

ANSI C81.61-2016

Electric Lamp Bases — Specifications for Bases (Caps) for Electric Lamps





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*American National Standard for
Electric Lamp Bases—
Specifications for Bases (Caps) for Electric Lamps*

Secretariat:

National Electrical Manufacturers Association

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American National Standards Institute, Inc.

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Foreword (This foreword is not part of American National Standard ANSI C81.61)

In 1990 and 1991 the American National Standards (ANS) for lamp bases, lampholders and gauges were split into three separate standards to correspond with the IEC format. ANSI C81.61, *ANS for Electric Lamp Bases*, paralleled IEC 60061-1; ANSI C81.62, *ANS for Lampholders for Electric Lamps*, paralleled IEC 60061-2; and ANSI C81.63, *Gauges for Electric Lamp Bases and Lampholders*, paralleled IEC 60061-3. Also a fourth standard, ANSI C81.64, *Guidelines for Electrical Lamp Bases, Lampholders and Gauges*, was published to parallel IEC 60061-4 in 1993.

In 1996 the first IEC data sheets were adopted “as is” as Nationally Acknowledged International Standards and published as Supplement g to the existing C81.61, 62 and 63 standards. Now many more (if not most) ANSI base standard sheets are IEC sheets adopted as ANSI standards.

In 2003 a revision and consolidation of ANSI C81.61 was issued to include, first, a reference to all IEC base (cap) standard sheets adopted as ANSI standards. Second, standard sheets for a small number of bases used mainly in North America or not harmonized with IEC are found in Part II. Part III contained any United States deviations to the IEC standard sheets, which had been adopted as Nationally Acknowledged International Standards as published in IEC 60061-1. Part IV contained an informative annex on first versus third angle projection and related standards.

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PART I

General Information and Requirements

1 Scope

This standard sets forth the specifications for bases (caps) used on electric lamps.

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 publications 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 publications indicated below.

ANSI C81.62-2009 (R2014)	<i>Lampholders for Electric Lamps</i>
ANSI C81.63-2009 (R2014)	<i>Gauges for Bases (Caps) and Lampholders for Electric Lamps</i>
IEC 60061	<i>Lamp caps and holders together with gauges for the control of interchangeability and safety</i> <i>Part 1: Caps IEC 60061-1 Ed. 3 including Amendment 39-2007</i> <i>Part 2: Lampholders IEC 60061-2 Ed. 3 including Amendment 36-2007</i> <i>Part 3: Gauges IEC 60061-3 Ed. 3 including Amendment 38-2007</i>

3 General Information

Two types of base standard sheets are identified in this standard, and both are listed in Table 1, *ANSI and IEC Lamp Base Standard Sheets*. All base types are listed in color to indicate their typical applications: blue for automotive and miniature; green for general lighting service, including common Edison screw base; red for fluorescent; and black for miscellaneous, including specialty, photo, projection, and studio stage applications.

For some bases, either no international standard exists or the international standard is not acceptable at this time. For such bases an ANSI standard sheet is included. These standard sheets are identified in Table 1, "ANSI and IEC Lamp Base Standard Sheets" under the column heading "ANSI C81.61-2016." These standard sheets are found in Part I.

Certain standard sheets from International Electrotechnical Commission (IEC) standard 60061-1, *Lamp caps and holders together with gauges for the control of the interchangeability and safety Part 1: Lamp caps*, and its supplements, have been adopted as Nationally Acknowledged International Standards and constitute part of the *American National Standard for Lamp Bases (Caps)*. The standard sheets for these bases are not included but are identified in Table I, "ANSI and IEC Lamp Base Standard Sheets," under the column heading "IEC 60061-1." If there are any U.S. deviations from these standard sheets, the sheet number is marked with a footnote and the deviations are found in Part III.

These IEC standards are available from:

American National Standards Institute, Inc.
Attn: Customer Service
25 West 43rd Street, 4th Floor
New York, NY 10036

They are also available by calling (212) 642-4900 during normal business hours and they can be purchased electronically at www.ansi.org.

The drawings on the internationally standardized (IEC) sheets are in first angle projection rather than the third angle commonly used in the North American (ANSI)–approved standard sheets. Part IV, Annex A explains the difference between the two systems. In addition, the common American term “Base” is internationally known as “Cap.” Internationally, the decimal point (.) is not used in dimensions, rather a comma (,) separates a decimal number, e.g., 4,5 rather than 4.5. However, in the designation of a fit, the decimal point is used, e.g., GY6.35.

This standard is used in conjunction with ANSI C81.62-2009 (R2014), *Lampholders for Electric Lamps*; ANSI C81.63-2009 (R2014), *Gauges for Bases and Lampholders for Electric Lamps*; and IEC 60061, *Lamp caps and holders together with gauges for the control of interchangeability and safety, Part 2: Lampholders*, and *Part 3: Gauges*.

Table 1
ANSI and IEC Lamp Base (Cap) Standard Sheets

System	Description	Standard Sheets	
		IEC 60061-1	ANSI C81.61-2016
Bayonet bases			
B/BX8.4d	Small instrument panel bayonet base	7004-140-1	
BA9	Miniature bayonet		1-10-2
BAW9s	Base for HY21W lamp	7004-149-1	
BAZ9s	Base for HY6W lamp	7004-150-1	
BA15s, BA15d	Candelabra single- and double-contact bayonet		1-20-2
BAY15s, BAY15d	Single- and double-contact bayonet with offset pins		1-22-2
BAZ15d	Double-contact bayonet with offset and non-aligned pins		1-23-2
BY22d	Multipurpose sleeved double-contact bayonet	7004-17-3	
Edison screw bases			
E5	Midget screw	7004-25-3	
E10	Miniature screw	7004-22-6**	
E11	Mini-candelabra screw	7004-6-1	
E12	Candelabra screw	7004-28-2	
E17	Intermediate screw	7004-26-2	
E26/24	Single-contact medium screw	7004-21A-2	
E26d	Double-contact medium screw	7004-29-2	
E26/50x39	Skirted medium screw for PAR lamps	7004-130-1**	
E26/53x39	Extended skirted medium screw for R- lamps		1-162-2
E29/28	Admedium screw for high intensity discharge (HID) lamps		1-930-1
E29/53x39	Extended skirted admedium screw for HID PAR lamps		1-931-1
E39	Single-contact mogul screw	7004-24A-1	
E39d	Double-contact mogul screw		1-187-2
EP39	Position-oriented mogul screw		1-202-2
EX39	Exclusionary mogul screw for HID lamps		1-210-1
Single-pin bases			
Fc2	HID slide side contact	7004-114-1	
Fa8	Fluorescent single-pin	7004-57-2	
Multiple-pin bases			
GY1.3-2.4	Two-pin for T-3/4 subminiature lamps	7004-2-2	
GY1.3-3.2	Two-pin for T-1 subminiature lamps	7004-2-2	
GY2.5	Two-pin for T-1 3/4 subminiature lamps	7004-3-2	
GY3.2	Two-pin for T-1 3/4 subminiature lamps	7004-4-2	
G4	Two-pin for single-ended tungsten halogen (TH) general lighting service (GLS) lamps	7004-72-3	
GU4	Two-pin for MR11 GLS lamps with retainer slots or ridges	7004-108-2	
GZ4	Two-pin for MR11 projection lamps	7004-67-3	
G5	Fluorescent miniature two-pin		1-310-2
G5.3	Two-pin for single-ended TH projection lamps	7004-73-2	
GU5.3	Two-pin for MR16 GLS lamps with retainer slots or ridges	7004-109-2	
GX5.3	Two-pin for MR13 and low-voltage MR16 projection lamps	7004-73A-2	
GY5.3	Two-pin for high-voltage MR16 projection lamps	7004-73B-2	
G/GX/GY6.35	Two-pin for single-ended TH GLS lamps	7004-59-6	
GZ6.35	Two-pin for MR16 projection lamps	7004-59A-3	
2G7	Four-pin compact fluorescent, two retainers	7004-102-1	
GU6.5	Two-pin turn-and-lock for metal halide lamps	7004-152-1	
2GX7	Four-pin compact fluorescent, four retainers	7004-103-1	
GU7	Two-pin turn-and-lock for reflector lamps	7004-113-1	
G7.9	Side pin for high-voltage reflector projection lamps	7004-139-1	
GX7.9	Side pin for low-voltage reflector projection lamps	7004-139-1	

** Indicates a U.S. deviation; see Part III