INCH-POUND

MIL-PRF-29504/13A
12 November 2002
SUPERSEDING
MIL-T-29504/13
21 May 1992

PERFORMANCE SPECIFICATION SHEET

TERMINI, FIBER OPTIC, CONNECTOR, REMOVABLE, ENVIRONMENT RESISTING, SOCKET TERMINUS, FRONT RELEASE, STAINLESS STEEL, (FOR MIL-C-28876 CONNECTORS)

Inactive for new design after 15 January 2002
For new design use MIL-PRF-29504/15

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 and MIL-PRF-29504.

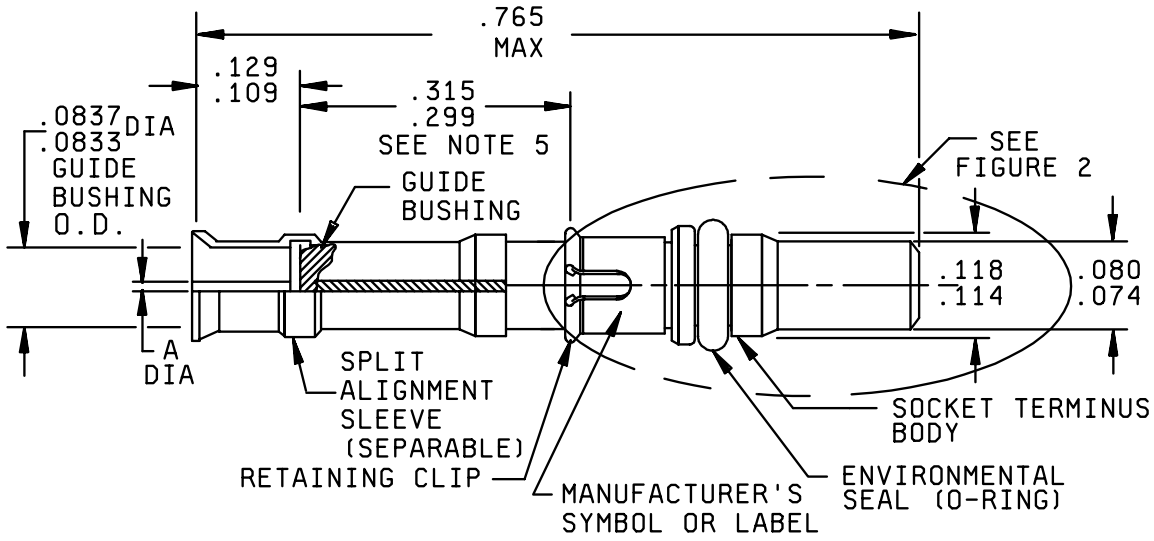
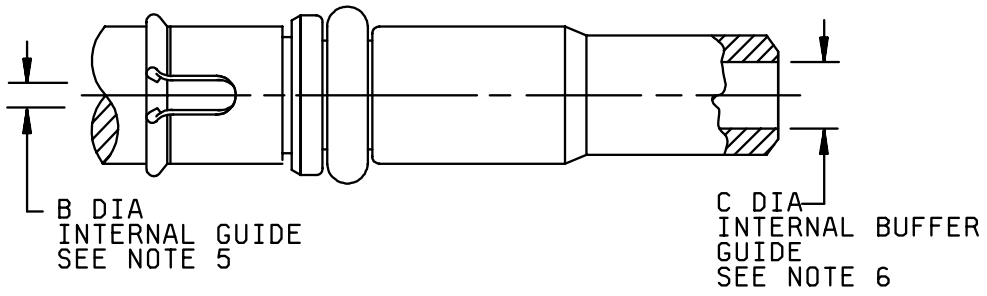


FIGURE 1. Socket terminus

Inches	mm
.0833	2.116
.0837	2.126
.074	1.88
.080	2.03
.109	2.77
.114	2.90
.118	3.00
.129	3.28
.299	7.59
.315	8.00
.765	19.43

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. All diameters to be concentric within 0.002 inch (0.05 mm).
4. Dimensions apply after plating.
5. Dimension .299 (7.59 mm) or .315 (8.00 mm) to be measured when installed in connector insert or equivalent gauge fixture. See figure 3.
6. The TICC bands shall not appear on terminus. Individual bag or container shall have either TICC bands or equivalent MIL-PRF-29504 Part or Identifying Number (PIN) marking on container or a tag inside container.

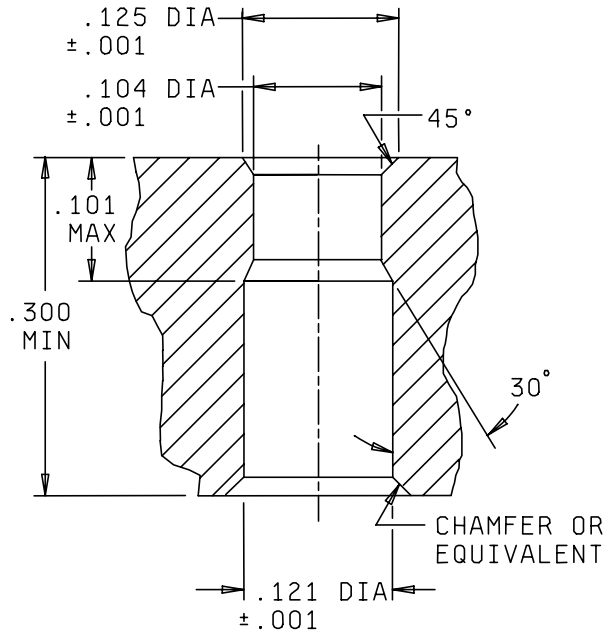
FIGURE 1. Socket terminus - Continued.



B diameter (internal guide)		C diameter (internal buffer guide)	
Inches	Mm	Inches	mm
0.017 0.014	0.43 0.36	0.045 0.041	1.14 1.04

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. All diameters to be concentric within .002 inch (0.05 mm).
4. Dimensions apply after plating.
5. The "B" diameter of the internal guide is used to center coated optical waveguide fiber.
6. The "C" diameter of the internal buffer guide is used to center the optical waveguide fiber buffer.

FIGURE 2. Terminus internal guide and buffer.



Inches	mm
.001	0.03
.101	2.57
.104	2.64
.121	3.07
.125	3.18
.300	7.62

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. All diameters to be concentric within .002 inch (0.05 mm).
4. Dimensions apply after plating.
5. Tolerance on all angles is ±1°, unless otherwise noted.

FIGURE 3. Insert equivalent fixture for terminus measurement.

REQUIREMENTS:

Temperature: -28°C to +65°C operating, -40°C to +70°C non-operating, -40°C to +70°C storage.

Design and construction:

Dimensions and configuration: See figures 1 and 2 and table I.

Weight: 1 gram maximum.

Adhesives: Use MIL-PRF-24792 or as approved by the qualifying activity.

Tools: See table II.

Mating termini: MIL-PRF-29504/1 and MIL-PRF-29504/12.

Crimp sleeve: (for 2.4 mm maximum diameter cable) to be supplied with terminus when specified in the PIN.

Engagement force: 16 ounces (454 grams) maximum (.0837 (2.126 mm) diameter gauge pin).

Separation force: 4 ounces (113 grams) mimimum (.0833 (2.116 mm) diameter gauge pin).

Circular runout: Not greater than 2.5 micrometers.

Optical performance:

Insertion loss: The initial insertion loss of a mated pin and socket shall be not greater than 1.5 dB. The maximum insertion loss of a mated pin and socket at any time during testing shall be not greater than 2.0 dB.

Environmental/mechanical: Termini shall be tested to the following MIL-PRF-28876 environmental and mechanical requirements. Change in optical transmittance and optical discontinuity requirements shall be as specified in MIL-PRF-28876.

Impact
Vibration
Shock
Thermal shock
Temperature/humidity cycling
Temperature cycling
Temperature life
Flammability
Ozone exposure

To qualify or requalify termini to this specification sheet, all requirements of MIL-PRF-28876 shall be met using the qualifying terminus in a connector qualified to MIL-PRF-28876.

Qualification connector: The qualification connector for this termini shall be a qualified MIL-PRF-28876 connector.

Test specimens: Test specimens shall be constructed using a 62.5/125 micron optical fiber within a single fiber cable with an outer diameter not greater than 2.4 mm.

Part or identifying number (PIN): See table I and 6.6 of MIL-PRF-29504.

M29504/13	XXXX	X
Basic specification and specification sheet	TICC Code (see table I)	Crimp sleeve (optional)

Usage: Termini compliant with this specification sheet may be used in connectors other than MIL-PRF-28876 at the discretion of the acquiring activity.

TABLE 1. TICC numbers to fiber diameter cross reference.

TICC number		A diameter (hole diameter) 1/	
Multimode	Single-mode	Inches +0.0001 -0.0000	µm 2/ +2.5 -0.0
4107	4117	0.0048	122.0
4108	4118	0.0049	124.5
4109	4119	0.0050	127.0
4110	4120	0.0051	129.5
4111	4121	0.0054	137.0
4112	4122	0.0055	139.5
4113	4123	0.0056	142.0
4114	4124	0.0057	145.0
4115	4125	0.0091	231.5
4116	4126	0.0092	234.0

1/ For maximum performance, termini should be selected for the best (tightest) fit to the fiber. Fitting the next size larger terminus to a fiber may affect connector performance.
2/ Rounded to the nearest 0.5 µm.

TABLE II. Tools

Tool	Part number
Insertion tool	NAVSEA DWG 6872813-2 (NSN 5120-01-144-5338)
Removal tool	NAVSEA DWG 6872813-6 (NSN 5120-01-419-2942)
Polishing tool	Packard Hughes PN 4569100H or equivalent
Alignment sleeve tool	NAVSEA DWG 6872813-4 (NSN 5998-01-147-0198)

Patent notice: The Government does not have royalty-free license under the following patents for the benefit of manufacturers of the item, either for the Government or for use in equipment to be delivered to the Government.

Patent number	Patent expiration date
US 4707068	11/17/2004

Custodians:
Army - CR
Navy - SH
Air Force - 11
DLA - CC

Review activities:
Navy - AS
Air Force - 03, 13, 19, 93, 99
NASA - NA
DIA - DI

Preparing activity:
Navy - SH

Agent:
DLA - CC

(Project 6060-0132-05)