

[INCH-POUND]

MIL-C-83522/2F
29 March 1991
SUPERSEDING
MIL-C-0083522/2E(NA)
1 January 1989
MIL-C-83522/2D
30 December 1988

MILITARY SPECIFICATION SHEET

CONNECTOR, PLUG, FIBER OPTIC, SINGLE TERMINUS,
THREADED, (STRAIGHT NOSE INTERFACE), LENSLESS,
EPOXY, FOR 50/125 μm , 62.5/125 μm , AND 100/140 μm

This specification is approved for use by all Depart-
ments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist
of this specification sheet and the issue of the following specification
listed in that issue of the Department of Defense Index of Specifications
and Standards (DODISS) specified in the solicitation: MIL-C-83522.

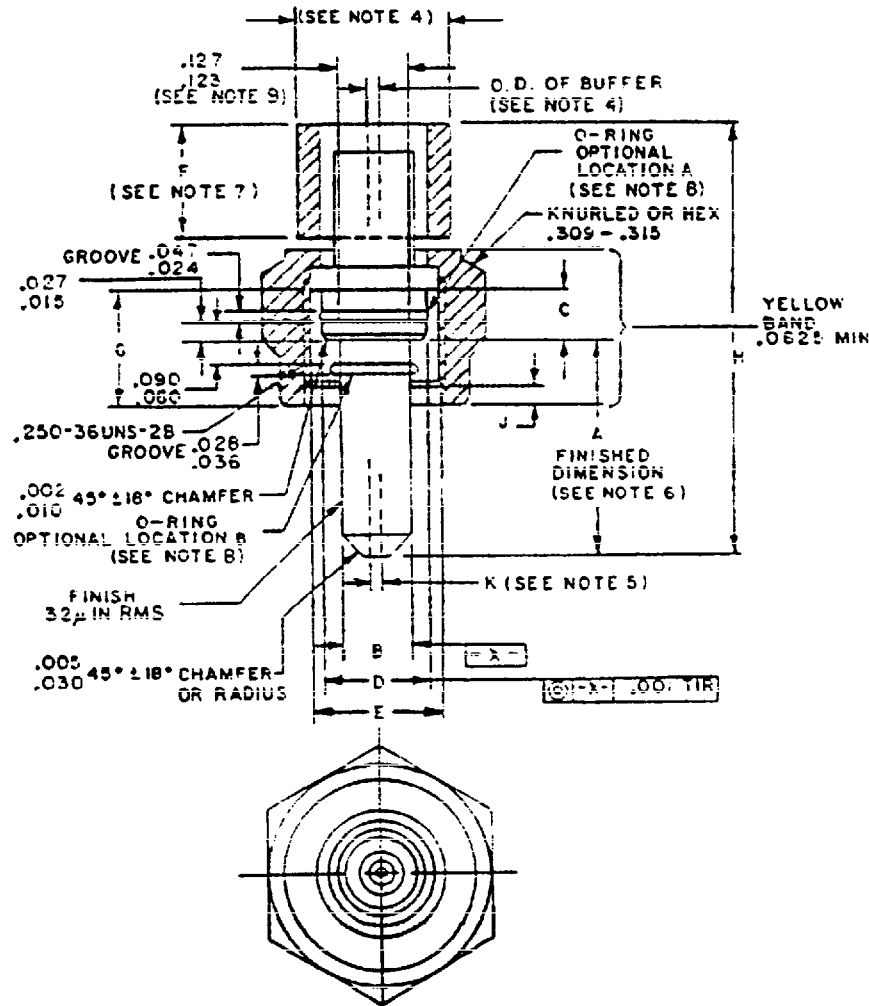
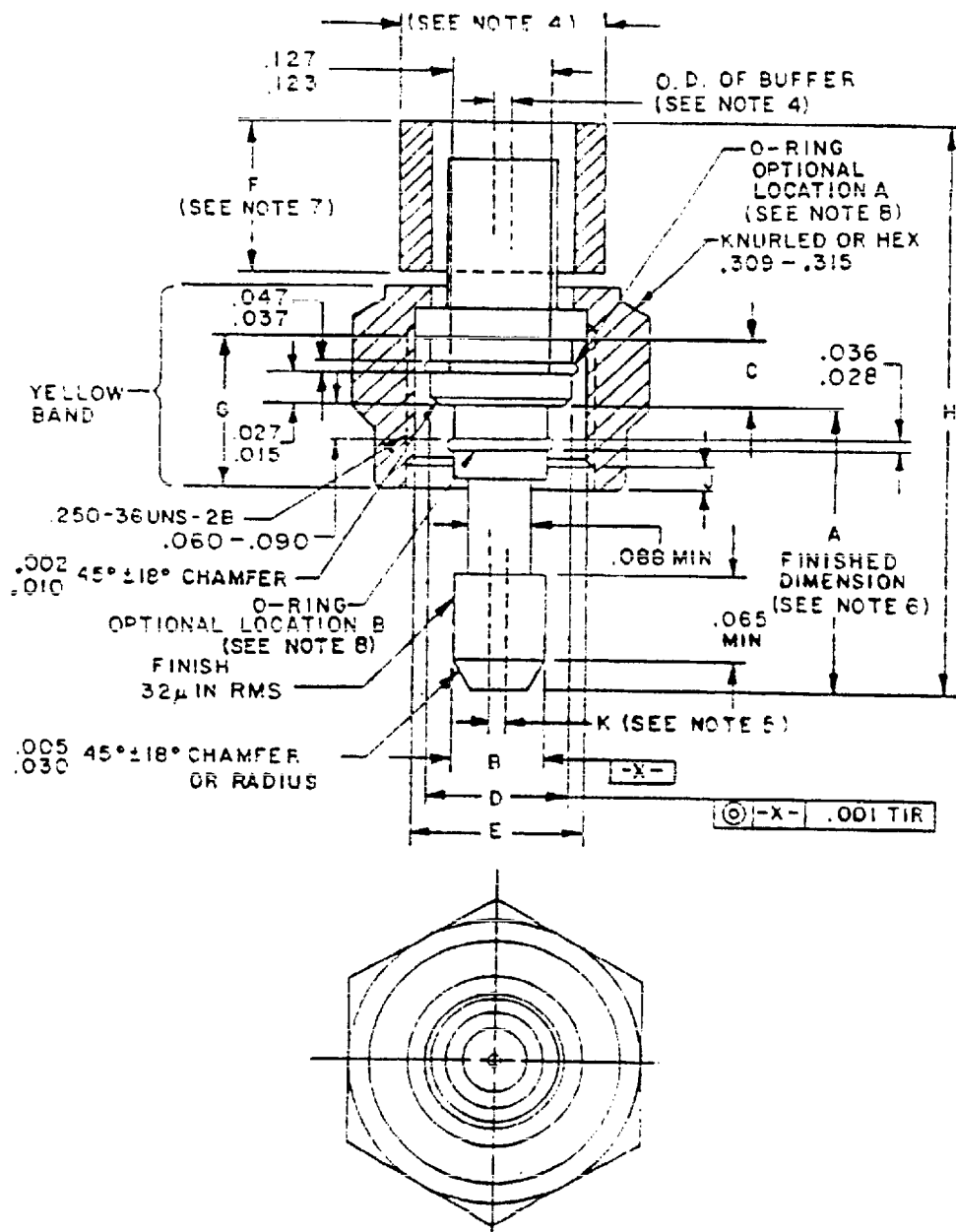


FIGURE 1. Dimensions and configuration.



Straight nose optional view

FIGURE 1. Dimensions and configuration - Continued.

	Min	Max
A	.3858 (9.799)	.3863 (9.812)
C	.080 (2.03)	.100 (2.54)
D	.179 (4.55)	.182 (4.62)
E	.220 (5.59)	.233 (5.92)
F	.485 (12.32)	
G	.183 (4.65)	.224 (5.69)
H		1.50 (38.1)
J	.015 (0.38)	.045 (1.14)
K	Plug must not enter .118 hole gauge	Plug must enter .124 dia. hole gauge

K dimension		
50/125 μ m fiber	62.5/125 μ m	100/140 μ m fiber
132.0 max 127.5 min	132.0 max 127.5 min	147.0 max 142.5 min

Inches	mm
.001	0.03
.002	0.05
.005	0.13
.010	0.25
.015	0.38
.027	0.69
.028	0.71
.030	0.76
.036	0.91
.037	0.94
.039	0.99
.046	1.17
.047	1.19
.060	1.52
.0625	1.588
.065	1.65
.066	2.24
.090	2.29
.123	3.12
.127	3.23
.250	6.35
.309	7.85
.315	8.00

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Millimeters are in parentheses.
4. Dimensions for fiber optic cable shall be in accordance with DOD-C-85045.
5. K dimension is specified in micrometer. This dimension is critical to fiber alignment. Dimensions for fiber optic fiber shall be in accordance with DOD-F-49291.
6. Dimensions A are obtained after product has been assembled.
7. Ferrule may be integral part of component.
8. O-ring is required. Component shall be machined for either O-ring location A or location B.
9. Dimension of O-ring area.

FIGURE 1. Dimensions and configuration - Continued.

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REQUIREMENTS:

Vendors with products qualified to MIL-C-83522B shall not be required to test in accordance with MIL-C-83522C for retention of qualification testing.

Metals: The plug housing shall be of corrosion resistant steel in accordance with QQ-S-763, class 303 or nickel plated brass in accordance with QQ-B-626. Other metal components shall be of corrosion resistant steel in accordance with QQ-S-763, class 303, or nickel plated brass in accordance with QQ-B-626.

Lubricants: No lubricants shall be allowed for spaceflight parts.

Epoxies: Use Trabond 230, Eccobond 144B or an equivalent epoxy approved by the qualifying activity.

Materials: All materials shall not emit greater than 1.0 percent total mass loss and 0.1 percent collected volatile, condensable materials in accordance with ASTM-E-595 for spaceflight applications.

Connector tip: Polyetherimide (for spaceflight parts).

Dimensions and configuration: See figure 1.

Visual inspection: 3X magnification required.

Fiber optic cable requirements:

Cable diameter: In accordance with DOD-C-85045.

Cable configuration: In accordance with DOD-C-85045.

Fiber diameter: 50/125 μm , 62.5/125 μm , and 100/140 μm .

Fiber numerical aperture: In accordance with DOD-F-49291.

Fiber type: Multimode.

Fiber optic termini: In accordance with MIL-F-49291.

Method of optical alignment: Precision diameter fit.

Lens configuration: Not applicable.

Coating requirements: Not applicable.

Optical requirements:

Number of optical termini: One.

Coupling loss (attenuation): 2 dB maximum per mated pair. The maximum change per mated pair during test shall be 0.5 dB for spaceflight applications.

Weight: 6 grams maximum.

Polarization: Not applicable.

Safety wire holes: Required for spaceflight applications, and optional for all other applications.

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Force to engage and disengage:

Longitudinal force: 12 pounds maximum.

Torque: 4 inch-pounds maximum.

Coupling proof torque: 5 inch-pounds minimum.

Coupling mechanism retention force: 60 pounds minimum.

Ozone exposure: Not applicable.

Pressure altitude: The pressure shall be 1×10^{-6} atm and temperature shall be at the maximum operating value. Connector attenuation increase shall not exceed 1 dB at any interval of the test.

Submersion: Not applicable.

Fluid immersion: Not applicable.

Durability: 200 cycles, 1 dB maximum change.

Low temperature: 1 dB maximum change.

Temperature life: For spaceflight parts, temperature life shall be in accordance with EIA-455-4, conditions 5 and F. Four samples shall be tested for qualification inspection. No failures shall be allowed.

Part or Identifying Number (PIN): See table I.

TABLE I. PIN.

PIN M83522/2-	Fiber size μm	Spaceflight applications	Fiber size μm
03	50/125	06	50/125
03	62.5/125	07	62.5/125
04	100/140	08	100/140

Plug accessories: Each plug shall be supplied with a minimum of one crimp ferrule as needed (see figure 1); one protective cable-end cap; one 1.5 inch length of heat-shrink tubing or one rubber boot; and one set of assembly instructions. The assembly instructions shall include a listing of the epoxies specified in this specification sheet and a cleaning procedure statement as follows:

Cleaning procedures: Dampen lens tissue (paper wipes or cotton swab) with a small amount of isopropyl alcohol or water. Gently wipe the face of the connector, removing any debris, particularly around the optical fiber, using clean lens tissue (paper wipes, cotton swab). Dry face of connector by blowing with dry air.

NOTE: The plug mates with MIL-C-83522/4 receptacle; MIL-C-83522/5 receptacle; MIL-C-83522/7 receptacle; MIL-C-83522/8 receptacle; or a MIL-C-83522/3 adapter mated with another MIL-C-83522/2 plug. Connection to any other type plug may result in excessive coupling loss.

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Group A testing: Group A testing for spaceflight parts shall consist of 100 percent testing of the parts.

Group B testing: For spaceflight applications, the following tests apply in addition to that which is listed in MIL-C-83522B. Also, an AQL level of S-4 and limit of 1.5 percent apply.

Coupling loss: Four samples.

Temperature cycling: Four samples.

Temperature: Four samples.

Vibration: Four samples.

Tensile loading: Four samples.

Revision letters are not used to denote changes due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - EC
Air Force - 85
NASA - NA

Preparing activity:
Air Force - 85

Agent:
DLA - ES

Review activities:

Navy - SH
Air Force - 11, 17, 19, 80, 90, 99
DLA - ES

(Project 6060-0091-2)

User activities:

Navy - AS, MC, OS
Air Force - 13, 14