

INCH-POUND

MIL-DTL-83503/21D
w/AMENDMENT 1
5 May 2010
SUPERSEDING
MIL-DTL-83503/21D
21 July 2004

DETAIL SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, FLAT CABLE, NONENVIRONMENTAL,
HEADER, STRAIGHT THRU (.100 INCH SPACING) WITH POLARIZING FEATURE
SOLDERLESS WRAPPOST OR PWB TERMINATION

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

The requirements for acquiring the product described herein shall consist of this specification sheet and
MIL-DTL-83503.

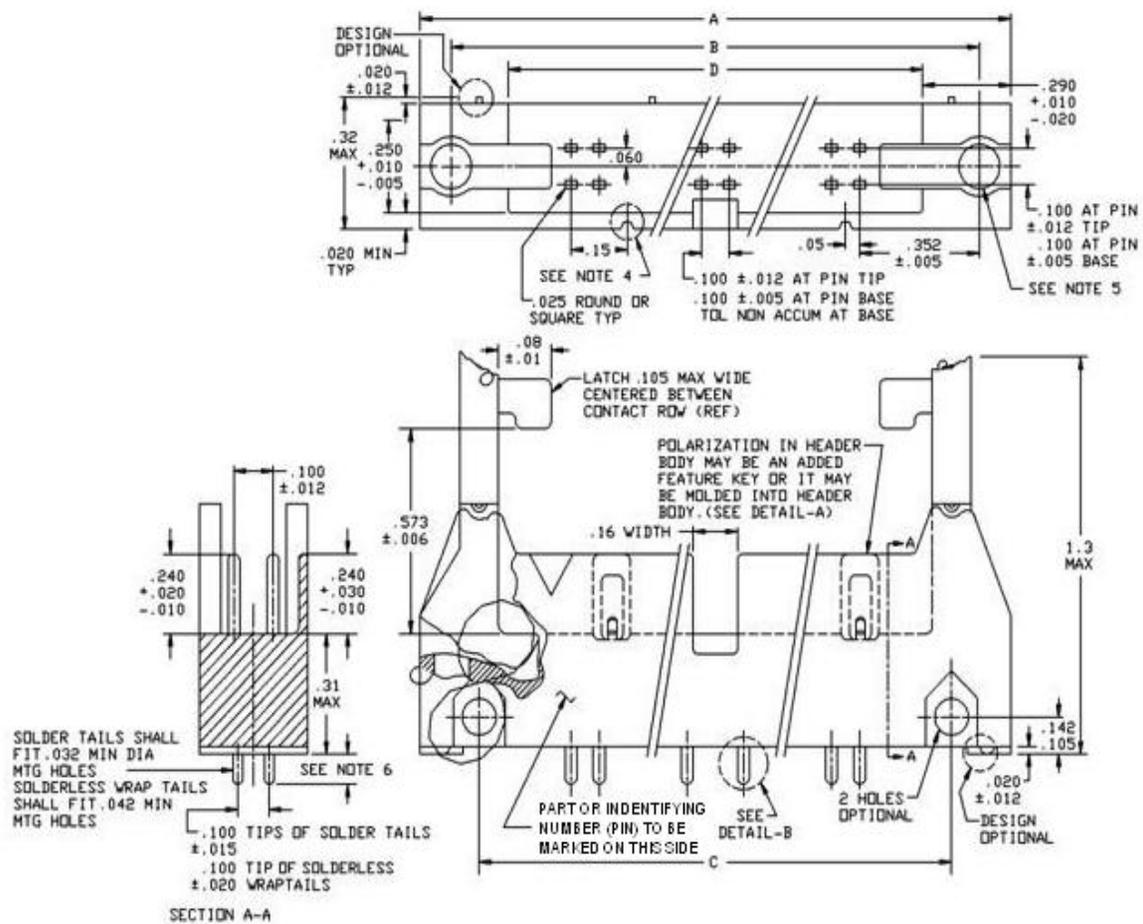


FIGURE 1. Dimensions and configuration.

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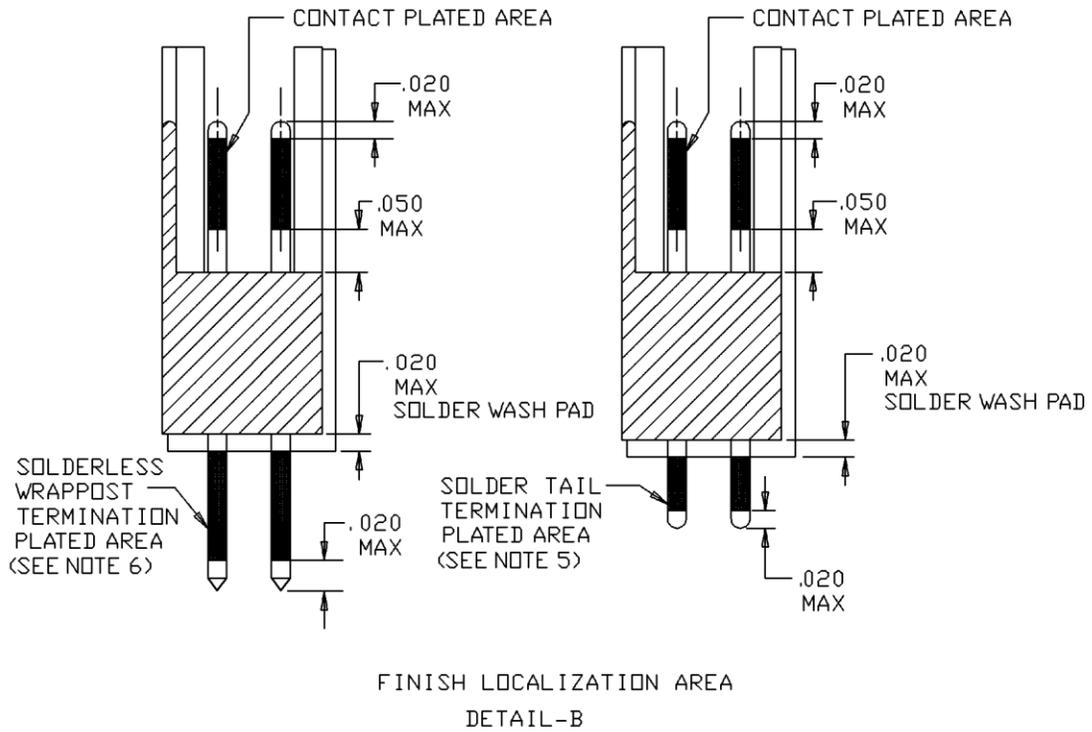
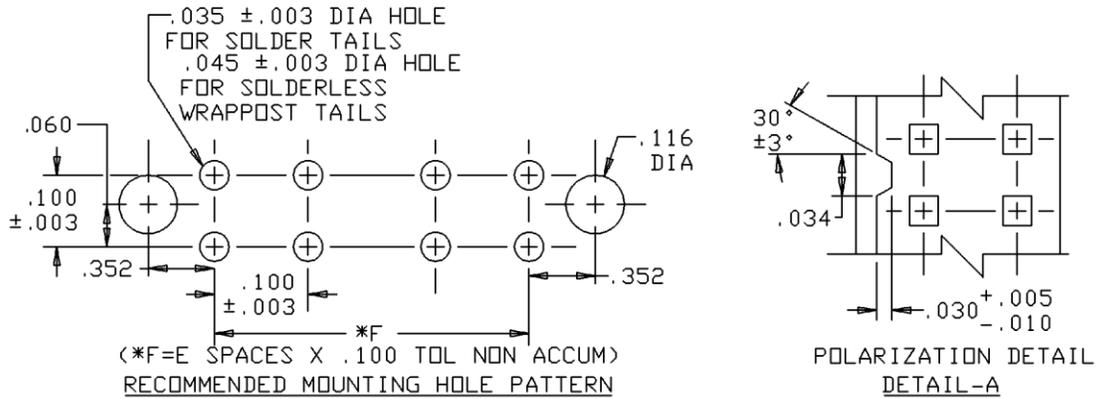


FIGURE 1. Dimensions and configuration - Continued.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.003	0.08	.025	0.64	.05	1.3	.240	6.10
.005	0.13	.030	0.76	.060	1.52	.250	6.35
.006	0.15	.032	0.81	.08	2.0	.290	7.37
.010	0.25	.034	0.86	.100	2.54	.31	7.9
.01	0.3	.035	0.89	.105	2.67	.32	8.13
.012	0.30	.042	1.07	.116	2.95	.352	8.94
.015	0.38	.045	1.14	.125	3.18	.573	14.55
.020	0.51	.050	1.27	.142	3.61	.610	15.49
				.16	4.1	1.3	33.0

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) for three place decimals and $\pm .01$ inch (0.3 mm) for two place decimals.
4. For 10 and 14 position connectors the polarizing feature on this end is non-existent.
5. Two thread cutting screws, No. 4-24 (1/4 inch long) type BG are provided.
6. Pin length for printed wiring board (PWB) thickness of is as follows:

PWB thickness inch (mm)	Pin length Min inch (mm)	Pin length Max inch (mm)
.062 (1.57)	.089 (2.26)	.116 (2.95)
.125 (3.18)	.152 (3.86)	.178 (4.52)

7. Solderless wrappost, pin length shall be $.610 \pm .015$ inch (15.49 ± 0.38 mm).

FIGURE 1. Dimensions and configuration - Continued.

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TABLE I. Dash numbers and characteristics.

Dash Number	Number of pins	Dimensions						Termination, right angle contact type
		A inch (mm)	B inch (mm)	C inch (mm)	D ^{1/} inch (mm)	E spaces	F inch (mm)	
-01	10							
-02	10	1.26	1.10	.86	.690	4	.400	.062 PWB
-03	10	(32.0)	(27.9)	(21.84)	(17.53)		(10.16)	.125 PWB Wrappost
-04	14	1.46	1.30	1.06	.890	6	.600	.062 PWB
-05	14	(37.1)	(33.0)	(26.92)	(22.61)		(15.24)	.125 PWB
-06	14							Wrappost
-07	16	1.56	1.40	1.16	.990	7	.700	.062 PWB
-08	16	(39.6)	(35.6)	(29.46)	(25.15)		(17.78)	.125 PWB
-09	16							Wrappost
-10	20	1.76	1.60	1.36	1.190	9	.900	.062 PWB
-11	20	(44.7)	(40.6)	(34.54)	(30.23)		(22.86)	.125 PWB
-12	20							Wrappost
-13	26	2.06	1.90	1.66	1.490	12	1.200	.062 PWB
-14	26	(52.3)	(48.3)	(42.16)	(37.85)		(30.48)	.125 PWB
-15	26							Wrappost
-16	34	2.46	2.30	2.06	2.06	16	1.600	.062 PWB
-17	34	(62.5)	(58.4)	(52.32)	(52.32)		(40.64)	.125 PWB
-18	34							Wrappost
-19	40	2.76	2.60	2.36	2.36	19	1.900	.062 PWB
-20	40	(70.1)	(66.0)	(59.94)	(59.94)		(48.26)	.125 PWB
-21	40							Wrappost
-22	50	3.26	3.10	2.86	2.69	24	2.400	.062 PWB
-23	50	(82.8)	(78.7)	(72.64)	(68.33)		(60.96)	.125 PWB
-24	50							Wrappost
-25	60	3.76	3.60	3.36	3.36	29	2.900	.062 PWB
-26	60	(95.5)	(91.4)	(85.34)	(85.34)		(73.66)	.125 PWB
-27	60							Wrappost
-28	64	3.96	3.80	3.56	3.390	31	3.100	.062 PWB
-29	64	(100.6)	(96.5)	(90.42)	(86.11)		(78.74)	.125 PWB
-30	64							Wrappost

^{1/} Tolerance for "D" dimension is +.030 -.000 inch (+0.76 -0.00 mm).

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REQUIREMENTS:

Design and construction:

Dimensions and configurations: See figure 1 and table I.

Temperature range: -55° to +120°C.

Voltage rating: 300 V rms.

Current rating: 1 ampere.

Materials:

Contacts: The contacts shall be phosphor bronze or brass. Phosphor bronze shall be in accordance with ASTM B139/B139M, copper alloy UNS No. C51000. Brass shall be in accordance with copper alloy CDA 260, spring temper; or copper alloy UNS No. C72500 spring temper in accordance with ASTM B122/B122M.

Contact plating:

Contact area: Gold in accordance with MIL-DTL-83503.

Solder tail termination area: Gold or tin-lead in accordance with MIL-DTL-83503.

Housing: Glass filled polyester in accordance with MIL-M-24519, type GPT-15F, GPT-20F, GPT-30F.

Accessories: Parts may be constructed of polyester in accordance with MIL-M-24519 or other materials specified in MIL-DTL-83503, provided these parts do not come in contact with current carrying components.

Polarization key: Shall be permanently attached to header (added feature key shall be bonded to header).

Mating connector: See MIL-DTL-83503/7.

Solderless wrappost contacts:

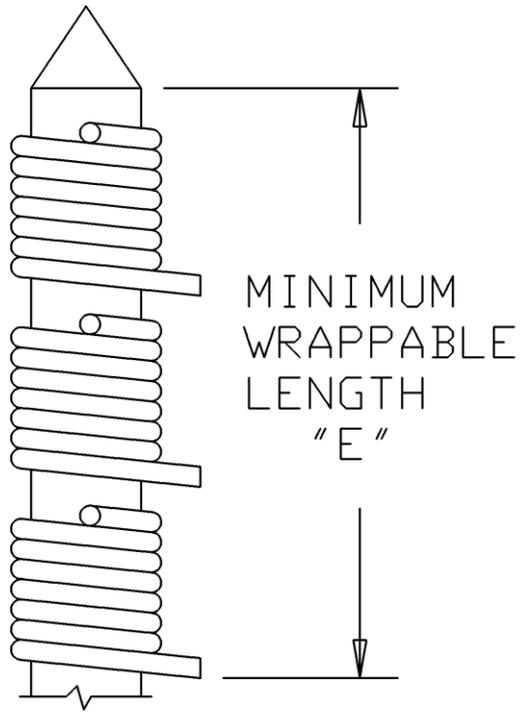
Wrappost geometry: .045 inch (1.14 mm) square wrappost in accordance with figures 2 and 3.

Parallelism: See figure 3 and table.

Tip configuration: The tip configuration of the wrappost shall terminate in a radius or bevel to facilitate insertion of the wrapping tool. See figure 3.

Solderless wrappost contact wire accommodation: 26 or 28 AWG solid.

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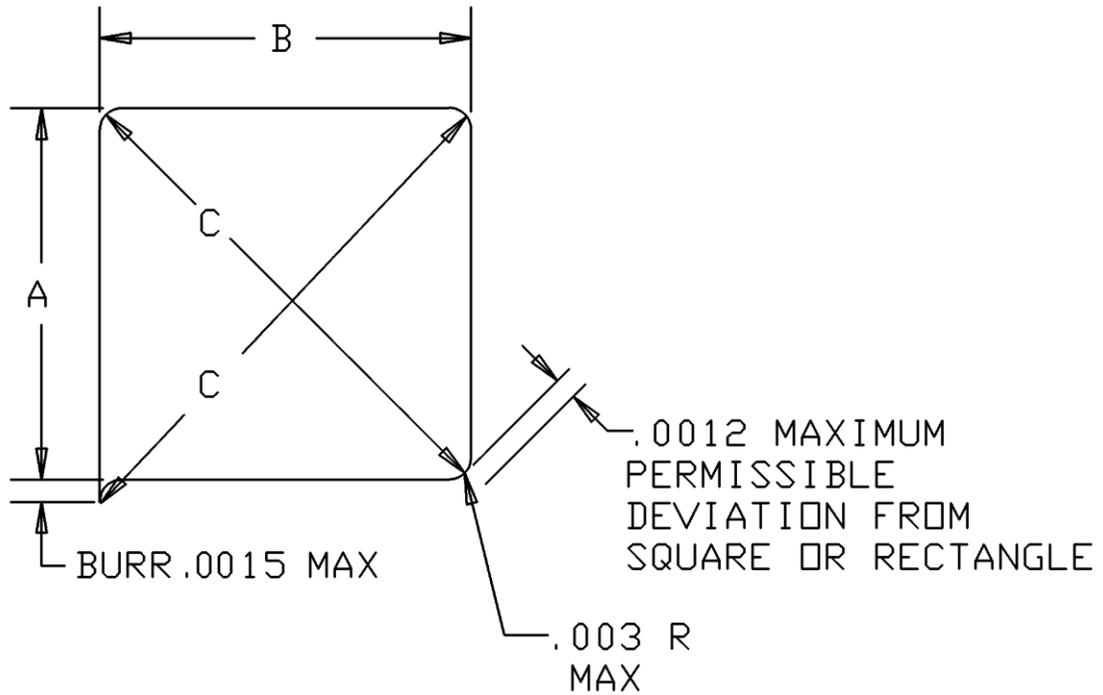
Number of wrapped corrections	"E" Length	
	Wire gage 28 inch (mm)	Wire gage 26 inch (mm)
1	.219 (5.56)	.226 (5.74)
2	.388 (9.86)	.402 (10.21)
3	.557 (14.15)	.578 (14.68)

NOTES:

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FIGURE 2. Wrappable length (typical connection).

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Inches	mm
.0012	0.030
.0015	0.038
.003	0.076

A inch (mm)	B inch (mm)	C inch (mm)	Parallelism inch (mm)	Straightness Inch/inch
.045 (1.14) nominal .042 (1.07) min	.045 (1.14) nominal .042 (1.07) min	.066 (1.68) max .059 (1.50) min	.005 (0.13)	.005

NOTES:

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3. If the tip of the wrappost terminates in a bevel, the apex of the bevel shall be flat, with no side of the flat exceeding .020 inch.

FIGURE 3. Wrappost geometry.

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Withstanding voltage:

Sea level: 500 V rms, minimum.

Altitude: 200 V rms, minimum.

Cable retention: Not applicable.

Connector-cable flexing: Not applicable.

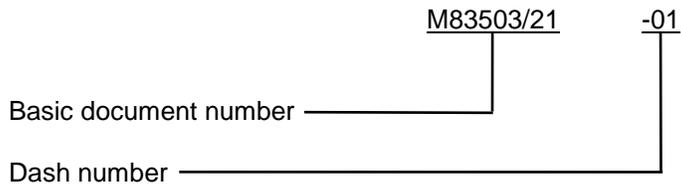
Contact resistance: 50 milliohms, maximum.

Latch retention: The latch shall retain the mating connector when the cable retention force is applied to the mating connector cable. The latch shall also function as an ejector to eject mating connector.

Marking:

Part or identifying number (PIN): The PIN shall consist of the letter "M", followed by the basic specification number, "/", the specification sheet number, "-" and dash number from table I.

Example:



Contact identification: Molded triangle " Δ " or notch to show number 1 contact, or raised numbers to show position number "1".

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Referenced documents: In addition to MIL-DTL-83503, this document references the following:

MIL-M-24519
MIL-DTL-83503/7
ASTM B122/B122M
ASTM B139/B139M
CDA 260

Amendment notations. The margins of this specification are marked with vertical lines to indicate where modifications from this amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

CONCLUDING MATERIAL

Custodians:
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-2009-177)

Review activity:
Air Force - 99

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