



ANSI/NEMA C78.43-2017

American National
Standard for
Electric Lamps—
Single-Ended
Metal Halide
Lamps



National Electrical Manufacturers Association
1300 North 17th Street, Suite 900 • Rosslyn, VA 22209
www.NEMA.org





ANSI C78.43-2017

*American National Standard for Electric Lamps—
Single-Ended Metal Halide Lamps*

Secretariat:

National Electrical Manufacturers Association

Approved: December 21, 2017

American National Standards Institute, Inc.

NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by the consensus of persons engaged in the development and approval of the document at the time it was developed. Consensus does not necessarily mean that there is unanimous agreement among every person participating in the development of this document.

ANSI standards and guideline publications, of which the document contained herein is one, are developed through a voluntary consensus standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. While NEMA administers the process to promote fairness in the development of consensus, it does not write the document and it does not independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications.

NEMA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. NEMA disclaims and makes no guaranty or warranty, expressed or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any of your particular purposes or needs. NEMA does not undertake to guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health- or safety-related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

AMERICAN NATIONAL STANDARD

Approval of an American National Standard requires verification by The American National Standards Institute, Inc. (ANSI) that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer. An American National Standard implies a consensus of those substantially concerned with its scope and provisions. Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly, and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The existence of an American National Standard does not in any respect preclude anyone, whether s/he has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards. It is intended as a guide to aid the manufacturer, the consumer, and the general public.

The American National Standards Institute, Inc., does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute, Inc. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on this title page.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute, Inc., require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, Inc.

Published by

**National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, Virginia 22209**

© 2017 National Electrical Manufacturers Association

All rights, including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention for the Protection of Literary and Artistic Works, and the International and Pan American copyright conventions.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America

Foreword (This foreword is not part of American National Standard C78.43-2017).

Suggestions for improvement of this standard should be submitted to the Secretariat, C78 Committee, National Electrical Manufacturers Association, 1300 North 17th Street, Suite 900, Rosslyn, Virginia 22209.

This standard was processed and approved by Accredited Standards Committee on Electric Lamps, C78. Committee approval of the standard does not necessarily imply that all committee members voted for its approval.

Part II Maximum outline drawings

Figure 1	BD 17 (BD54), E17 (E54) for lamps with Luminaire Code E	14
Figure 2	BD 17 (BD54), E17 (E54) for lamps with Luminaire Code O	15
Figure 3	T4.5 (T14) with G8.5 base	16
Figure 4	T6 (T19)	17
Figure 5	T15 (T48)	18
Figure 6	E18 (E57).....	19
Figure 7	ED23.5 (ED75).....	20
Figure 8	BT28 (BT90), ED28 (ED90).....	21
Figure 9	BT37 (BT118), ED37 (ED118)	22
Figure 10	BT56 (BT180)	23
Figure 11	PAR20 (PAR63)	24
Figure 12	PAR30 (PAR95)	25
Figure 13	PAR38 (PAR121).....	26
Figure 14	T6 (T19); 110mm M.O.L	27
Figure 15	ET23.5 (ET75)	28
Figure 16	T4.0 (T13)	29
Figure 17	T4.5 (T14) with G12 base	30
Figure 18	MR16 (PAR51)	31

PART III Single-Ended Lamp data sheets

20 Watt	C156 Single-Ended Ceramic Metal Halide Lamp	34
39 Watt	C130 Single-Ended Ceramic Metal Halide Lamp	40
50 Watt	M110 Single-Ended Metal Halide Lamp	45
70 Watt	M98 Single-Ended Metal Halide Lamp	50
70 Watt	C98 Single-Ended Ceramic Metal Halide Lamp	55
72 Watt	C139 Single-Ended Ceramic Metal Halide Lamp	60
95 Watt	C90 Single-Ended Ceramic Metal Halide Lamp	65
100 Watt	M90 Single-Ended Metal Halide Lamp	70
147 Watt	C102 Single-Ended Ceramic Metal Halide Lamp	75
147 Watt	C142 Single-Ended Ceramic Metal Halide Lamp	80
150 Watt	M102 Single-Ended Metal Halide Lamp	85
150 Watt	M107 Single-Ended Metal Halide Lamp	90
175 Watt	M57 Single-Ended Metal Halide Lamp	93
175 Watt	M152 Pulse-Start Metal Halide Lamp	97
200 Watt	M136 Pulse-Start Metal Halide Lamp	101
250 Watt	C50 Pulse-Start Ceramic Metal Halide Lamp	105
250 Watt	M58 Single-Ended Metal Halide Lamp	107
250 Watt	M153 Pulse-Start Metal Halide Lamp	111
320 Watt	M154 Pulse-Start Metal Halide Lamp	115
350 Watt	M131 Pulse-Start Metal Halide Lamp	119
360 Watt	M165 Single-Ended Metal Halide Lamp	123
400 Watt	M59 Single-Ended Metal Halide Lamp	127
400 Watt	M155 Pulse-Start Metal Halide Lamp	131
750 Watt	M149 Pulse-Start Metal Halide Lamp	135
1000 Watt	M47 Single-Ended Metal Halide Lamp	139
1000 Watt	M141 Pulse-Start Metal Halide Lamp	143
1500 Watt	M48 Single-Ended Metal Halide Lamp	147
1650 Watt	M112 Single-Ended Metal Halide Lamp	151

Organization of this Standard

This standard has been arranged in three parts:

Part I covers general requirements and information. It provides normative references and offers brief explanations of the meaning or the application of some of the numerical data given on the individual lamp data sheets in Part III of this standard. It also provides requirements that are common to all metal halide lamp types.

Part II contains the maximum outline drawings of each lamp size.

Part III contains individual single-ended lamp data sheets that provide the specific lamp, ballast, and luminaire requirements of each of the standardized single-ended metal halide lamp types.

< This page left blank intentionally. >

1 Scope

This standard sets forth the physical and electrical requirements for single-ended metal halide lamps operated on 60 Hz ballasts to ensure interchangeability and safety. The data given also provides the basis for the electrical requirements for ballasts and ignitors, as well as the lamp-related requirements for luminaires. This standard includes lamps whose arc tubes are made of quartz or ceramic materials. Luminous flux and lamp color are not part of this standard.

1.1 Important Patent Disclaimer

At the time of publication, it is possible that some of the elements of this document may be the subject of patent rights. When this Standard was approved for publication, the National Electrical Manufacturers Association (NEMA) did not know of any patent applications, patents pending, or existing patents. NEMA shall not be held responsible for identifying any or all such patent rights.

2 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI C78.30-1997 (R2011) *Procedure for Use in Preparation of Lamp Space Drawings*
ANSI C78.379-2006 (R2015) *Classification of Beam Patterns of Reflector Lamps*
ANSI C78.380-2007 (R2010) *Electric Lamps—High-intensity Discharge Lamps—Method of Designation*
ANSI C78.389-2004 (R2009) *Electric Lamps—HID lamps—Methods of Measuring Characteristics*
ANSI C78.62035-2016 *Discharge Lamps (Excluding Fluorescent Lamps)—Safety Specifications*
ANSI C78.79-2014 *Nomenclature for Envelope Shapes Intended for Use with Electric Lamps*
ANSI C81.61-2017 *Electric Lamp Bases*
ANSI C81.62-2017 *Lampholders for Electric Lamps*
ANSI C81.63-2017 *Gauges for Electric Lamp Bases and Lampholders*
ANSI C81.64-2005 (R2014) *Guidelines and General Information for Electric Lamp Bases, Lampholders, and Gauges*
ANSI C82.4-2002 (R2010) *Ballasts for High-intensity Discharge and Low-pressure Sodium Lamps (multiple supply type)*
ANSI C82.5-2016 *Reference Ballasts for High-intensity Discharge Lamps*
ANSI C82.6-2015 *Ballasts for High-intensity Discharge Lamps—Methods of Measurement*
ANSI C82.9-2016 *Definitions for High-intensity Discharge and Low-pressure Sodium Lamps, Ballasts, and Transformers*
ANSI C82.14-2016 *Low-Frequency Square Wave Electronic Ballasts—for Metal Halide Lamps*
ANSI/UL1598-2010 *Standard for Safety—Luminaires*