulated

Wire Finish Code U1, U2

Solid copper wire in accordance with A-A-59551, gold-plated.

Wire Finish Code U3, U4

Solid copper wire in accordance with A-A-59551, gold-plated, solder dipped in 60/40 tin-lead.

Contact Characteristics

Pin Contacts

Beryllium copper, gold plated in accordance with ASTM B 488 Type II Class 1.27 (50 Microinches Minimum) Code C, over nickel underplate in accordance with SAE-AMS-QQ-N-290, Class 2 (30 microinches minimum).

Socket Contacts

Phosphoric bronze in accordance with ASTM 139 gold plated in accordance with ASTM B 488 Type II Class 1.27 (50 microinches minimum) Code C, over nickel underplate in accordance with SAE-AMS-QQ-N-290, Class 2, (50-150 microinches).

Max Contact Resistance

The voltage drop of a mated pair of contacts attached to wires shall not exceed the values shown when tested in accordance with MIL-DTL-83513F Paragraph 4.5.8, using 2.5 amps test current.

Wire Type T: 65 Mv max

Wire Type Z: 75 Mv max

Wire Type U: 60 Mv max

Contact Retention

Contacts can withstand a 5 pound axial load for a minimum of 5 seconds, with a maximum allowable displacement of .005 inch, in accordance with EIA-364-29.

Electrical Characteristics

Current Rating

3 amps at -67° to +302°F (-55° to +150°C) when tested in accordance with EIA-364-70.

Insulation Resistance

5,000 megohms minimum.

Wire Size

24 to 32 (AWG).

Dielectric Withstanding Voltage (Sea Level)

600 volts AC, RMS 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.

Dielectric Withstanding Voltage (70,000 feet)

150 volts AC, RMS 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.

Low Signal Level Contact Resistance

When tested with a micro-ohmmeter using a test current of 100 milliamperes maximum and 20 millivolts open circuit maximum, the resistance of a mated pair of contacts shall be 32 milliohms maximum. Test procedure shall be in accordance with EIA-364-23.

Series Specifications

MD Series • MIL-DTL-83513 Micro-D Style Connectors

Wire Specifications

Wire Code	Specification	Insulation	Conductor	Operating Temperature	Voltage Rating	Wire Size (AWG)	Strands	Max Conductor Diameter	DC Resistance Ohms/1,000 ft	Max Finished Wire Dia
Z	M22759/33	Extruded Cross-Linked Modified ETFE	Silver-Coated High-Strength Copper Alloy	-85° to +392°F (-65° to +200°C)	600 Volts RMS	#24	19/36	.025 (0.6)	28.4	.037 (0.9)
						#26	19/38	.020 (0.5)	44.8	.034 (0.9)
						#28	7/36	.016 (0.4)	74.4	.029 (0.7)
						#30	7/38	.012 (0.3)	117.4	.026 (0.6)
T	M22759/11	Extruded PTFE	Silver-Coated Copper	-85° to +392°F (-65° to +200°C)	600 Volts RMS	#24	19/36	.025 (0.6)	24.3	.045 (1.1)
						#26	19/38	.020 (0.5)	38.4	.040 (1.0)
						#28	7/36	.015 (0.4)	63.8	.035 (0.9)

Dimensions are in inches (mm) unless otherwise noted.

Connector Shell Weights

Layout	MDS1	MDH1	MDP1	MDP2	MDP3	MDP4
9P	1.7	1.6	4.1	3.1	5.9	3.9
9S	1.7	1.6	4.1	3.1	5.9	3.9
15P	2.3	2.2	4.7	3.3	6.8	4.8
15S	2.2	2.1	4.7	3.4	6.7	4.7
21P	3.0	2.9	5.7	4.1	7.7	5.6
21S	2.6	2.5	5.6	4.8	7.6	5.4
25P	3.3	3.2	5.9	5.3	8.3	6.1
25S	3.0	2.9	6.1	5.5	8.2	6.0
31P	3.9	3.8	7.2	6.5	9.5	7.6
31S	3.6	3.5	7.3	6.6	9.4	7.5
37P	4.4	4.2	8.5	7.7	11.1	8.4
37S	4.1	3.9	8.3	7.5	11.0	8.4
51P	5.1	4.9	9.6	8.6	12.7	11.0
51S	4.8	4.7	9.5	8.6	12.8	10.9
100P	9.1	8.6	25.4	22.9	27.5	26.6
100S	8.2	7.9	24.8	22.3	27.1	26.4

Weight in grams. Nominal weight of connector only. See Wire Weight table for wire weight calculation.

Wire Weight

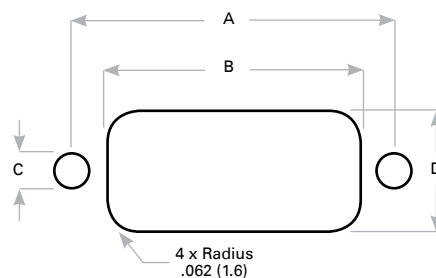
Wire Type	Wire Gage	Max Wire Weight Per Inch
M22759/11	24	.098
M22759/11	26	.072
M22759/11	28	.052
M22759/33	24	.076
M22759/33	26	.053
M22759/33	28	.034
M22759/33	30	.025

Weight in grams. Add calculated wire weight to connector weight for total weight.

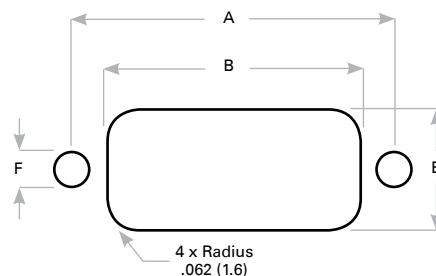
Micro-D Panel Cutouts

Layout	A	B	C	D	E	F
9	.565 (14.4)	.410 (10.4)	.091 (2.3)	.277 (7.0)	.256 (6.5)	.126 (3.2)
15	.715 (18.2)	.560 (14.2)	.091 (2.3)	.277 (7.0)	.256 (6.5)	.126 (3.2)
21	.865 (22.0)	.710 (18.0)	.091 (2.3)	.277 (7.0)	.256 (6.5)	.126 (3.2)
25	.965 (24.5)	.810 (20.6)	.091 (2.3)	.277 (7.0)	.256 (6.5)	.126 (3.2)
31	1.115 (28.3)	.960 (24.4)	.091 (2.3)	.277 (7.0)	.256 (6.5)	.126 (3.2)
37	1.265 (32.1)	1.110 (28.2)	.091 (2.3)	.277 (7.0)	.256 (6.5)	.126 (3.2)
51	1.215 (30.9)	1.060 (26.9)	.091 (2.3)	.317 (8.1)	.300 (7.6)	.126 (3.2)
100	1.800 (45.7)	1.455 (37.0)	.120 (3.1)	.363 (9.2)	.338 (10.3)	.147 (3.8)

Dimensions are in inches (mm) unless otherwise noted.



Front Mount Panel Cutout



Rear Mount Panel Cutout

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MIL-STD-681 Color Code Chart for Micro-D Connectors

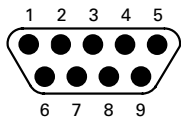
Pin Number	MIL-STD-681 Number	Base Color	First Stripe	Second Stripe	Pin Number	MIL-STD-681 Number	Base Color	First Stripe	Second Stripe	Third Stripe
1	0	BLK			51	957	WHT	GRN	VIO	
2	1	BRN			52	958	WHT	GRN	GRY	
3	2	RED			53	967	WHT	BLU	VIO	
4	3	ORN			54	968	WHT	BLU	GRY	
5	4	YEL			55	978	WHT	VIO	GRY	
6	5	GRN			56	9012	WHT	BLK	BRN	RED
7	6	BLU			57	9013	WHT	BLK	BRN	ORN
8	7	VIO			58	9014	WHT	BLK	BRN	YEL
9	8	GRY			59	9015	WHT	BLK	BRN	GRN
10	9	WHT			60	9016	WHT	BLK	BRN	BLU
11	90	WHT	BLK		61	9017	WHT	BLK	BRN	VIO
12	91	WHT	BRN		62	9018	WHT	BLK	BRN	GRY
13	92	WHT	RED		63	9023	WHT	BLK	RED	ORN
14	93	WHT	ORN		64	9024	WHT	BLK	RED	YEL
15	94	WHT	YEL		65	9025	WHT	BLK	RED	GRN
16	95	WHT	GRN		66	9026	WHT	BLK	RED	BLU
17	96	WHT	BLU		67	9027	WHT	BLK	RED	VIO
18	97	WHT	VIO		68	9028	WHT	BLK	RED	GRY
19	98	WHT	GRY		69	9034	WHT	BLK	ORN	YEL
20	901	WHT	BLK	BRN	70	9035	WHT	BLK	ORN	GRN
21	902	WHT	BLK	RED	71	9036	WHT	BLK	ORN	BLU
22	903	WHT	BLK	ORN	72	9037	WHT	BLK	ORN	VIO
23	904	WHT	BLK	YEL	73	9038	WHT	BLK	ORN	GRY
24	905	WHT	BLK	GRN	74	9045	WHT	BLK	YEL	GRN
25	906	WHT	BLK	BLU	75	9046	WHT	BLK	YEL	BLU
26	907	WHT	BLK	VIO	76	9047	WHT	BLK	YEL	VIO
27	908	WHT	BLK	GRY	77	9048	WHT	BLK	YEL	GRY
28	912	WHT	BRN	RED	78	9056	WHT	BLK	GRN	BLU
29	913	WHT	BRN	ORN	79	9057	WHT	BLK	GRN	VIO
30	914	WHT	BRN	YEL	80	9058	WHT	BLK	GRN	GRY
31	915	WHT	BRN	GRN	81	9067	WHT	BLK	BLU	VIO
32	916	WHT	BRN	BLU	82	9068	WHT	BLK	BLU	GRY
33	917	WHT	BRN	VIO	83	9078	WHT	BLK	VIO	GRY
34	918	WHT	BRN	GRY	84	9123	WHT	BRN	RED	ORN
35	923	WHT	RED	ORN	85	9124	WHT	BRN	RED	YEL
36	924	WHT	RED	YEL	86	9125	WHT	BRN	RED	GRN
37	925	WHT	RED	GRN	87	9126	WHT	BRN	RED	BLU
38	926	WHT	RED	BLU	88	9127	WHT	BRN	RED	VIO
39	927	WHT	RED	VIO	89	9128	WHT	BRN	RED	GRY
40	928	WHT	RED	GRY	90	9134	WHT	BRN	ORN	YEL
41	934	WHT	ORN	YEL	91	9135	WHT	BRN	ORN	GRN
42	935	WHT	ORN	GRN	92	9136	WHT	BRN	ORN	BLU
43	936	WHT	ORN	BLU	93	9137	WHT	BRN	ORN	VIO
44	937	WHT	ORN	VIO	94	9138	WHT	BRN	ORN	GRY
45	938	WHT	ORN	GRY	95	9145	WHT	BRN	YEL	GRN
46	945	WHT	YEL	GRN	96	9146	WHT	BRN	YEL	BLU
47	946	WHT	YEL	BLU	97	9147	WHT	BRN	YEL	VIO
48	947	WHT	YEL	VIO	98	9148	WHT	BRN	YEL	GRY
49	948	WHT	YEL	GRY	99	9156	WHT	BRN	GRN	BLU
50	956	WHT	GRN	BLU	100	9157	WHT	BRN	GRN	VIO

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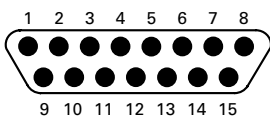
Contact Arrangements

MD Series • MIL-DTL-83513 Micro-D Style Connectors

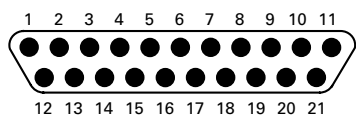
Mating Face of Pin Connector



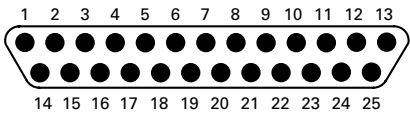
9 Contacts



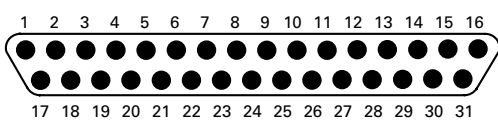
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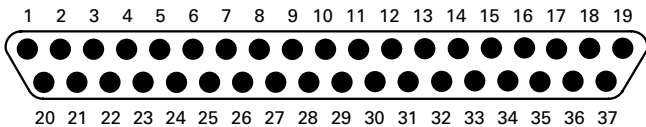
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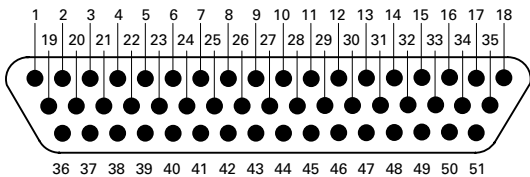
25 Contacts



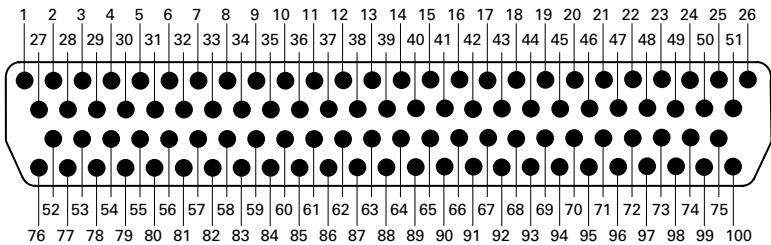
31 Contacts



37 Contacts



51 Contacts



100 Contacts

Socket contacts opposite
.050 inches (1.3 mm) contact spacing
.043 inches (1.1 mm) spacing between rows

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MD Series Materials & Finishes

The material of a connector is the foundation of its protective ability, providing strength and durability. The finish (or plating) offers the foundation material added corrosion resistance along with an aesthetic look. Each material and finish combination offers unique properties and should be selected according to your application requirements.

The MD Series features aluminum as the standard material, with electroless nickel and cadmium as finish options. In addition to the standard options, passivated stainless steel is available for supreme corrosion resistance, or outgassed, space-grade approved materials for satellite and other space-flight applications. ■

Standard MD Series Materials & Finishes

Finish Code	Finish	Hermetic Only	Electrically Conductive	RoHS Compliant	Appearance	Shell Material	Salt Spray Rating	Recommended Operating Temperature Range
C	Yellow Chromate Over Cadmium		✓		Yellow Gold	Aluminum	500 hrs	-85° to +347°F (-65° to +175°C)
N	Electroless Nickel		✓+	✓	Bright Metal	Aluminum	48 hrs	-85° to +392°F (-65° to +200°C)
G	Electroless Nickel (Space-Grade) [‡]		✓+	✓	Bright Metal	Aluminum	48 hrs	-85° to +392°F (-65° to +200°C)
P	Passivated		✓	✓	Matte Metal	SST Steel	1,000 hrs	-85° to +392°F (-65° to +200°C)

[‡] Outgassed per NASA specifications ATSM E-595 and EEE-INST-002.

✓+ Indicates improved conductivity for shielding effectiveness.

About RoHS Finishes

The European Union's Restriction of Hazardous Substances (RoHS) 2002/95/EC Directive and its subsequent amendments restricts the incorporation of six hazardous materials in the manufacture of various types of electronic and electrical equipment. It is closely linked with the Waste Electrical and Electronic Equipment Directive (WEEE) 2002/96/EC, which sets collection, recycling, and recovery targets for electrical goods and equipment.



Milnec provides a full offering of RoHS compliant finishes in conductive and non-conductive versions to best suit your application requirements.

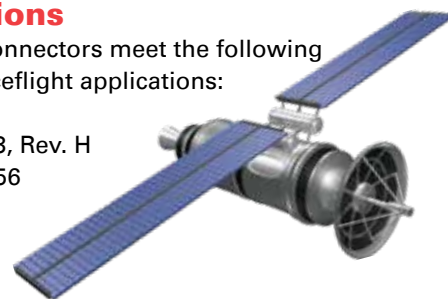
Please consult the latest European Union general and regional regulations to ensure materials are appropriate for your application and compliance requirements.

MIL-DTL-83513 Style Connectors for Spaceflight Applications

For spaceflight applications, Milnec offers specialized space-grade connectors ("G" Finish) with a conductive electroless nickel finish that are rigorously outgassed at high vacuum (5×10^{-5} torr) for 48 hours at 350°F (176°C). This process guarantees that all metallic materials such as rubber, plastic, ink, adhesives, and potting compounds shall not release greater than 1.0% total mass loss (TML) and 0.1% collected volatile condensable material (CVCM).

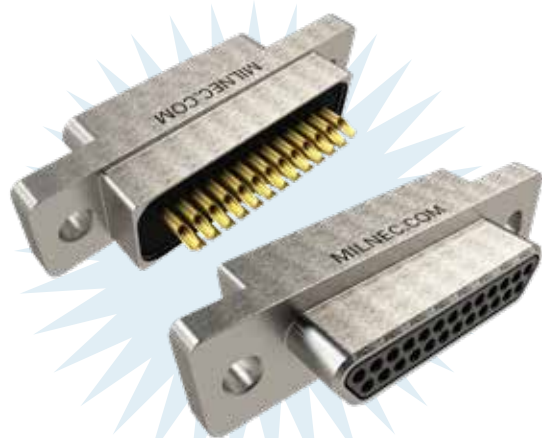
Milnec space-grade connectors meet the following specifications for spaceflight applications:

- NASA SSP-30423, Rev. H
- ESA/SCC 3401/056
- ATSM E-595
- EEE-INST-002



Solder Cup Micro-D

MD Series • MIL-DTL-83513 Micro-D Style Connectors



MDS1 Cross-Reference & Compatibility

Compatible Brands	Equivalents
MIL-DTL-83513	M83513/01, M83513/02
Glenair	MWDM
Amphenol	Series 100
ITT Cannon	MDM Series

MDS1 - N 25 P - B

- 12345
- 1

BASIC PART NUMBER
MDS1 Solder cup terminated, metal shell Micro-D
- 2

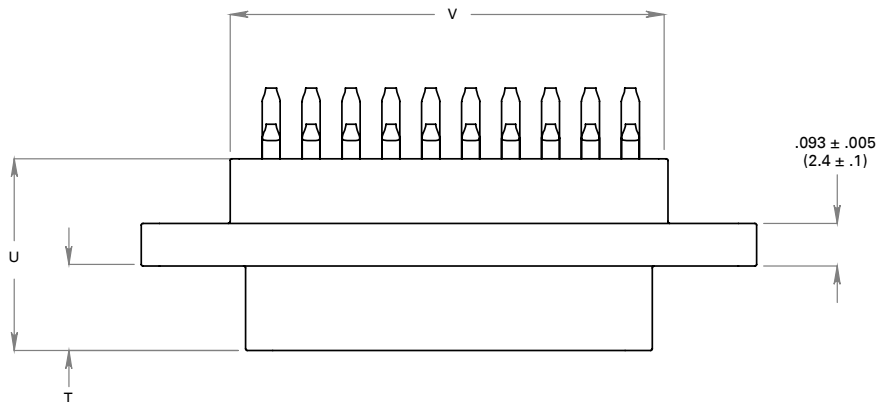
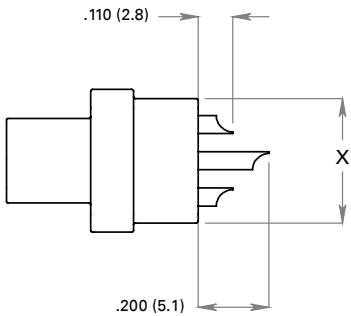
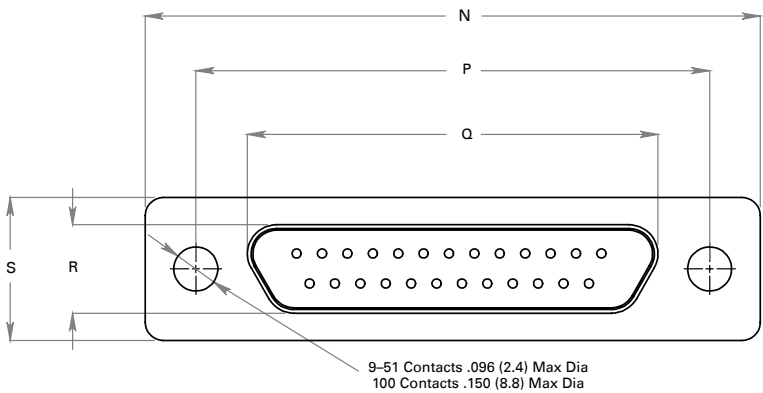
MATERIAL & FINISH
N* Aluminum, electroless nickel
C Aluminum, cadmium
P Stainless steel, passivated
G Aluminum, electroless nickel (space-grade)
- 3

CONTACT AMOUNT
9, 15, 21, 25, 31, 37, 51, 100
- 4

CONTACT STYLE
P Pin
S Socket
- 5

MOUNTING HARDWARE
B No hardware (thru-hole only)
P Jackpost
M Hex head jackscrew
R Extended hex head jackscrew
S Slot head jackscrew
T Extended slot head jackscrew

* Aerospace preferred.



Rev. 2145

Plug Dimensions

Shell Size	N	P	Q	R	S	T	U	V	X
9P	0.785 (19.9)	0.565 (14.4)	0.333 (8.5)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.400 (10.2)	0.270 (6.9)
9S	0.785 (19.9)	0.565 (14.4)	0.400 (10.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.400 (10.2)	0.270 (6.9)
15P	0.935 (23.8)	0.715 (18.2)	0.483 (12.3)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.550 (14.0)	0.270 (6.9)
15S	0.935 (23.8)	0.715 (18.2)	0.551 (14.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.550 (14.0)	0.270 (6.9)
21P	1.085 (27.6)	0.865 (22.0)	0.633 (16.1)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.700 (17.8)	0.270 (6.9)
21S	1.085 (27.6)	0.865 (22.0)	0.701 (17.8)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.700 (17.8)	0.270 (6.9)
25P	1.185 (30.0)	0.965 (24.5)	0.733 (18.6)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.800 (20.3)	0.270 (6.9)
25S	1.185 (30.0)	0.965 (24.5)	0.801 (20.4)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.800 (20.3)	0.270 (6.9)
31P	1.335 (33.9)	1.115 (28.3)	0.883 (22.4)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.950 (24.1)	0.270 (6.9)
31S	1.335 (33.9)	1.115 (28.3)	0.951 (24.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.950 (24.1)	0.270 (6.9)
37P	1.485 (37.7)	1.265 (32.1)	1.033 (26.2)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	1.100 (27.9)	0.270 (6.9)
37S	1.485 (37.7)	1.265 (32.1)	1.101 (28.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	1.100 (27.9)	0.270 (6.9)
51P	1.435 (36.5)	1.215 (30.9)	0.983 (25.0)	0.228 (5.8)	0.351 (8.9)	0.183 (4.7)	0.416 (10.6)	1.050 (26.7)	0.310 (7.9)
51S	1.435 (36.5)	1.215 (30.9)	1.051 (26.7)	0.296 (7.5)	0.351 (8.9)	0.195 (5.0)	0.429 (10.9)	1.050 (26.7)	0.310 (7.9)
100P	2.170 (55.1)	1.800 (45.7)	1.383 (35.1)	0.270 (6.9)	0.394 (10.0)	0.183 (4.7)	0.416 (10.6)	1.442 (36.6)	0.360 (9.1)
100S	2.170 (55.1)	1.800 (45.7)	1.451 (36.9)	0.333 (8.5)	0.394 (10.0)	0.195 (5.0)	0.429 (10.9)	1.442 (36.6)	0.360 (9.1)

Dimensions are in inches (mm).

Mounting Hardware

P	M	R	S	T
				

Materials & Finish

Connector Shell, Metal:

Aluminum Alloy 6061 In Accordance With SAE-AMS-QQ-A-250/11

Code C: Cadmium With Yellow Chromate Conversion Coating

in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3

Code N: Electroless Nickel In Accordance With SAE-AMS-26074, Class 3

Code P: Stainless Steel, 300 Series, Passivated In Accordance With SAE-AMS-QQ-P-35

Insulator:

Liquid Crystal Polymer, 30% Glass-Filled, in Accordance With MIL-M-24519

Encapsulant (Potting):

Epoxy Resin, Hysol EE4215/HD3561

Pre-Wired Micro-D

MD Series • MIL-DTL-83513 Micro-D Style Connectors



MDH1 Cross-Reference

Compatible Brands	Equivalents
MIL-DTL-83513	M83513/03, M83513/04
Glenair	MWDM
Amphenol	Series 100
ITT Cannon	MDM Series

Wire Type

Ordering Code	M22759/11-26 Type Teflon® Insulated Hookup Wire
T1	18 Inches (457 mm), White
T2	36 Inches (914 mm), White
T3	18 Inches (457 mm), 10 Color Repeating
T4	36 Inches (914 mm), 10 Color Repeating
T5	72 Inches (1,829 mm), White
T6	72 Inches (1,829 mm), 10 Color Repeating
Ordering Code	M22759/33-26 Type Irradiated Tefzel® Insulated Hookup Wire
Z1	18 Inches (457 mm), White
Z2	36 Inches (914 mm), White
Z3	18 Inches (457 mm), 10 Color Repeating
Z4	36 Inches (914 mm), 10 Color Repeating
Z5	72 Inches (1,829 mm), White
Z6	72 Inches (1,829 mm), 10 Color Repeating
Ordering Code	25 AWG Single Strand Uninsulated Wire
U1	.500 Inch (12.7 mm), Gold Plated
U2	1.000 Inch (25.4 mm), Gold Plated
U3	.500 Inch (12.7 mm), Tin-Lead Plated
U4	1.000 Inch (25.4 mm), Tin-Lead Plated

Mounting Hardware

P	M	R	S	T

MDH1 - N 25 P T3 - B

- BASIC PART NUMBER**
MDH1 Pre-wired, metal shell Micro-D
- MATERIAL & FINISH**
N* Aluminum, electroless nickel
C Aluminum, cadmium
P Stainless steel, passivated
G Aluminum, electroless nickel (space-grade)
- CONTACT AMOUNT**
9, 15, 21, 25, 31, 37, 51, 100
- CONTACT STYLE**
P Pin
S Socket
- WIRE TYPE** (See Wire Type Table for More Options)
T1 Teflon® insulated hookup wire, M22759/11-26 type, 18 inches (457 mm), white
Z1* Irradiated Tefzel® insulated hookup wire, M22759/33-26 type, 18 inches (457 mm), white
U1 25 AWG single strand uninsulated wire, .500 inch (12.7 mm), gold plated
- MOUNTING HARDWARE**
B No hardware (thru-hole only)
P Jackpost
M Hex head jackscrew
R Extended hex head jackscrew
S Slot head jackscrew
T Extended slot head jackscrew

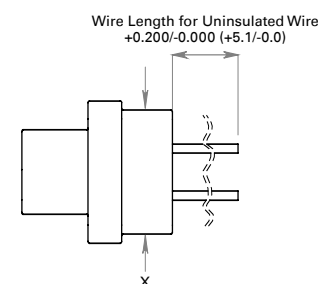
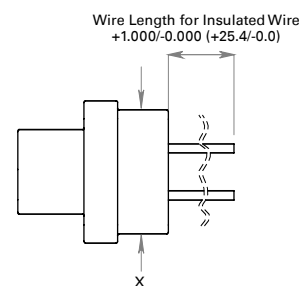
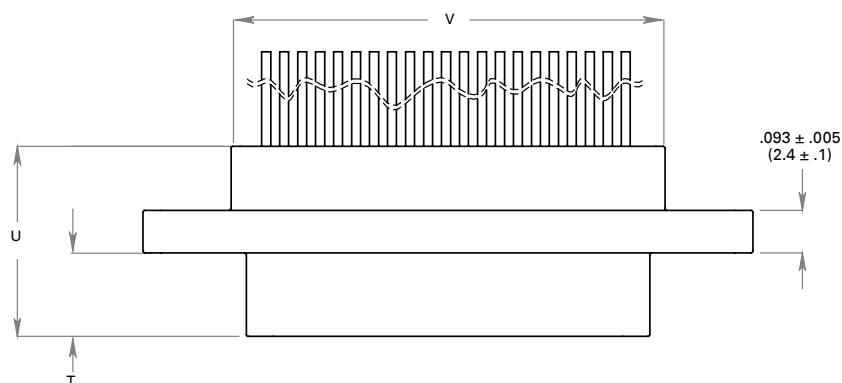
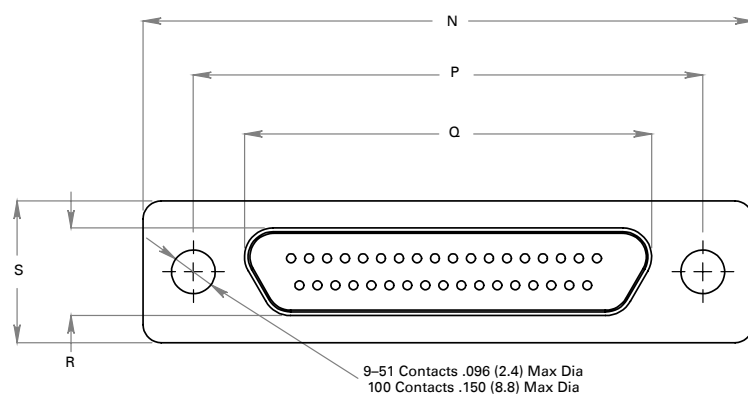
*Aerospace preferred.

Rev. 2145

Pre-Wired Micro-D Dimensions

Shell Size	N	P	Q	R	S	T	U	V	X
9P	0.785 (19.9)	0.565 (14.4)	0.333 (8.5)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.400 (10.2)	0.270 (6.9)
9S	0.785 (19.9)	0.565 (14.4)	0.400 (10.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.400 (10.2)	0.270 (6.9)
15P	0.935 (23.8)	0.715 (18.2)	0.483 (12.3)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.550 (14.0)	0.270 (6.9)
15S	0.935 (23.8)	0.715 (18.2)	0.551 (14.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.550 (14.0)	0.270 (6.9)
21P	1.085 (27.6)	0.865 (22.0)	0.633 (16.1)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.700 (17.8)	0.270 (6.9)
21S	1.085 (27.6)	0.865 (22.0)	0.701 (17.8)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.700 (17.8)	0.270 (6.9)
25P	1.185 (30.0)	0.965 (24.5)	0.733 (18.6)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.800 (20.3)	0.270 (6.9)
25S	1.185 (30.0)	0.965 (24.5)	0.801 (20.4)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.800 (20.3)	0.270 (6.9)
31P	1.335 (33.9)	1.115 (28.3)	0.883 (22.4)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	0.950 (24.1)	0.270 (6.9)
31S	1.335 (33.9)	1.115 (28.3)	0.951 (24.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	0.950 (24.1)	0.270 (6.9)
37P	1.485 (37.7)	1.265 (32.1)	1.033 (26.2)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.416 (10.6)	1.100 (27.9)	0.270 (6.9)
37S	1.485 (37.7)	1.265 (32.1)	1.101 (28.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.429 (10.9)	1.100 (27.9)	0.270 (6.9)
51P	1.435 (36.5)	1.215 (30.9)	0.983 (25.0)	0.228 (5.8)	0.351 (8.9)	0.183 (4.7)	0.416 (10.6)	1.050 (26.7)	0.310 (7.9)
51S	1.435 (36.5)	1.215 (30.9)	1.051 (26.7)	0.296 (7.5)	0.351 (8.9)	0.195 (5.0)	0.429 (10.9)	1.050 (26.7)	0.310 (7.9)
100P	2.170 (55.1)	1.800 (45.7)	1.383 (35.1)	0.270 (6.9)	0.394 (10.0)	0.183 (4.7)	0.416 (10.6)	1.422 (36.6)	0.360 (9.1)
100S	2.170 (55.1)	1.800 (45.7)	1.451 (36.9)	0.333 (8.5)	0.394 (10.0)	0.195 (5.0)	0.429 (10.9)	1.422 (36.6)	0.360 (9.1)

Dimensions are in inches (mm).



PCB Micro-D

MD Series • MIL-DTL-83513 Micro-D Style Connectors



MDP1 Cross-Reference & Compatibility

Compatible Brands	Equivalents
MIL-DTL-83513	M83513/22, M83513/23, M83513/24, M83513/25, M83513/26, M83513/27
Glenair	MWDM
Amphenol	Series 100
ITT Cannon	MDM Series

MDP1 - N 25 X 1 - B

- 1

2

3

4

5

6
- BASIC PART NUMBER**
MDP1 PCB Micro-D

MATERIAL & FINISH
N* Aluminum, electroless nickel
C Aluminum, cadmium
P Stainless steel, passivated
G Aluminum, electroless nickel (space-grade)

CONTACT AMOUNT
9, 15, 21, 25, 31, 37, 51, 100

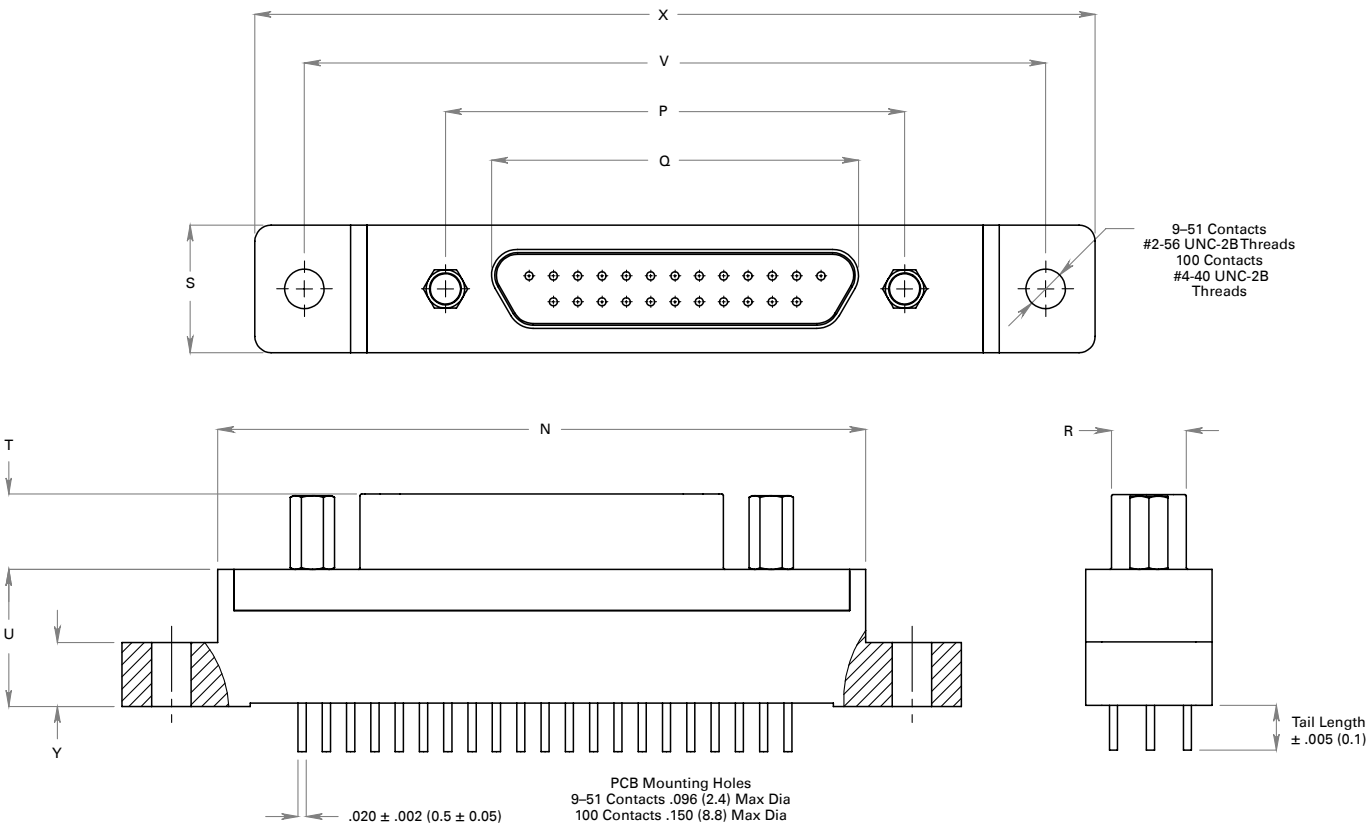
CONTACT STYLE
X PC tail pin
Y PC tail socket

CONTACT TAIL LENGTH*
1 .109 inches (2.77 mm)
2 .140 inches (3.56 mm)
3 .172 inches (4.37 mm)

MOUNTING HARDWARE
B No hardware (thru-hole only)
P Jackpost attached
H Threaded insert
W Jackpost attached and threaded insert

*Aerospace preferred. *Tail length tolerance ± 0.015 inches (.38 mm).

MD



Receptacle Dimensions

Shell Size	N	P	Q	R	S	T	U	V	X	Y
9P	0.790 (20.1)	0.565 (14.4)	0.333 (8.5)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.333 (8.5)	1.150 (29.2)	1.390 (35.3)	0.155 (3.9)
9S	0.790 (20.1)	0.565 (14.4)	0.400 (10.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.333 (8.5)	1.150 (29.2)	1.390 (35.3)	0.155 (3.9)
15P	0.940 (23.9)	0.715 (18.2)	0.483 (12.3)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.333 (8.5)	1.150 (29.2)	1.390 (35.3)	0.155 (3.9)
15S	0.940 (23.9)	0.715 (18.2)	0.551 (14.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.333 (8.5)	1.150 (29.2)	1.390 (35.3)	0.155 (3.9)
21P	1.180 (30.0)	0.865 (22.0)	0.633 (16.1)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.333 (8.5)	1.450 (36.8)	1.690 (42.9)	0.155 (3.9)
21S	1.180 (30.0)	0.865 (22.0)	0.701 (17.8)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.333 (8.5)	1.450 (36.8)	1.690 (42.9)	0.155 (3.9)
25P	1.275 (32.4)	0.965 (24.5)	0.733 (18.6)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.333 (8.5)	1.500 (38.1)	1.740 (44.2)	0.155 (3.9)
25S	1.275 (32.4)	0.965 (24.5)	0.801 (20.4)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.333 (8.5)	1.500 (38.1)	1.740 (44.2)	0.155 (3.9)
31P	1.575 (40.0)	1.115 (28.3)	0.883 (22.4)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.333 (8.5)	1.800 (45.7)	2.040 (51.8)	0.155 (3.9)
31S	1.575 (40.0)	1.115 (28.3)	0.951 (24.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.333 (8.5)	1.800 (45.7)	2.040 (51.8)	0.155 (3.9)
37P	1.875 (47.6)	1.265 (32.1)	1.033 (26.2)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.333 (8.5)	2.100 (53.3)	2.340 (59.4)	0.155 (3.9)
37S	1.875 (47.6)	1.265 (32.1)	1.101 (28.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.333 (8.5)	2.100 (53.3)	2.340 (59.4)	0.155 (3.9)
51P	1.775 (45.1)	1.215 (30.9)	0.983 (25.0)	0.228 (5.8)	0.351 (8.9)	0.183 (4.7)	0.333 (8.5)	2.000 (50.8)	2.270 (57.6)	0.155 (3.9)
51S	1.775 (45.1)	1.215 (30.9)	1.051 (26.7)	0.296 (7.5)	0.351 (8.9)	0.195 (5.0)	0.333 (8.5)	2.000 (50.8)	2.270 (57.6)	0.155 (3.9)
100P	2.585 (65.7)	1.800 (45.7)	1.383 (35.1)	0.270 (6.9)	0.460 (11.7)	0.183 (4.7)	0.525 (13.3)	2.800 (71.1)	3.250 (82.6)	0.293 (7.4)
100S	2.585 (65.7)	1.800 (45.7)	1.451 (36.9)	0.333 (8.5)	0.460 (11.7)	0.195 (5.0)	0.525 (13.3)	2.800 (71.1)	3.250 (82.6)	0.293 (7.4)

Dimensions are in inches (mm).

Mounting Hardware

B	P	H	W
			

Materials & Finish

Connector Shell, Metal:

Aluminum Alloy 6061 In Accordance With SAE-AMS-QQ-A-250/11

Code C: Cadmium With Yellow Chromate Conversion Coating

in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3

Code N: Electroless Nickel In Accordance With SAE-AMS-26074, Class 3

Code P: Stainless Steel, 300 Series, Passivated In Accordance With SAE-AMS-QQ-P-35

Insulator:

Liquid Crystal Polymer, 30% Glass-Filled, in Accordance With MIL-M-24519

Encapsulant (Potting):

Epoxy Resin, Hysol EE4215/HD3561

Condensed PCB Micro-D

MD Series • MIL-DTL-83513 Micro-D Style Connectors



MDP2 Cross-Reference & Compatibility

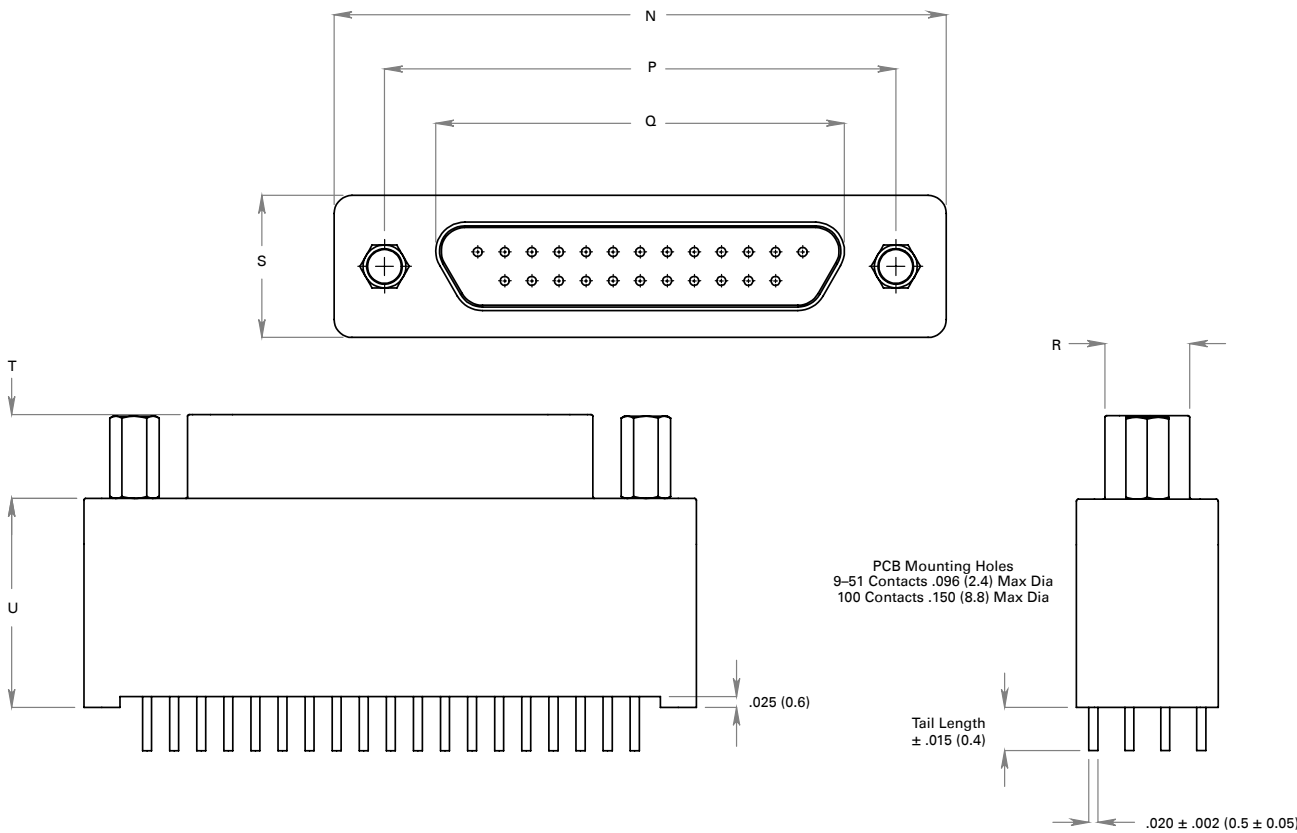
Compatible Brands	Equivalents
MIL-DTL-83513	M83513/28, M83513/29, M83513/30, M83513/31, M83513/32, M83513/33
Glenair	MWDM
Amphenol	Series 100
ITT Cannon	MDM Series

MDP2 - N 25 X 1 - B

- BASIC PART NUMBER**
MDP2 Condensed PCB Micro-D
- MATERIAL & FINISH**
N* Aluminum, electroless nickel
C Aluminum, cadmium
P Stainless steel, passivated
G Aluminum, electroless nickel (space-grade)
- CONTACT AMOUNT**
9, 15, 21, 25, 31, 37, 51, 100
- CONTACT STYLE**
X PC tail pin
Y PC tail socket
- CONTACT TAIL LENGTH***
1 .109 inches (2.77 mm)
2 .140 inches (3.56 mm)
3 .172 inches (4.37 mm)
- MOUNTING HARDWARE**
B No hardware (thru-hole only)
P Jackpost attached
H Threaded insert
W Jackpost attached and threaded insert

* Aerospace preferred. * Tail length tolerance ± 0.015 inches (.38 mm).

MD



Receptacle Dimensions

Shell Size	N	P	Q	R	S	T	U
9P	0.785 (19.9)	0.565 (14.4)	0.333 (8.5)	0.185 (4.7)	0.310 (7.9)	0.183 (4.7)	0.355 (9.0)
9S	0.785 (19.9)	0.565 (14.4)	0.400 (10.2)	0.253 (6.4)	0.310 (7.9)	0.195 (5.0)	0.355 (9.0)
15P	0.935 (23.8)	0.715 (18.2)	0.483 (12.3)	0.185 (4.7)	0.310 (7.9)	0.183 (4.7)	0.355 (9.0)
15S	0.935 (23.8)	0.715 (18.2)	0.551 (14.0)	0.253 (6.4)	0.310 (7.9)	0.195 (5.0)	0.355 (9.0)
21P	1.085 (27.6)	0.865 (22.0)	0.633 (16.1)	0.185 (4.7)	0.310 (7.9)	0.183 (4.7)	0.355 (9.0)
21S	1.085 (27.6)	0.865 (22.0)	0.701 (17.8)	0.253 (6.4)	0.310 (7.9)	0.195 (5.0)	0.355 (9.0)
25P	1.185 (30.0)	0.965 (24.5)	0.733 (18.6)	0.185 (4.7)	0.310 (7.9)	0.183 (4.7)	0.355 (9.0)
25S	1.185 (30.0)	0.965 (24.5)	0.801 (20.4)	0.253 (6.4)	0.310 (7.9)	0.195 (5.0)	0.355 (9.0)
31P	1.335 (33.9)	1.115 (28.3)	0.883 (22.4)	0.185 (4.7)	0.310 (7.9)	0.183 (4.7)	0.355 (9.0)
31S	1.335 (33.9)	1.115 (28.3)	0.951 (24.2)	0.253 (6.4)	0.310 (7.9)	0.195 (5.0)	0.355 (9.0)
37P	1.485 (37.7)	1.265 (32.1)	1.033 (26.2)	0.185 (4.7)	0.310 (7.9)	0.183 (4.7)	0.355 (9.0)
37S	1.485 (37.7)	1.265 (32.1)	1.101 (28.0)	0.253 (6.4)	0.310 (7.9)	0.195 (5.0)	0.355 (9.0)
51P	1.435 (36.5)	1.215 (30.9)	0.983 (25.0)	0.228 (5.8)	0.400 (10.2)	0.183 (4.7)	0.355 (9.0)
51S	1.435 (36.5)	1.215 (30.9)	1.051 (26.7)	0.296 (7.5)	0.400 (10.2)	0.195 (5.0)	0.355 (9.0)
100P	2.170 (55.1)	1.800 (45.7)	1.383 (35.1)	0.271 (6.9)	0.510 (13.0)	0.183 (4.7)	0.430 (10.9)
100S	2.170 (55.1)	1.800 (45.7)	1.451 (36.9)	0.340 (8.6)	0.510 (13.0)	0.195 (5.0)	0.430 (10.9)

Dimensions are in inches (mm).

Mounting Hardware

B	P	H	W
			

Materials & Finish

Connector Shell, Metal:

Aluminum Alloy 6061 In Accordance With SAE-AMS-QQ-A-250/11

Code C: Cadmium With Yellow Chromate Conversion Coating

in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3

Code N: Electroless Nickel In Accordance With SAE-AMS-26074, Class 3

Code P: Stainless Steel, 300 Series, Passivated In Accordance With SAE-AMS-QQ-P-35

Liquid Crystal Polymer, 30% Glass-Filled, in Accordance With MIL-M-24519

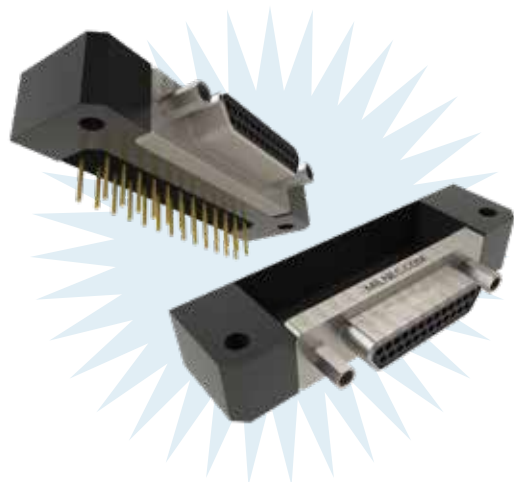
Insulator:

Encapsulant (Potting):

Epoxy Resin, Hysol EE4215/HD3561

90-Degree PCB Micro-D

MD Series • MIL-DTL-83513 Micro-D Style Connectors



MDP3 Cross-Reference & Compatibility

Compatible Brands	Equivalents
MIL-DTL-83513	M83513/16, M83513/17, M83513/18, M83513/19, M83513/20, M83513/21
Glenair	MWDM
Amphenol	Series 100
ITT Cannon	MDM Series

MDP3 - N 25 X 1 - B

- 123456
- 1

BASIC PART NUMBER
MDP3 90-degree PCB Micro-D
- 2

MATERIAL & FINISH
N* Aluminum, electroless nickel
C Aluminum, cadmium
P Stainless steel, passivated
G Aluminum, electroless nickel (space-grade)
- 3

CONTACT AMOUNT
9, 15, 21, 25, 31, 37, 51, 100
- 4

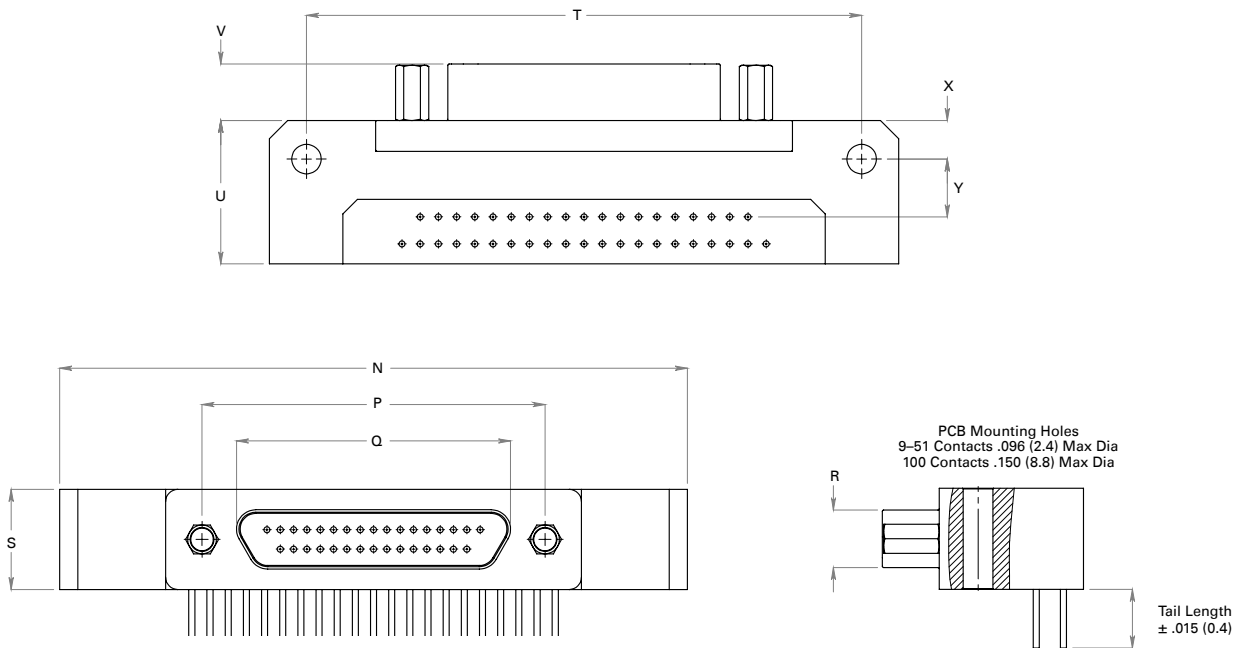
CONTACT STYLE
X PC tail pin
Y PC tail socket
- 5

CONTACT TAIL LENGTH*
1 .109 inches (2.77 mm)
2 .140 inches (3.56 mm)
3 .172 inches (4.37 mm)
- 6

MOUNTING HARDWARE
B No hardware (thru-hole only)
P Jackpost attached
H Threaded insert
W Jackpost attached and threaded insert

*Aerospace preferred. *Tail length tolerance ± 0.015 inches (.38 mm).

MD



Receptacle Dimensions

Shell Size	N	P	Q	R	S	T	U	V	X	Y
9P	1.390 (35.3)	0.565 (14.4)	0.333 (8.5)	0.185 (4.7)	0.325 (8.3)	1.150 (29.2)	0.465 (11.8)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
9S	1.390 (35.3)	0.565 (14.4)	0.400 (10.2)	0.253 (6.3)	0.325 (8.3)	1.150 (29.2)	0.465 (11.8)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
15P	1.540 (39.1)	0.715 (18.2)	0.483 (12.3)	0.185 (4.7)	0.325 (8.3)	1.300 (33.0)	0.465 (11.8)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
15S	1.540 (39.1)	0.715 (18.2)	0.551 (14.0)	0.253 (6.3)	0.325 (8.3)	1.300 (33.0)	0.465 (11.8)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
21P	1.690 (42.9)	0.865 (22.0)	0.633 (16.1)	0.185 (4.7)	0.325 (8.3)	1.450 (36.8)	0.465 (11.8)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
21S	1.690 (42.9)	0.865 (22.0)	0.701 (17.8)	0.253 (6.3)	0.325 (8.3)	1.450 (36.8)	0.465 (11.8)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
25P	1.790 (45.5)	0.965 (24.5)	0.733 (18.6)	0.185 (4.7)	0.325 (8.3)	1.550 (39.4)	0.465 (11.8)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
25S	1.790 (45.5)	0.965 (24.5)	0.801 (20.4)	0.253 (6.3)	0.325 (8.3)	1.550 (39.4)	0.465 (11.8)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
31P	2.040 (51.8)	1.115 (28.3)	0.883 (22.4)	0.185 (4.7)	0.325 (8.3)	1.800 (45.7)	0.465 (11.8)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
31S	2.040 (51.8)	1.115 (28.3)	0.951 (24.2)	0.253 (6.3)	0.325 (8.3)	1.800 (45.7)	0.465 (11.8)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
37P	2.340 (59.4)	1.265 (32.1)	1.033 (26.2)	0.185 (4.7)	0.325 (8.3)	2.100 (53.5)	0.465 (11.8)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
37S	2.340 (59.4)	1.265 (32.1)	1.101 (28.0)	0.253 (6.3)	0.325 (8.3)	2.100 (53.5)	0.465 (11.8)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
51P	1.875 (47.6)	1.215 (30.9)	0.983 (25.0)	0.228 (5.8)	0.360 (9.1)	1.600 (40.6)	0.565 (14.4)	0.183 (4.7)	0.125 (3.2)	0.150 (3.8)
51S	1.875 (47.6)	1.215 (30.9)	1.051 (26.7)	0.296 (7.5)	0.360 (9.1)	1.600 (40.6)	0.565 (14.4)	0.195 (5.0)	0.125 (3.2)	0.150 (3.8)
100P	2.780 (70.6)	1.800 (45.7)	1.383 (35.1)	0.271 (6.9)	0.420 (10.7)	2.500 (63.5)	0.765 (19.4)	0.183 (4.7)	0.225 (5.7)	0.150 (3.8)
100S	2.780 (70.6)	1.800 (45.7)	1.451 (36.9)	0.333 (8.6)	0.420 (10.7)	2.500 (63.5)	0.765 (19.4)	0.195 (5.0)	0.225 (5.7)	0.150 (3.8)



Materials & Finish

Connector Shell, Metal:

Aluminum Alloy 6061 In Accordance With SAE-AMS-QQ-A-250/11

Code C: Cadmium With Yellow Chromate Conversion Coating

in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3

Code N: Electroless Nickel In Accordance With SAE-AMS-26074, Class 3

Code P: Stainless Steel, 300 Series, Passivated In Accordance With SAE-AMS-QQ-P-35

Insulator:

Liquid Crystal Polymer, 30% Glass-Filled, in Accordance With MIL-M-24519

Encapsulant (Potting):

Epoxy Resin, Hysol EE4215/HD3561

Condensed 90 PCB Micro-D

MD Series • MIL-DTL-83513 Micro-D Style Connectors



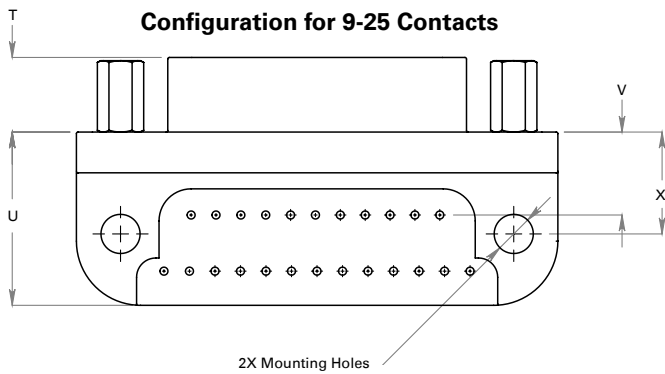
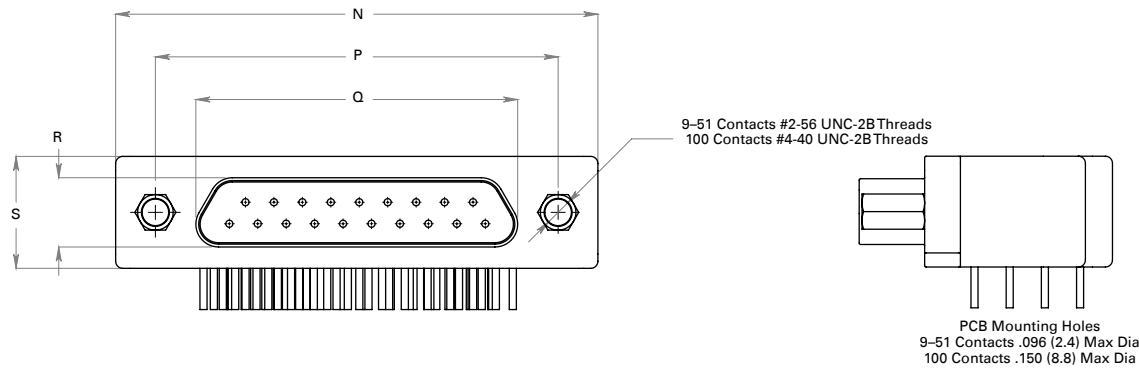
MDP4 Cross-Reference & Compatibility

Compatible Brands	Equivalents
MIL-DTL-83513	M83513/10, M83513/11, M83513/12, M83513/13, M83513/14, M83513/15
Glenair	MWDM
Amphenol	Series 100
ITT Cannon	MDM Series

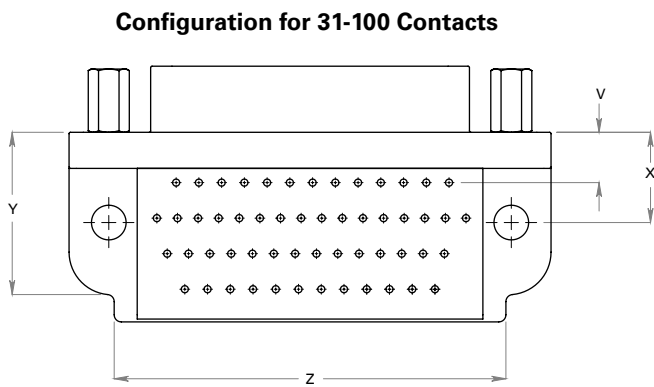
MDP4 - N 25 X 1 - B

- BASIC PART NUMBER**
MDP4 Condensed 90-degree PCB Micro-D
- MATERIAL & FINISH**
N* Aluminum, electroless nickel
C Aluminum, cadmium
P Stainless steel, passivated
G Aluminum, electroless nickel (space-grade)
- CONTACT AMOUNT**
9, 15, 21, 25, 31, 37, 51, 100
- CONTACT STYLE**
X PC tail pin
Y PC tail socket
- CONTACT TAIL LENGTH***
1 .109 inches (2.77 mm)
2 .140 inches (3.56 mm)
3 .172 inches (4.37 mm)
- MOUNTING HARDWARE**
B No hardware (thru-hole only)
P Jackpost attached
H Threaded insert
W Jackpost attached and threaded insert

*Aerospace preferred. *Tail length tolerance ± 0.015 inches (.38 mm).



Configuration for 9-25 Contacts



Configuration for 31-100 Contacts

Receptacle Dimensions

Shell Size	N	P	Q	R	S	T	U	V	X	Y	Z
9P	0.787 (19.9)	0.565 (14.4)	0.333 (8.5)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.425 (10.8)	0.230 (5.8)	0.250 (6.4)		
9S	0.787 (19.9)	0.565 (14.4)	0.400 (10.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.425 (10.8)	0.230 (5.8)	0.250 (6.4)		
15P	0.937 (23.8)	0.715 (18.2)	0.483 (12.3)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.425 (10.8)	0.130 (3.3)	0.250 (6.4)		
15S	0.937 (23.8)	0.715 (18.2)	0.551 (14.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.425 (10.8)	0.130 (3.3)	0.250 (6.4)		
21P	1.087 (27.6)	0.865 (22.0)	0.633 (16.1)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.425 (10.8)	0.130 (3.3)	0.250 (6.4)		
21S	1.087 (27.6)	0.865 (22.0)	0.701 (17.8)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.425 (10.8)	0.130 (3.3)	0.250 (6.4)		
25P	1.187 (30.0)	0.965 (24.5)	0.733 (18.6)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.425 (10.8)	0.130 (3.3)	0.250 (6.4)		
25S	1.187 (30.0)	0.965 (24.5)	0.801 (20.4)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.425 (10.8)	0.130 (3.3)	0.250 (6.4)		
31P	1.337 (33.9)	1.115 (28.3)	0.833 (22.4)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.525 (13.3)	0.130 (3.3)	0.250 (6.4)	0.450 (11.4)	1.085 (27.6)
31S	1.337 (33.9)	1.115 (28.3)	0.951 (24.2)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.525 (13.3)	0.130 (3.3)	0.250 (6.4)	0.450 (11.4)	1.085 (27.6)
37P	1.487 (37.7)	1.265 (32.1)	1.033 (26.2)	0.184 (4.7)	0.310 (7.9)	0.183 (4.7)	0.525 (13.3)	0.130 (3.3)	0.250 (6.4)	0.450 (11.4)	1.185 (30.1)
37S	1.487 (37.7)	1.265 (32.1)	1.101 (28.0)	0.250 (6.4)	0.310 (7.9)	0.195 (5.0)	0.525 (13.3)	0.130 (3.3)	0.250 (6.4)	0.450 (11.4)	1.185 (30.1)
51P	1.435 (36.5)	1.215 (30.9)	0.983 (25.0)	0.228 (5.8)	0.351 (8.9)	0.183 (4.7)	0.660 (16.8)	0.150 (3.8)	0.300 (7.6)	0.450 (11.4)	1.225 (31.1)
51S	1.435 (36.5)	1.215 (30.9)	1.051 (26.7)	0.296 (7.5)	0.351 (8.9)	0.195 (5.0)	0.660 (16.8)	0.150 (3.8)	0.300 (7.6)	0.450 (11.4)	1.225 (31.1)
100P	2.175 (55.1)	1.800 (45.7)	1.383 (35.1)	0.270 (6.9)	0.394 (10.0)	0.183 (4.7)	1.010 (25.7)	0.200 (5.1)	0.400 (10.2)	0.590 (15.0)	1.820 (46.2)
100S	2.175 (55.1)	1.800 (45.7)	1.451 (36.9)	0.333 (8.5)	0.394 (10.0)	0.195 (5.0)	1.010 (25.7)	0.200 (5.1)	0.400 (10.2)	0.590 (15.0)	1.820 (46.2)

Mounting Hardware

B	P	H	W
			

Materials & Finish

Connector Shell, Metal:

Aluminum Alloy 6061 In Accordance With SAE-AMS-QQ-A-250/11

Code C: Cadmium With Yellow Chromate Conversion Coating

in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3

Code N: Electroless Nickel In Accordance With SAE-AMS-26074, Class 3

Code P: Stainless Steel, 300 Series, Passivated In Accordance With SAE-AMS-QQ-P-35

Liquid Crystal Polymer, 30% Glass-Filled, in Accordance With MIL-M-24519

Insulator:

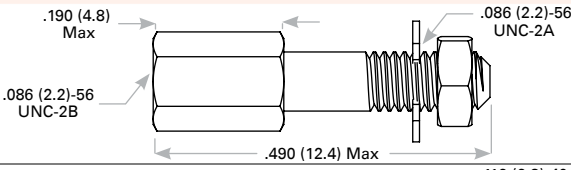
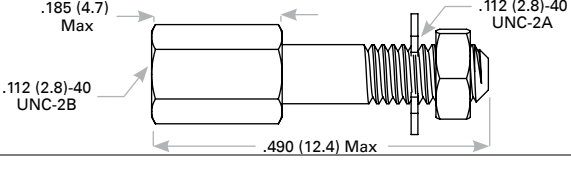
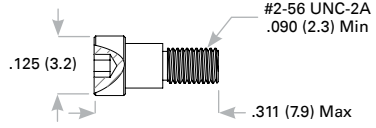
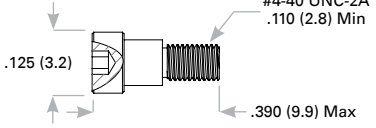
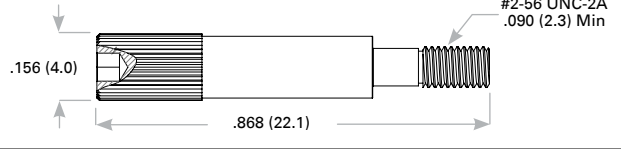
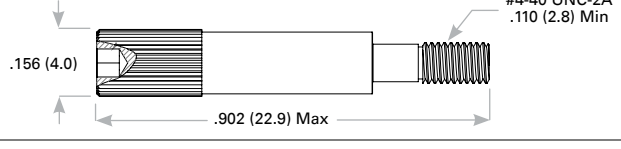
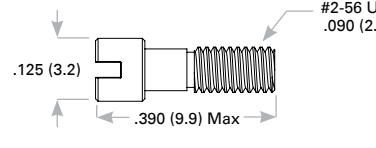
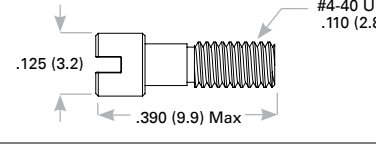
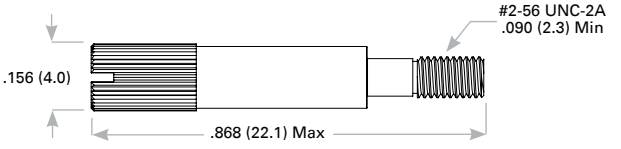
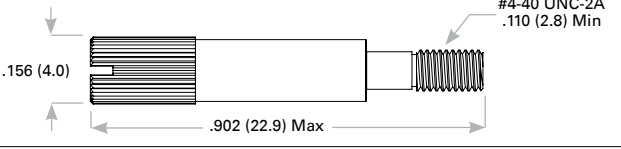
Encapsulant (Potting):

Epoxy Resin, Hysol EE4215/HD3561

Mounting Hardware

MD Series • MIL-DTL-83513 Micro-D Style Connectors

Jackscrew Kits

Configuration	Size	Milnec Part Number	Dimensions
 Jackpost	9 to 69 Contacts #2-56 UNC	MDJP-07	
	100 Contacts Only #4-40 UNC	MDJP-17	
 Hex Head Jackscrew	9 to 69 Contacts #2-56 UNC	MDJS-02	
	100 Contacts Only #4-40 UNC	MDJS-12	
 Extended Hex Head Jackscrew	9 to 69 Contacts #2-56 UNC	MDJS-03	
	100 Contacts Only #4-40 UNC	MDJS-13	
 Slot Head Jackscrew	9 to 69 Contacts #2-56 UNC	MDJS-05	
	100 Contacts Only #4-40 UNC	MDJS-15	
 Extended Slot Head Jackscrew	9 to 69 Contacts #2-56 UNC	MDJS-06	
	100 Contacts Only #4-40 UNC	MDJS-16	

Rev. 2145

Jackpost Kits for Rear Mounting Connectors

Part Number	Connector Size	Panel Thickness	L	V Thread Class 2A & C Thread Class 2B
MDRM-02	9 - 51	.031 (.79)	.024 (.61)	#2-56 UNC
MDRM-03	Contacts	.047 (1.19)	.041 (1.04)	
MDRM-04	M83513	.062 (1.57)	.055 (1.40)	
MDRM-05	Sizes	.080 (2.03)	.073 (1.85)	
MDRM-06	A - G	.094 (2.39)	.086 (2.18)	
MDRM-07	(Figure 1)	.125 (3.18)	.118 (3.00)	
MDRM-08	100	.031 (.79)	.024 (.61)	#4-40 UNC
MDRM-09	Contacts	.047 (1.19)	.041 (1.04)	
MDRM-10	M83513	.062 (1.57)	.055 (1.40)	
MDRM-11	Size	.080 (2.03)	.073 (1.85)	
MDRM-12	H	.094 (2.39)	.086 (2.18)	
MDRM-13	(Figure 2)	.125 (3.18)	.118 (3.00)	

Dimensions are in inches (mm).

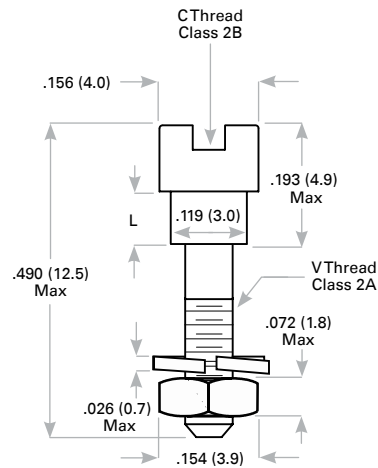


Figure 1

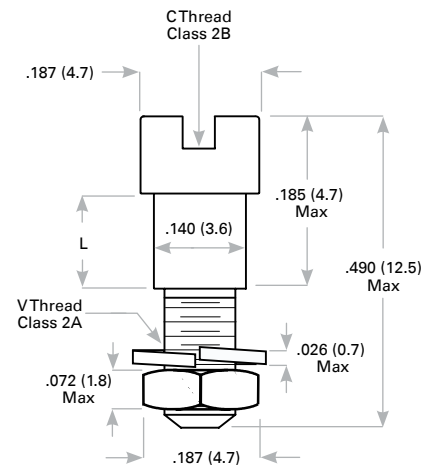
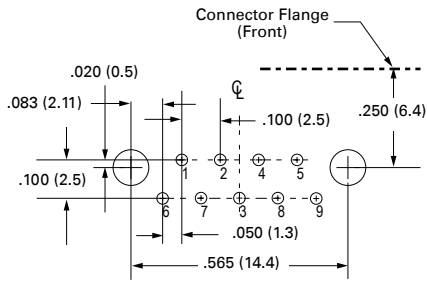


Figure 2

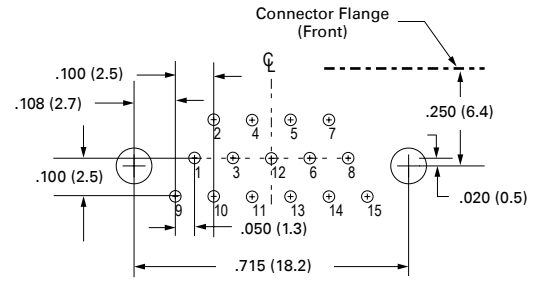
PCB Connector Layouts

MD Series • MIL-DTL-83513 Micro-D Style Connectors

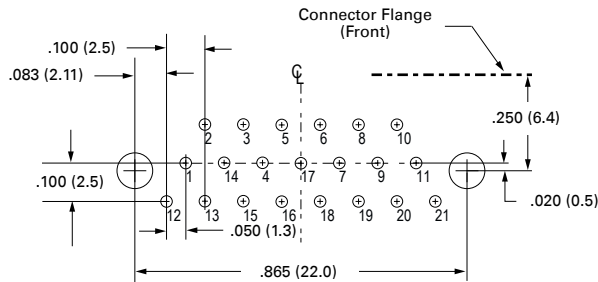
9 Pin MDP4 (M83513/10-A Type)



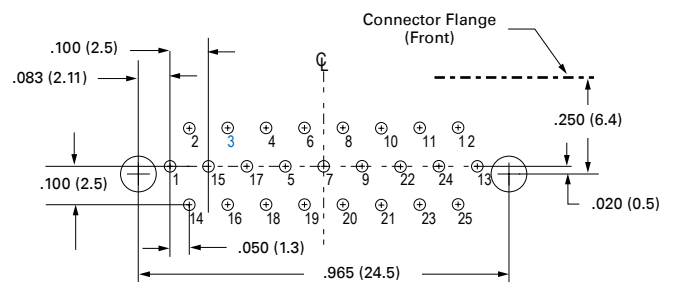
15 Pin MDP4 (M83513/10-B Type)



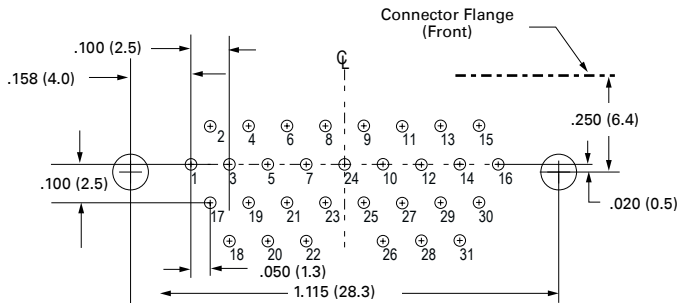
21 Pin MDP4 (M83513/10-C Type)



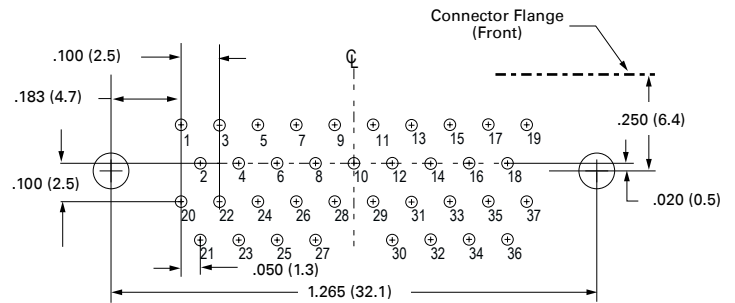
25 Pin MDP4 (M83513/10-D Type)



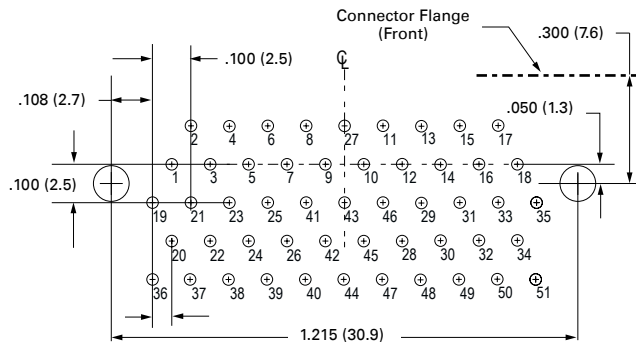
31 Pin MDP4 (M83513/10-E Type)



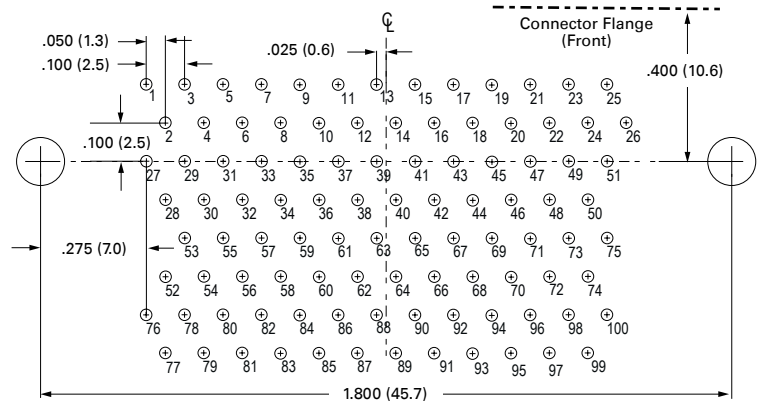
37 Pin MDP4 (M83513/10-F Type)



51 Pin MDP4 (M83513/11-G Type)



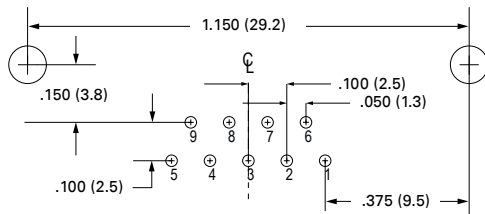
100 Pin MDP4 (M83513/12-H Type)



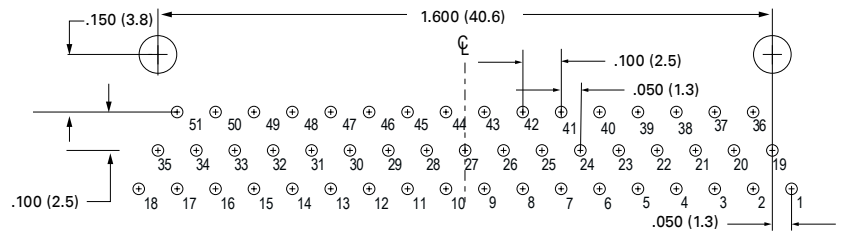
Layout patterns shown for mounting side of PC board. Mounting holes diameter .096 (2.4) for 9 to 51 contacts, .125 (3.2) for 100 contacts. Socket layouts opposite. Dimensions in inches (mm).

Rev. 2145

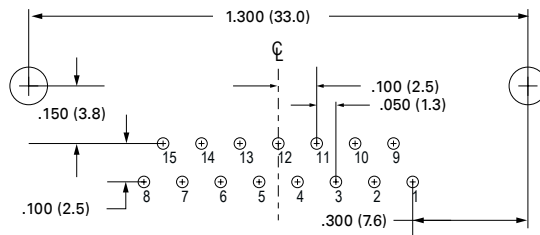
9 Pin MDP3 (M83513/16-A Type)



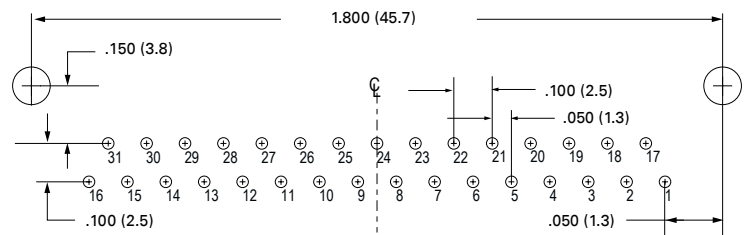
51 Pin MDP3 (M83513/17-G Type)



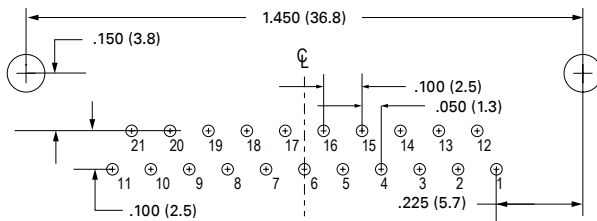
15 Pin MDP3 (M83513/16-B Type)



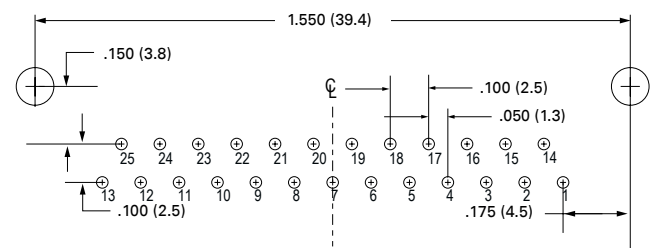
31 Pin MDP3 (M83513/16-E Type)



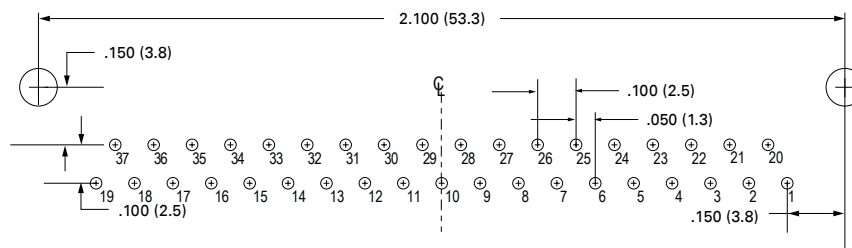
21 Pin MDP3 (M83513/16-C Type)



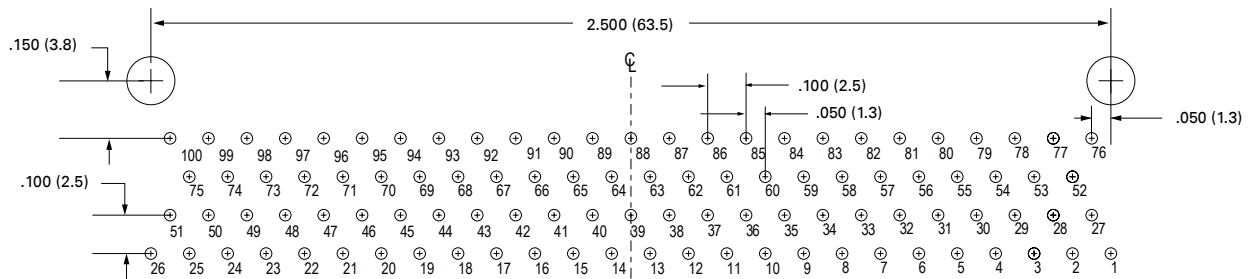
25 Pin MDP3 (M83513/16-D Type)



37 Pin MDP3 (M83513/16-F Type)



100 Pin MDP3 (M83513/18-H Type)



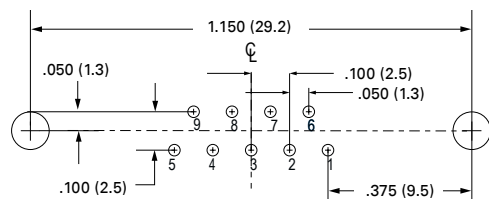
Layout patterns shown for mounting side of PC board. Mounting holes diameter .096 (2.4) for 9 to 51 contacts, .125 (3.2) for 100 contacts. Socket layouts opposite. Dimensions in inches (mm).

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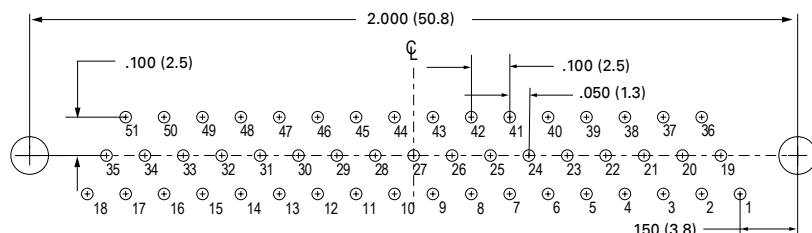
PCB Connector Layouts

MD Series • MIL-DTL-83513 Micro-D Style Connectors

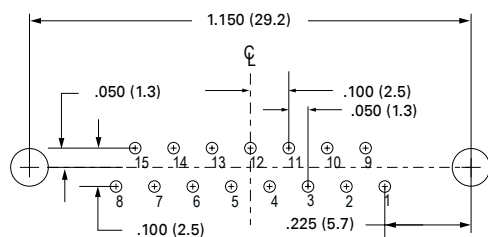
9 Pin MDP1 (M83513/22-A Type)



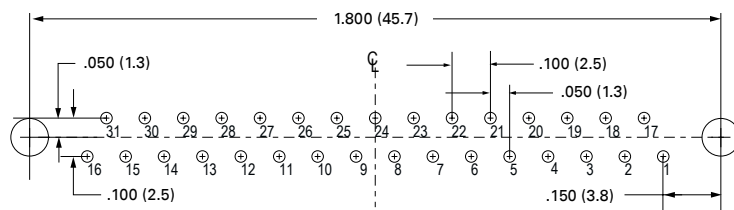
51 Pin MDP1 (M83513/22-G Type)



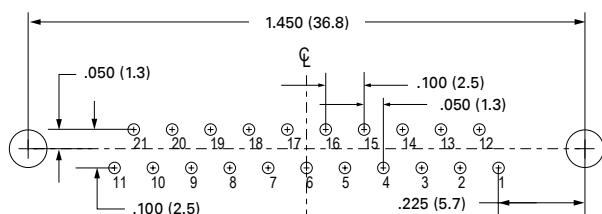
15 Pin MDP1 (M83513/22-B Type)



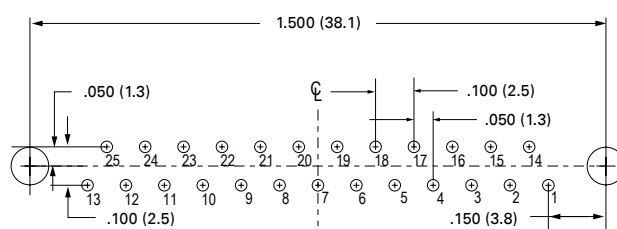
31 Pin MDP1 (M83513/22-E Type)



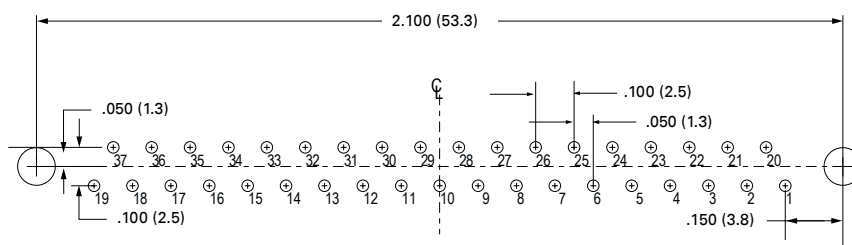
21 Pin MDP1 (M83513/22-C Type)



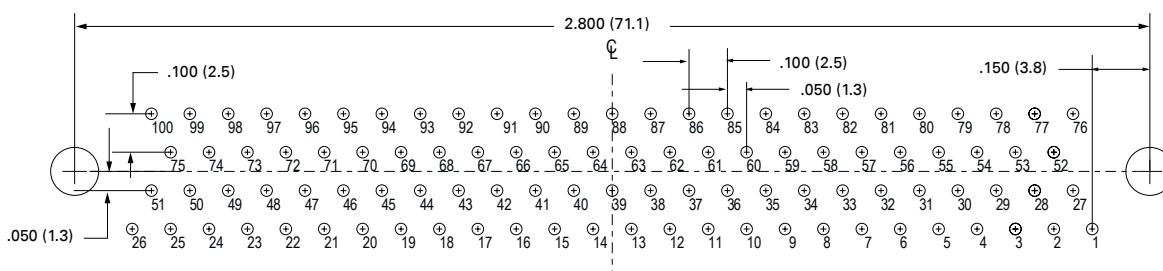
25 Pin MDP1 (M83513/22-D Type)



37 Pin MDP1 (M83513/22-F Type)



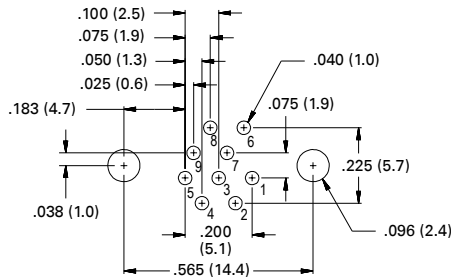
100 Pin MDP1 (M83513/24-H Type)



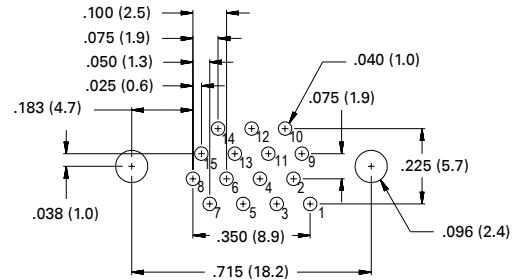
Layout patterns shown for mounting side of PC board. Mounting holes diameter .096 (2.4) for 9 to 51 contacts, .125 (3.2) for 100 contacts. Socket layouts opposite. Dimensions in inches (mm).

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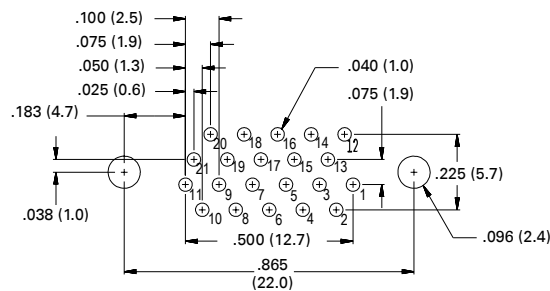
9 Pin MDP2 (M83513/28-A Type)



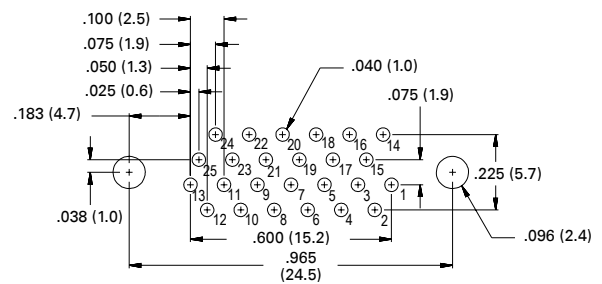
15 Pin MDP2 (M83513/28-B Type)



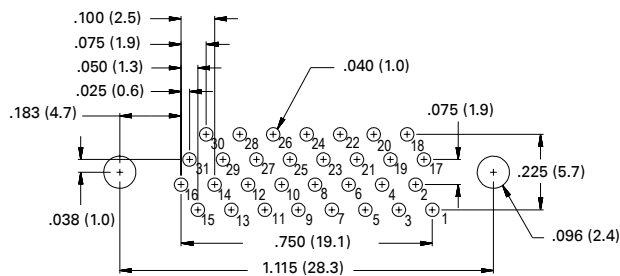
21 Pin MDP2 (M83513/28-C Type)



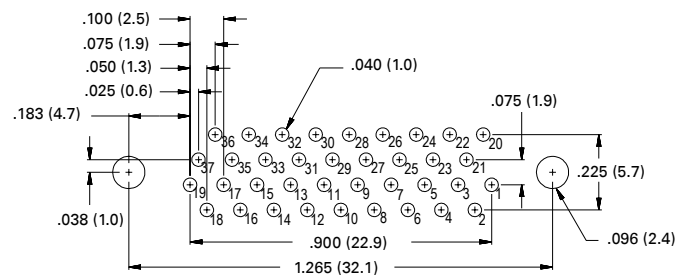
25 Pin MDP2 (M83513/28-D Type)



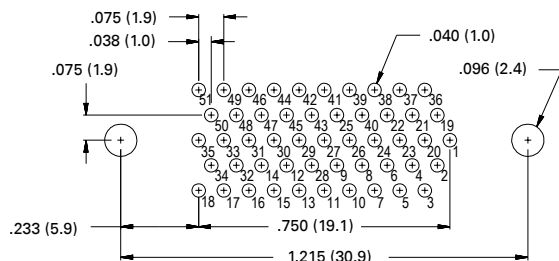
31 Pin MDP2 (M83513/28-E Type)



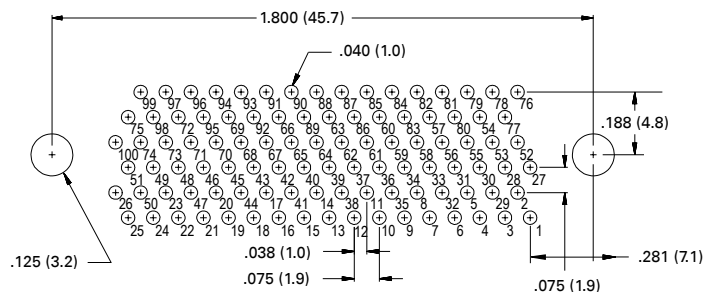
37 Pin MDP2 (M83513/28-F Type)



51 Pin MDP2 (M83513/29-G Type)



100 Pin MDP2 (M83513/30-H Type)



Layout patterns shown for mounting side of PC board. Mounting holes diameter .096 (2.4) for 9 to 51 contacts, .125 (3.2) for 100 contacts. Socket layouts opposite. Dimensions in inches (mm).