

INCH-POUND

MIL-STD-202-111

18 April 2015

SUPERSEDING

MIL-STD-202G

w/CHANGE 2 (IN PART)

28 June 2013

(see 6.1)

DEPARTMENT OF DEFENSE
TEST METHOD STANDARD
METHOD 111, FLAMMABILITY (EXTERNAL FLAME)



AMSC N/A

FSC 59GP



MIL-STD-202-111

FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense.
2. This entire standard has been revised. This revision has resulted in many changes to the format, but the most significant one is the splitting the document into test methods. See MIL-STD-202 for the change summary.
3. Comments, suggestions, or questions on this document should be emailed to std202@dla.mil or addressed to: Commander, Defense Logistics Agency, DLA Land and Maritime, ATTN: VAT, P.O. Box 3990, Columbus, OH 43218-3990. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
	<u>FOREWORD</u>	ii
1.	<u>SCOPE</u>	1
1.1	<u>Purpose</u>	1
2.	<u>APPLICABLE DOCUMENTS</u>	1
3.	<u>DEFINITIONS</u>	1
4.	<u>GENERAL REQUIREMENTS</u>	1
4.1	<u>Apparatus</u>	1
4.1.1	<u>Test chamber</u>	1
4.1.2	<u>Mounting apparatus</u>	1
4.1.3	<u>Propane torch</u>	1
4.1.4	<u>Timing device</u>	1
4.2	<u>Procedure</u>	1
4.3	<u>Cleaning</u>	2
4.4	<u>Measurements</u>	2
5.	<u>DETAILED REQUIREMENTS</u>	2
5.1	<u>Summary</u>	2
6.	<u>NOTES</u>	5
6.1	<u>Supersession data</u>	5
	<u>FIGURE</u>	<u>PAGE</u>
1.	<u>Burner head</u>	2

METHOD 111
FLAMMABILITY (EXTERNAL FLAME)

1. SCOPE

1.1 Purpose. This test is performed for the purpose of determining the flammability of a part exposed to an external flame. Flammability is defined as the ability of a part to support combustion. This can be determined by the following: the time it takes for a part to become self-extinguishing after application of a flame; that the part does not support violent burning; that exposure of a part to a flame does not result in an explosive-type fire; or that spreading of surface burning on larger parts is deterred. The principal factors which affect the results of an external flame test are -- the heat of the flame at the point of impingement; the size of the flame; the time of exposure to the flame; the volume of the part and other heat-sink effects; the presence of circulating materials and surfaces of the parts.

2. APPLICABLE DOCUMENTS

This section not applicable to this standard.

3. DEFINITIONS

This section not applicable to this standard.

4. GENERAL REQUIREMENTS

4.1. Apparatus.

4.1.1 Test chamber. An enclosure protected from air currents, but provided with means for venting fumes and admitting an adequate supply of fresh air at the bottom, shall be used. A standard chemistry hood with the exhaust fan turned off, or a metal box about 2 feet wide by 3 feet high and 2 feet deep, with a removable front, a viewing window, and holes for air intake and venting of fumes, is satisfactory. Adequate safety precautions should be taken to protect personnel from possible explosion of the test specimens.

4.1.2 Mounting apparatus. Within the test chamber, a support stand with suitable adjustable vertical brackets or other mounting clamps shall be used to hold the specimens at the specified distance and position (see 4.2) with respect to the applied flame. Mounting clamps, in order not to act as heat sinks, shall be thermally insulated from the specimens. The flame shall not impinge on the clamp(s) or other devices which hold the specimens.

4.1.3 Propane torch. A propane torch, having a nozzle assembly conforming to Model TX-1 of "Bernzomatic Corporation", or equal, shall be the source of the flame. "Cracked" propane gas shall be used as the fuel. A suggested torch assembly is shown on figure 1, Burner head.

4.1.4 Timing device. A timing device, which can indicate time in seconds, shall be used to determine the time of application of the flame and the time of burning of visible flame on the specimen.

4.2. Procedure. The specimen shall be mounted in the test chamber (see 4.1.1) with the mounting apparatus therein (see 4.1.2) and at the distance and position specified. The torch shall be placed so that the axis of the flame is in the vertical direction, unless otherwise specified in the individual specification. When the torch is ignited, and after the flame is stable, the flow of gas through the nozzle of the torch (see 4.1.3) shall be adjusted so that the inner-cone length is 1/2 inch between the inner-cone tip and a point in the plane of the nozzle rim. The specimen shall be placed so that the point of impingement of the flame on the specimen is 1-1/2 inches from the nozzle rim along the flame axis. The point of impingement of the flame shall be as specified in the individual specification. The flame shall be applied to the specimen for a period of 15 seconds unless specified in the individual specification, as determined by the timing device (see 4.1.4), and then removed. Upon removal of the applied flame, the time of burning of visible flame on the specimen, as determined by the timing device, shall be recorded. The recorded time shall then be compared with the allowable time specified in the individual specification. Any violent burning of the specimen or explosive-type fire shall be recorded.

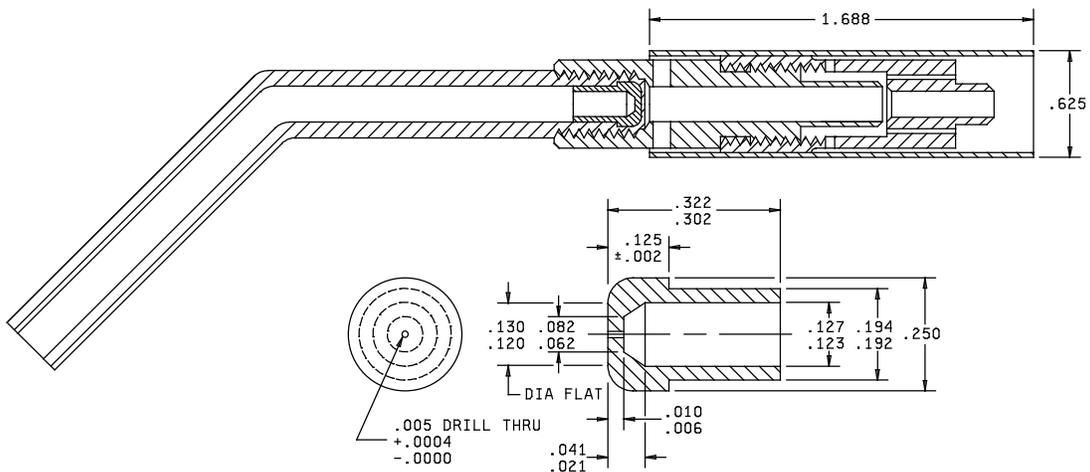
4.3 Cleaning. In order to clearly observe the burned area; carbon from the propane gas may be removed by brushing or buffing the specimen.

4.4 Measurements. Upon completion of the test, measurements shall be made as specified in the individual specification.

5. DETAILED REQUIREMENTS

5.1 Summary. The following details are to be specified in the individual specification:

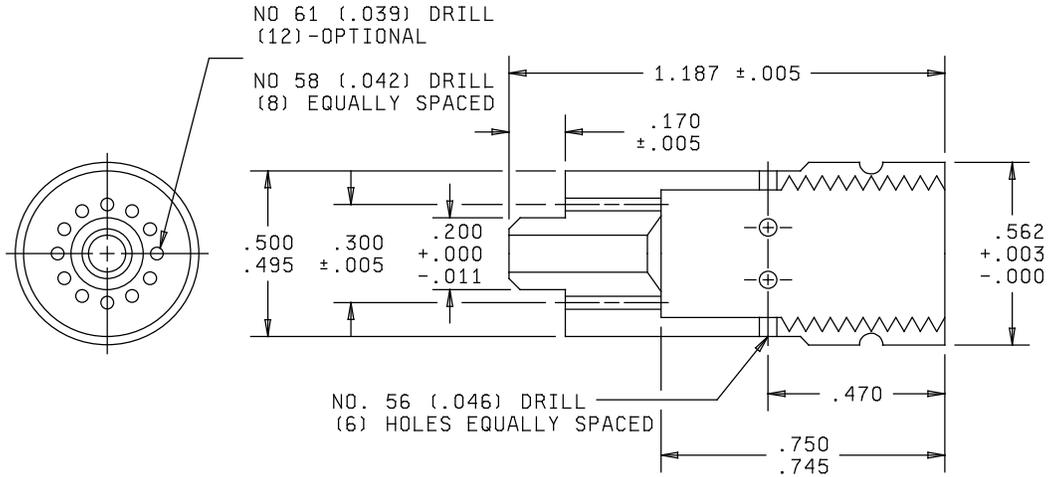
- a. Direction of axis of flame, if other than vertical (see 4.2).
- b. Point of impingement of applied flame (see 4.2).
- c. Time of application of flame, if other than 15 seconds (see 4.2).
- d. Allowable time for burning of visible flame on specimen (see 4.2).
- e. Measurements after test (see 4.2).



Inches	mm	Inches	mm
.0004	0.01	.125	3.18
.002	0.05	.127	3.23
.005	0.13	.130	3.30
.006	0.15	.192	4.88
.010	0.25	.194	4.93
.021	0.53	.250	6.35
.041	1.04	.302	7.67
.062	1.57	.322	8.18
.082	2.08	.625	15.88
.120	3.05	1.688	42.88
.123	3.12		

MATERIAL: BRASS

FIGURE 1. Burner head.

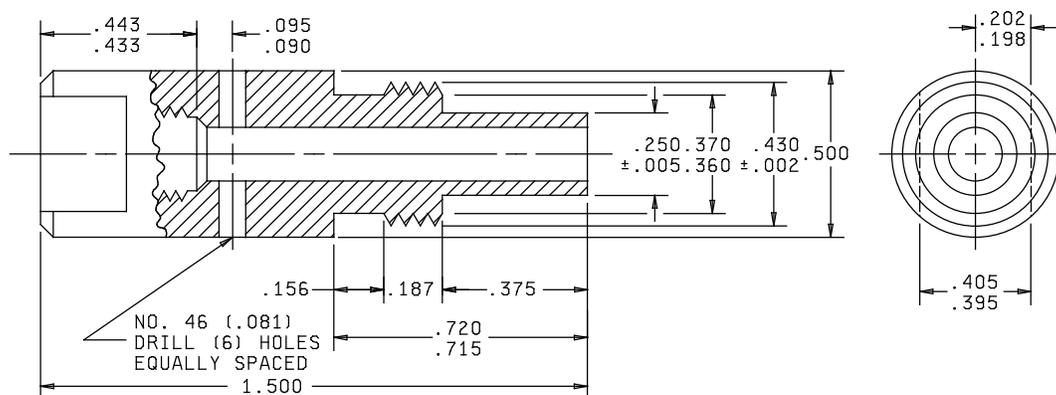


Inches	mm	Inches	mm
.003	0.08	.300	7.62
.005	0.13	.470	11.94
.011	0.28	.495	12.57
.039	0.99	.500	12.70
.042	1.07	.562	14.27
.046	1.17	.745	18.92
.170	4.32	.750	19.05
.200	5.08	1.187	30.15

MATERIAL: BRASS

BODY-BURNER

FIGURE 1. Burner head - Continued.



Inches	mm	Inches	mm
.002	0.05	.370	9.40
.005	0.13	.375	9.53
.081	2.06	.395	10.03
.090	2.29	.405	10.29
.095	2.41	.430	10.92
.156	3.96	.433	11.00
.187	4.75	.443	11.25
.198	5.03	.500	12.70
.202	5.13	.715	18.16
.250	6.35	.720	18.29
.360	9.14	1.500	38.10

MATERIAL: BRASS

BASE-BURNER

FIGURE 1. Burner head - Continued.

MIL-STD-202-111

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Supersession data. The main body and 38 parts of this revision of MIL-STD-202 replace superseded MIL-STD-202.

Custodians:

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

Preparing activity:

DLA – CC

(Project 59GP-2015-015)

Review activities:

Army - AR, AT, AV, CR4, MI, SM, TE
Navy - AS, OS, SH
Air Force - 19, 99
NSA - NS

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