

ANSI_IEC C81.61-2005

Revision of ANSI C81.61-2003

American National Standard

For Electrical Lamp Bases
Specifications for Bases (Caps) for Electric Lamps

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ANSI_IEC C81.61—2005
Revision of ANSI C81.61—2003

American National Standard

Approved: August 31, 2005 Secretariat: ANSLG-- National Electrical Manufacturers Association

for electrical lamp bases

Specifications for Bases (Caps) for Electric Lamps

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Foreword

(This foreword is not part of American National Standard ANSI _IEC C81.61-2005.)

In 1990 and 1991 the American National Standards for lamp bases, lampholders and gauges were split into three separate standards to line up with the IEC format. ANS C81.61, ANS for Electric Lamp Bases paralleled IEC 60061-1; ANS C81.62, ANS for Lampholders for Electric Lamps paralleled IEC 60061-2 and ANS C81.63, Gauges for Electric Lamp Bases and Lampholders paralleled IEC 60061-3. Also a fourth standard, ANS 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 that are published in IEC 60061-1. Part IV contained an informative annex on first versus third angle projection and related standards

This standard updates the 2003 version.

Information concerning the approval of this standard is based on the documents listed in the table below:

Amendment/change	CDV	RV
Revision	C81/2650	C81/2651

Anthony Tufano, **Chairman, C81**
David Mullen, **Technical Coordinator**
Randolph N. Roy, **ANSLG Secretariat**
Matthew C. Clark, **Coordinating Editor**

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PART I---- General Information and Requirements

Scope

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

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_ IEC C81.62-2005 *Lampholders for Electric Lamps*

ANSI_IEC C81.63-2005 *Gauges for Bases (Caps) and Lampholders for Electric Lamps*

IEC 60061-2005, *Lamp caps and holders together with gauges for the control of interchangeability and safety*
Part 1: Caps
Part 2: Lampholders
Part 3: Gauges

General information

Two types of base standard sheets are identified in this standard, and all these 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". These Standard Sheets are found in Part I.

Certain standard sheets from IEC standard 60061 and its supplements *Lamp caps and holders together with gauges for the control of the interchangeability and safety Part 1: Lamp caps*, 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". Any United States deviations from these standard sheets are found in Part III.

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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, *Lampholders for Electric Lamps*; ANSI C81.63, *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.*

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

System	Description	Standard Sheets	
		IEC 60061-1	ANSI C81.61
Bayonet bases			
B/BX8.4d	Small instrument panel bayonet base	7004-140-1	
BA9/12.5	Miniature bayonet		1-10-2
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 HID (high intensity discharge) 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		1-210-2
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 TH (tungsten halogen) GLS (general lighting service) 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	
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 US deviation, see Part III

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

System	Description	Standard Sheets	
		IEC 60061-1	ANSI C81.61
Multiple pin bases, continued			
GR8	Recessed two-pin for compact fluorescent	7004-68-3	
2G8	Cap	7004-141-1	
G8.5	Miniature two-pin for HID projection lamps	7004-122-1	
G9	Two loop contacts for single ended TH lamps	7004-129-1	
G9.5	Two-pin for single-ended TH lamps	7004-70-2	
GX9.5	Two-pin for single-ended TH lamps, longer length and width	7004-70A-1	
GY9.5	Uneven two-pin for single ended TH and HID lamps	7004-70B-4	
GZ9.5	Uneven two-pin for single ended TH and HID lamps, longer length	7004-70B-4	
GR10q	Recessed four-pin compact fluorescent	7004-77-2	
G10q	Four pin circular fluorescent	7004-54-3	
GU10	Bipin lamp base – aluminized reflectors only	7004-121-1	
GZ10	Bipin lamp base	7004-120-1	
2G10	Four-pin compact fluorescent, four retainer slots	7004-118-1	
2G11	Four-pin compact fluorescent, two retainer slots	7004-82-1	
G12	Two-pin for HID lamps	7004-63-2	
GX12	Cap	7004-135-1	
G12.7	Medium side prong for PAR lamps		1-403-1
G13	Fluorescent medium two-pin		1-406-2
2G13	U-shaped fluorescent with spacing variants		1-420-2
2GX13	Circular fluorescent, pins on opposite sides of bulb	7004-125-1	
G16d	Mogul and extended mogul end prong for PAR lamps		1-430-3
G16d	Two-contact lug for PAR lamps		1-431-3
G16t	Three-contact lug for PAR lamps	7004-100-3	
G17t	Three-pin prefocus for incandescent projection lamps		1-439-1
G17q	Four-pin prefocus for high voltage incandescent projection lamps		1-440-1
GX17q	Four-pin prefocus for low voltage incandescent projection lamps		1-440-1
G20	Fluorescent mogul two-pin		1-452-1
G22	Medium bipost for incandescent and single ended TH lamps	7004-75-3	
G23	Two-pin base for twin shape compact fluorescent	7004-69-1	
G23-2	Two-pin base for quad shape compact fluorescent		1-477-1
GX23	Two-pin base for twin shape compact fluorescent, key variant	7004-86-1	
GX23-2	Two-pin base for quad shape compact fluorescent, key variant		1-478-1
G24d, G24q	Two-pin and four-pin compact fluorescent bases, multiple key variants for different ballasts.	7004-78-5	
GX24Xd, GX24q	Two-pin and four-pin compact fluorescent, circular outer platform, multiple key variants for different ballasts	7004-78-5	
GY24d	Two-pin compact fluorescent, two retainers, reversed pins, four key variants for different ballasts.	7004-78-5	
G32d, G32q	Two-pin and four-pin compact fluorescent, two retainers, five key variants for different ballasts.	7004-87-2	
GX32d, GX32q	Two-pin and four-pin compact fluorescent, two retainers, rectangular outer platform, five key variants for different ballasts	7004-87-2	
GY32d	Two-pin compact fluorescent, two retainers, reversed pins, five key variants for different ballasts.	7004-87-2	
G38	Mogul bipost for incandescent and single ended TH lamps	7004-76-1	
G53	Termination on finished lamp	7004-134-1	

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

System	Description	Standard Sheets	
		IEC 60061-1	ANSI C81.61
Prefocus bases			
P8.25d	Two-pin prefocus for lamps for printed circuit boards		1-530-1
PG12, PGX12	Two-pin prefocus for HID lamps, five key variants for different ballasts	7004-64-3	
P12.4d	Two-pin prefocus for lamps for printed circuit boards		1-550-1
PG13, PGJ13	Auto recessed two-pin straight and right angle prefocus for signal and fog lamps	7004-107-4	
P13.5s	Auto single-contact miniature flanged base	7004-40-2	
PGJ19	Auto right angle prefocus with five key variants for various applications	7004-110-2	
PGJ19-1	For H8 headlamp replaceable inner bulb		
PGJ19-2	For H11 headlamp replaceable inner bulb		
PGJ19-5	For H9 headlamp replaceable inner bulb		
P20d. PX20d, PY20d, PZ20d	Auto right angle prefocus recessed two-pin prefocus bases with key variants for various applications	7004-31-2	
P20d	For HB3 (9005) headlamp replaceable inner bulb		
P20d straight	For straight base HB3A headlamp replaceable inner bulb		
PX20d	For HIR (9011) headlamp replaceable inner bulb		
PY20d	For 9145 headlamp replaceable inner bulb		
PG20	Auto snap lock with recessed pin contacts with twelve key variants for various applications	7004-127-2	
PGU20	Auto snap lock with side contacts with twelve key variants for various applications	7004-127-2	
P22d, PX22d	Auto right angle recessed two-pin prefocus bases with key variants for various applications	7004-32-2	
P22d	For HB4 (9006) headlamp replaceable inner bulb		
P22d straight	For HB4A headlamp replaceable inner bulb		
PX22d	For HIR (9012) headlamp replaceable inner bulb		
PK22s	Auto prefocus with side cable and connector; for H3 (9200) headlamp replaceable inner bulb	7004-47-4	
PKX22s	Auto prefocus with side cable and connector; keyway variant	7004-32-2	
PX26d	For H7 headlamp replaceable bulb	7004-5-6	
P26.4t, PJ26.4t	Auto straight and right angle prefocus bases	7004-128-2	
P28s	Medium prefocus base with flange reference plane	7004-42-7	
P29t	Auto straight recessed three-pin prefocus base for HB1 (9004) headlamp replaceable inner bulb	7004-66-1	
P30s, P30d	Candelabra prefocus base		1-709-1
P32d	Auto straight prefocus bases with center and side contacts with six keyway variants for discharge headlamp bulbs	7004-111-3	
P32d-2	For D2S discharge headlamp replaceable inner bulb		
P32d-3	For D2R discharge headlamp replaceable inner bulb		
PK32d	Auto straight prefocus bases with cable connectors with six keyway variants for discharge headlamp bulbs	7004-111-3	
PK32d-2	For D1S discharge headlamp replaceable inner bulb		
PK32d-3	For D1R discharge headlamp replaceable inner bulb		
P38t	Prefocus cap for H14 replaceable bulb	7004-133-1	
P40	Mogul prefocus with flange reference plane		1-715-1
P43t	Auto prefocus three-contact lug base for H4 and HB3 (9003) headlamp replaceable inner bulb	7004-39-6	

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

System	Description	Standard Sheets	
		IEC 60061-1	ANSI C81.61
Recessed bases			
R7s	Regular single-contact bases for double-ended TH and HID lamps	7004-92-3	
RX7s	Extended recess single-contact bases for double-ended TH and HID lamps	7004-92A-4	
R17d	Fluorescent recessed double contact base		1-777-2
Flanged, grooved, and side bases			
SX4	Submidget flanged base for subminiature lamps		1-850-1
S5.7	Midget grooved base for subminiature lamps	7004-62-1	
SX6	Midget flanged base for subminiature lamps	7004-61-1	
S14	Single and double-contact side bases for double-ended lamps	7004-112-1	
Telephone slide bases			
T7.2-1	Telephone slide base No. 1 for T2 lamps		1-875-1
T7.2-2	Telephone slide base No. 2 for T2 lamps		1-876-1
T7.2-3	Telephone slide base No. 3 for T2 lamps		1-877-1
T7.2-5	Telephone slide base No. 5 for T2 lamps		1-878-1
T7.2-6	Telephone slide base No. 6 for T2 lamps		1-879-1
T7.2-7	Telephone slide base No. 7 for T2 lamps		1-880-1
T7.2-8	Telephone slide base No. 8 for T2 lamps		1-881-1
Wedge bases			
W2.1x4.9d	Subminiature wedge base		1-900-1
W2.1x9.2d	Miniature wedge base		1-920-1
W2.5x16q	Auto wedge base for signal lamp	7004-104-1	
WU2.5x16q	Auto wedge base for signal lamp, key variant	7004-104D-1	
WX2.5x16q	Auto wedge base for signal lamp, key variant	7004-104A-1	
WY2.5x16q	Auto wedge base for signal lamp, key variant	7004-104B-1	
WZ2.5x16q	Auto wedge base for signal lamp, key variant	7004-105C-1	
W4x8.5d	Miniature wedge base	7004-115-1	

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PART II—ANSI Standard Sheets for Bases (Caps) for Electric Lamps

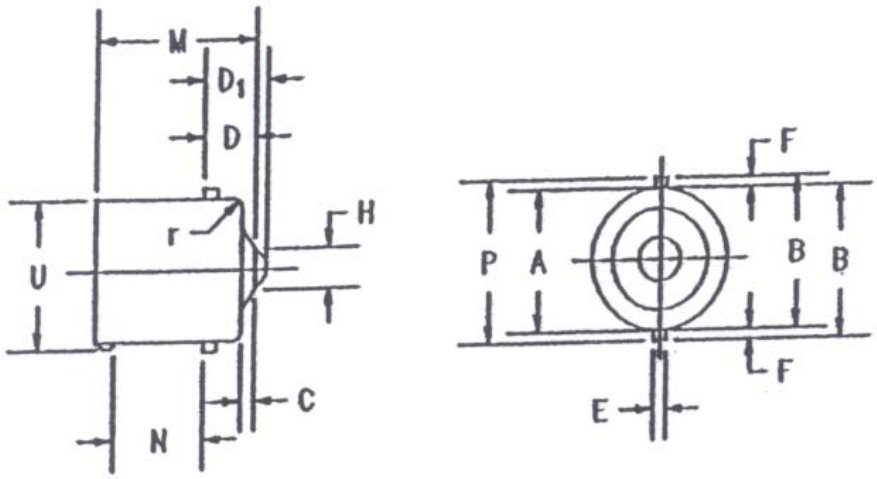
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BA9 Miniature Bayonet Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is BA9. This standard sheet is equivalent to IEC 60061 (exception, see note 3).

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (millimeters)				Nearest Equivalent (inches)			
	Unmounted (Note 7)		Finished Lamp		Unmounted (Note 7)		Finished Lamp	
	Min	Max	Min	Max	Min	Max	Min	Max
A (Note 1)	9.08	9.20	9.08	9.25	0.357	0.362	0.357	0.364
B	9.75	10.11	9.75	10.16	0.384	0.398	0.384	0.400
C	1.50	-	-	-	0.059	-	-	-
D	4.30	5.20	-	-	0.169	0.205	-	-
D_1	-	-	4.30	5.90	-	-	0.169	0.232
E (Note 2)	1.50	1.70	1.50	1.70	0.059	0.067	0.059	0.067
F	0.64	-	0.64	-	0.025	-	0.025	-
H	3.50	4.00	3.50	4.00	0.138	0.157	0.138	0.157
M (Note 3)	12.90	13.30	-	-	0.508	0.524	-	-
N (Note 4)	4.50	-	4.50	-	0.177	-	0.177	-
P	-	10.95	-	11.00	-	0.431	-	0.433
U (Note 5)	-	-	-	10.41	-	-	-	0.410
r (Note 6)	-	-	-	-	-	-	-	-

NOTES:
1 Bases may be made with a flare, with the diameter not to be more than 0.5mm (0.02 inch) greater than dimension A max.
2 On a finished lamp, the maximum pin diameter is checked in conjunction with the allowance for misalignment of pins. The "go" gauge shown on Standard Sheet 3-10 is used.
3 Dimension M lists the OAL limits of the BA9/13 base. For the BA9/14 base, the limits are 13.75mm-14.25mm (0.541 inch-0.561 inch). Some lamp designs in the United States require the use of a base with an OAL of 12.50mm (0.492 in.) nominal; the designation according to the coding system of the IEC is BA9/12.5. The limits for this base are 12.20mm-12.95mm (0.480 in-0.510 in.).
4 Dimension N denotes the minimum length of shell that shall conform to limits of dimension A.
5 Dimension U includes allowance for side-solder. It is measured from opposite the barrel or the flare, if present.
6 Rounded edge (0.80mm minimal) recommended to aid insertion.
7 These dimensions are solely for base design and are not to be gauged on the finished lamp.

Gauging

The base of the lamp shall enter Gauge 3-10 until the pins have passed through the two slots q. When the pins are in close contact with surface s, the contact(s) shall be between surface x and surface z.

The base of the lamp shall not enter Gauge 3-11.
See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-10.

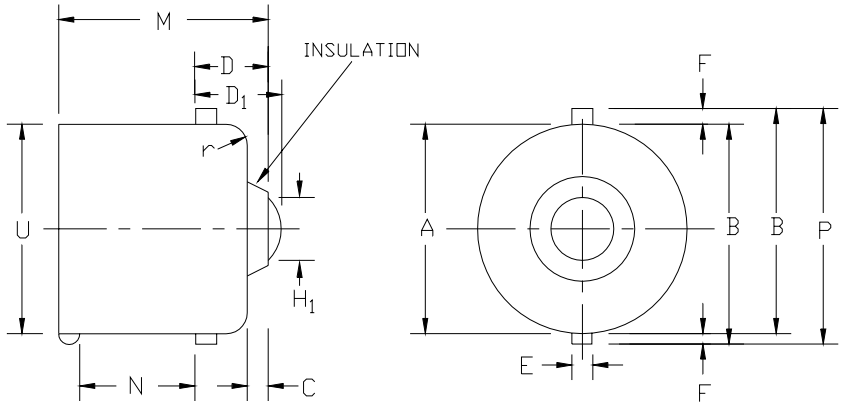
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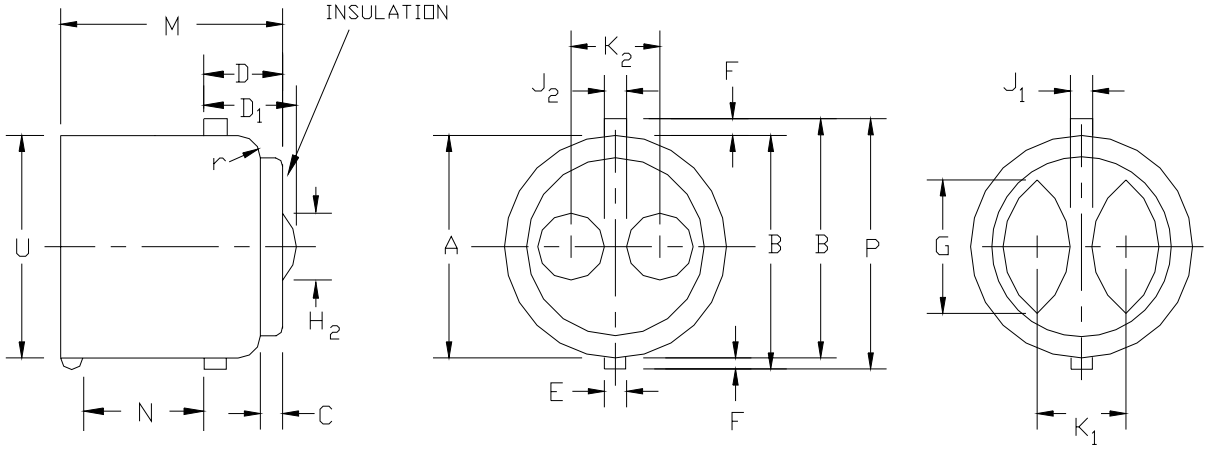
BA15s, BA15d Candelabra Single-Contact and Double-Contact Bayonet Base

The designations assigned to variations of these bases by the International Electrotechnical Commission (IEC) are BA15s and BA15d. This standard sheet is equivalent to IEC 60061.

The drawing is intended only to indicate the dimensions to be controlled.



SINGLE CONTACT
BA15s



DOUBLE CONTACT
BA15d

OPTIONAL CONTACT
CONFIGURATION

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Reference	Standard Dimensions (millimeters)				Nearest Equivalent (inches)			
	Unmounted (Note 8)		Finished Lamp		Unmounted (Note 8)		Finished Lamp	
	Min	Max	Min	Max	Min	Max	Min	Max
A (Note 1)	15.05	15.25	15.05	15.30	0.5925	0.6004	0.5925	0.6025
B	15.65	16.10	15.65	16.15	0.616	0.634	0.616	0.636
C	1.50	-	-	-	0.059	-	-	-
D	6.00	6.60	-	-	0.236	0.260	-	-
D_1 (Note 2)	-	-	6.32	8.03	-	-	0.249	0.316
E (Note 3)	1.80	2.20	1.80	2.20	0.071	0.087	0.071	0.087
F	0.64	-	0.64	-	0.025	-	0.025	-
G	9.00 Nom		-	-	0.354 Nom		-	-
H_1	4.50	5.20	-	-	0.177	0.204	-	-
H_2	4.50	-	-	-	0.177	-	-	-
J_1	3.00	-	-	-	0.118	-	-	-
J_2	1.70	-	-	-	0.067	-	-	-
K_1	7.00	8.00	-	-	0.276	0.315	-	-
K_2	6.50	7.10	-	-	0.256	0.280	-	-
M (Note 4)	18.75	19.25	-	-	0.738	0.758	-	-
N (Note 5)	8.90	-	8.90	-	0.350	-	0.350	-
P	-	16.95	-	17.00	-	0.667	-	0.669
U (Note 6)	-	-	-	16.26	-	-	-	0.640
r (Note 7)	-	-	-	-	-	-	-	-

NOTES
1 Bases may be made with a flare, with the diameter not more than 1mm (0.039 inch) greater than dimension A.
2 On the double circular contact bases, the solder height of the two contacts shall be within 0.50mm (0.020 inch) of each other.
3 On a finished lamp, the maximum pin diameter is checked in conjunction with the allowance for misalignment of pins.
4 Dimension M lists the OAL limits of the BA15/19 base. For the BA15/17.5 base, the limits are 17.25mm-17.75mm (0.679 inch – 0.699 inch), and for the BA15/21 base, the limits are 20.75mm – 21.25mm (0.817 inch – 0.837 inch).
5 Dimension N denotes the minimum length of the shell that shall conform to the limits of dimension A.
6 Dimension U includes allowance for side-solder. It is measured from opposite the barrel or the flare, if present.
7 Rounded edge recommended to aid insertion.
8 These dimensions are for base design only, and are not to be gauged on the finished lamp.

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Gauging:
The base of the lamp shall enter Gauge 3-20 until the pins have passed through the two slots q. When the pins are in close contact with surface s, the contact(s) shall be between surface x and surface z.

The base on the lamp shall not enter Gauge 3-21.

See ANSI C81.63 for gauges.

Lampholder:
See ANSI C81.62, Standard Sheet 2-20.

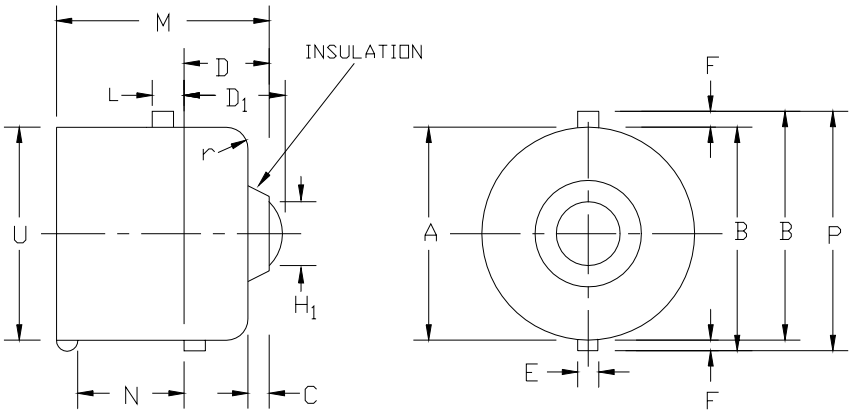
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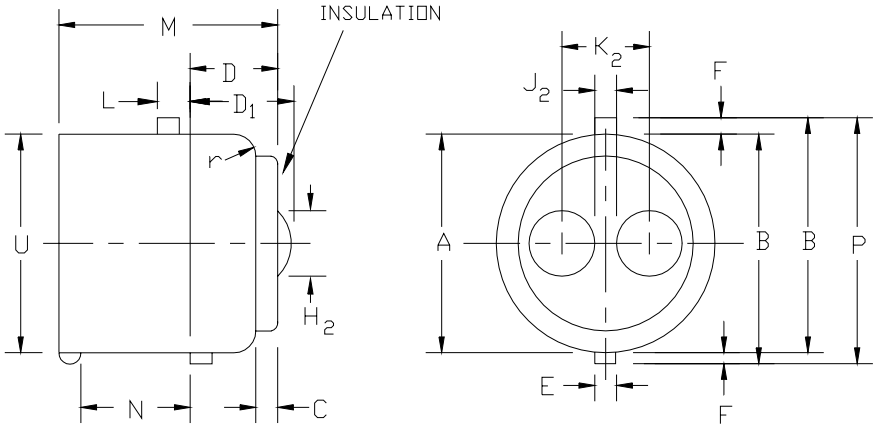
BAY15s and BAY15d Bases

The designations assigned to variations of these bases by the International Electrotechnical Commission (IEC) are BAY15s and BAY15d. This standard sheet is equivalent to IEC 60061.

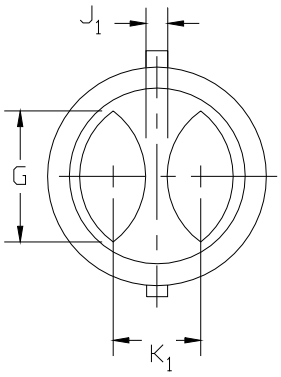
The drawing is intended only to indicate the dimensions to be controlled.



SINGLE CONTACT
BAY15s



DOUBLE CONTACT
BAY15d



OPTIONAL CONTACT
CONFIGURATION

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Reference	Standard Dimensions (millimeters)				Nearest Equivalent (inches)			
	Unmounted (Note 8)		Finished Lamp		Unmounted (Note 8)		Finished Lamp	
	Min	Max	Min	Max	Min	Max	Min	Max
A (Note 1)	15.05	15.25	15.05	15.30	0.5925	0.6004	0.5925	0.6025
B	15.65	16.10	15.65	16.15	0.616	0.634	0.616	0.636
C	1.50	-	-	-	0.059	-	-	-
D	6.00	6.60	-	-	0.236	0.260	-	-
D_1 (Notes 2,9)	-	-	6.32	8.03	-	-	0.249	0.316
E (Note 3)	1.80	2.20	1.80	2.20	0.071	0.087	0.071	0.087
F	0.64	-	0.64	-	0.025	-	0.025	-
G	9.00 Nom.		-	-	0.354 Nom		-	-
H_1	4.50	5.20	-	-	0.177	0.204	-	-
H_2	4.50	-	-	-	0.177	-	-	-
J_1	3.00	-	-	-	0.118	-	-	-
J_2	1.70	-	-	-	0.067	-	-	-
K_1	7.00	8.00	-	-	0.276	0.315	-	-
K_2	6.50	7.10	-	-	0.256	0.280	-	-
L	3.00	3.40	3.00	3.40	0.118	0.134	0.118	0.134
M (Note 4)	18.75	19.25	-	-	0.738	0.758	-	-
N (Note 5)	8.90	-	8.90	-	0.350	-	0.350	-
P	-	16.95	-	17.00	-	0.667	-	0.669
U (Note 6)	-	-	-	16.26	-	-	-	0.640
r (Note 7)	-	-	-	-	-	-	-	-

NOTES
1 Bases may be made with a flare, with the diameter not more than 1 mm (0.039 inch) greater than dimension A.
2 On double circular contact bases, the solder height of the two contacts shall be within 0.50 mm (0.020 inch) of each other.
3 On finished lamps, the maximum pin diameter is checked in conjunction with the allowance for misalignment of pins. The “go” gauge shown on Standard Sheet X-X-X (under consideration) is used.
4 Dimension M lists the OAL limits of the BAY15/19 base. For the BAY15/21 base, the limits are 20.75mm-21.25mm (0.817inch-0.837inch).
5 Dimension N denotes the minimum length of the shell that shall conform to the limits of dimension A.
6 Dimension U includes allowance for side-solder. It is measured from opposite the barrel or the flare, if present.
7 Rounded edge recommended to aid insertion.
8 These dimensions are for base design only, and are not to be gauged on the finished lamp.
9 In IEC 60061 this dimension is 7.50mm (0.295in) maximum

Gauging

Gauges have not been developed for this base.

Lampholder

A lampholder standard has not been developed for BAY15s. See ANSI C81.62 Standard Sheet 2-20 for the BAY15d lampholder.

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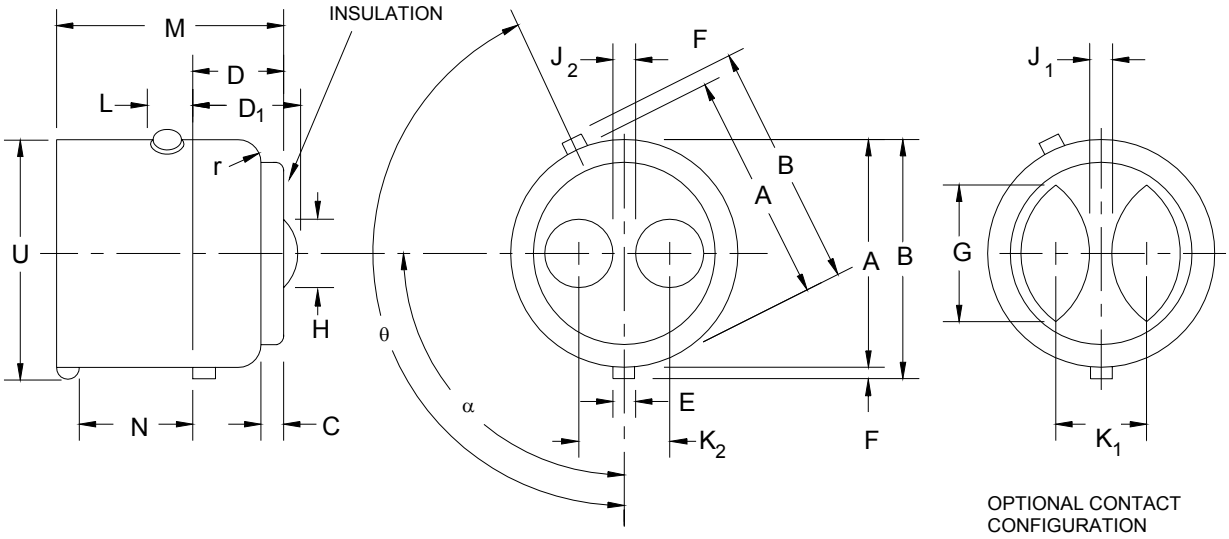
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BAZ15d Base

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Reference	Standard Dimensions (millimeters)				Nearest Equivalent (inches)			
	Unmounted (Note 8)		Finished Lamp		Unmounted (Note 8)		Finished Lamp	
	Min	Max	Min	Max	Min	Max	Min	Max
A (Note 1)	15.05	15.25	15.05	15.30	0.5925	0.6004	0.5925	0.6025
B	15.65	16.10	15.65	16.15	0.616	0.634	0.616	0.636
C	1.50	-	-	-	0.059	-	-	-
D	6.00	6.60	-	-	0.236	0.260	-	-
D_1 (Notes 2,9)	-	-	6.32	8.03	-	-	0.249	0.316
E (Note 3)	1.80	2.20	1.80	2.20	0.071	0.087	0.071	0.087
F	0.64	-	0.64	-	0.025	-	0.025	-
G	9.00 Nom.		-	-	0.354 Nom		-	-
H	4.50	-	-	-	0.177	-	-	-
J_1	3.00	-	-	-	0.118	-	-	-
J_2	1.70	-	-	-	0.067	-	-	-
K_1	7.00	8.00	-	-	0.276	0.315	-	-
K_2	6.50	7.10	-	-	0.256	0.280	-	-
L	3.00	3.40	3.00	3.40	0.118	0.134	0.118	0.134
M (Note 4)	18.75	19.25	-	-	0.738	0.758	-	-
N (Note 5)	8.90	-	8.90	-	0.350	-	0.350	-
U (Note 6)	-	-	-	16.26	-	-	-	0.640
r (Note 7)	-	-	-	-	-	-	-	-
α (degrees)	90º Nom		90º Nom		90º Nom		90º Nom	
θ (degrees)	150º Nom		150º Nom		150º Nom		150º Nom	

NOTES
1 Bases may be made with a flare, with the diameter not more than 1 mm (0.039 inch) greater than dimension A.
2 On double circular contact bases, the solder height of the two contacts shall be within 0.50 mm (0.020 inch) of each other.
3 On a finished lamp, the maximum pin diameter is checked in conjunction with the allowance for misalignment of pins. The “go” gauge shown on Standard Sheet X-X-X (under consideration) is used.
4 Dimension M lists the OAL limits of the BAZ15/19 base. For the BAZ15/21 base, the limits are 20.75mm-21.25mm (0.817inch-0.837inch).
5 Dimension N denotes the minimum length of the shell that shall conform to the limits of dimension A.
6 Dimension U includes allowance for side-solder. It is measured from opposite the barrel or the flare, if present.
7 Rounded edge recommended to aid insertion.
8 These dimensions are for base design only, and are not to be gauged on the finished lamp.
9 In IEC 60061 this dimension is 7.50mm (0.295in) maximum.

Gauging
Gauges have not been developed for this base.

Lampholder
See ANSI C81.62 Standard Sheet 2-20.

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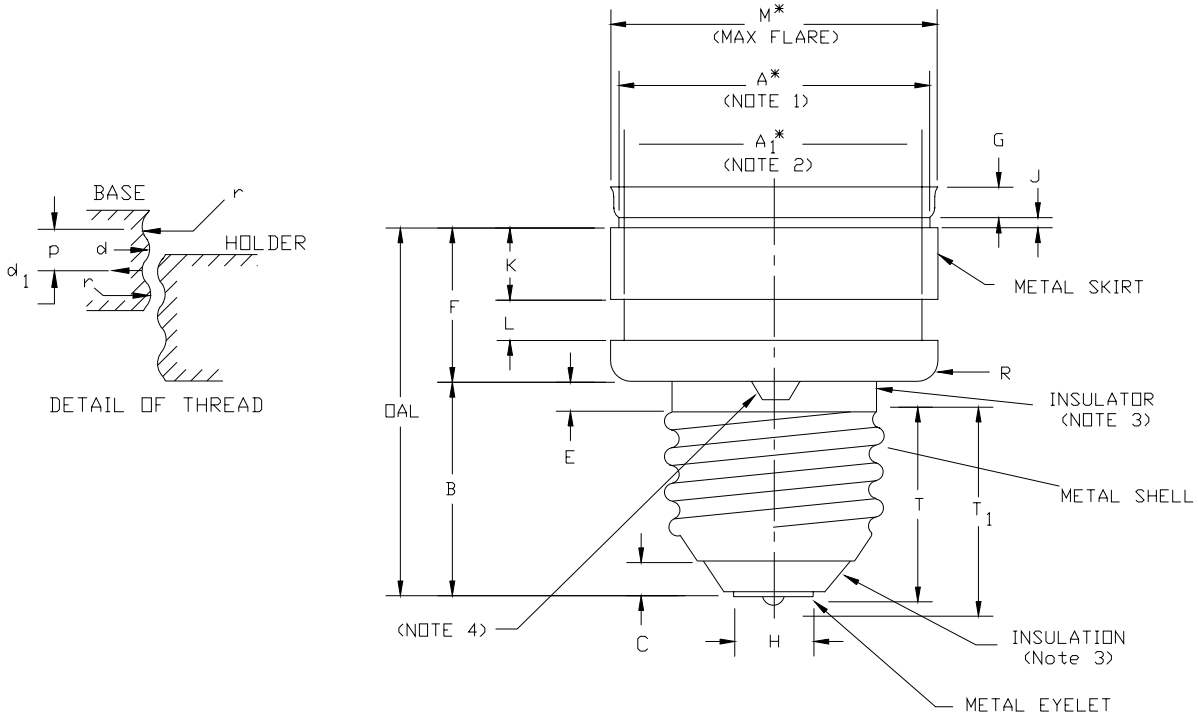
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E26/53x39 Skirted Medium Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is E26/53x39. At the time of issuance of this standard, there was no comparable IEC standard in existence.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)				Nearest Equivalent (millimeters)			
	Unmounted*		On Finished Lamps		Unmounted*		On Finished Lamps	
	Min	Max	Min	Max	Min	Max	Min	Max
A (Note 1)	1.447	1.453	-	-	36.76	36.90	-	-
A_1 (Note 2)	1.435	1.445	-	-	36.45	36.70	-	-
B	1.057	1.097	1.057	1.097	26.85	27.86	26.85	27.86
C	0.125	-	0.125	-	3.18	-	3.18	-
E	0.118	-	0.118	-	3.00	-	3.00	-
F	0.969	0.999	0.969	0.999	24.61	25.38	24.61	25.38
G	0.125		-		3.18		-	
H	0.360	0.455	0.360	0.455	9.14	11.56	9.14	11.56
J	0.063		-		1.60		-	
K	0.625		-		15.88		-	
L	0.173	0.203	-	-	4.40	5.15	-	-
M	-	1.550	-	-	-	39.37	-	-
OAL	2.031	2.094	-	-	51.59	53.18	-	-
R (radius)	0.080		-		2.03		-	
T	0.759	-	-		19.28	-	-	-
T_1	-	-	0.770	-	-	-	19.56	-
d	1.026	1.040	1.026	1.040	26.05	26.34	26.05	26.34
d_1	-	0.974	-	0.974	-	24.66	-	24.66

NOTES
1 Inside diameter at dimensions G and J.
2 Inside diameter at dimensions K and L.
3 Spacing over surface of insulation or through air shall not be less than 0.118 inch (3.00mm).
4 For finished lamps, the spacing between the insulated skirt and live parts in the wireway shall not be less than 0.079 inch (2.00mm). (Future objective: 0.118 inch [3.00mm]).
5 Dimension r, which is derived from the theoretical thread profile, is not to be checked on the base.
* These dimensions are solely for base design and are not to be gauged on finished lamps.

Form of E26 Medium Screw Thread	
Threads per inch	7
Pitch of thread, *p*	0.14286 inch (3.629 mm)
Radius of thread, *r*	0.0469 inch (1.191 mm) (Note 5)
Direction of threads	right hand

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Gauging
When the chamfered end of Gauge 7006-29L is placed over the base thread of a finished lamp, held base up, the center contact shall not project beyond the opposite gauge surface. Only the weight of the gauge itself shall be used in the test.

When the base on a finished lamp is pushed into Gauge 3-166, surface w shall reach surface v or project beyond it. When surfaces v and w are coincident, the top of the insulation between the metal skirt and the metal shell shall not extend above surface x.

When the base or lamp is fully screwed into Gauge 3-160, the center contact of the base shall be in contact with surface x of the gauge. As the base or lamp is removed from the gauge, at least two full turns shall be required to disengage the threads.

NOTE: Two separate gauges are required; one to accommodate unmounted bases [T], and one to accommodate based lamps [T_1].

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 7005-21A.

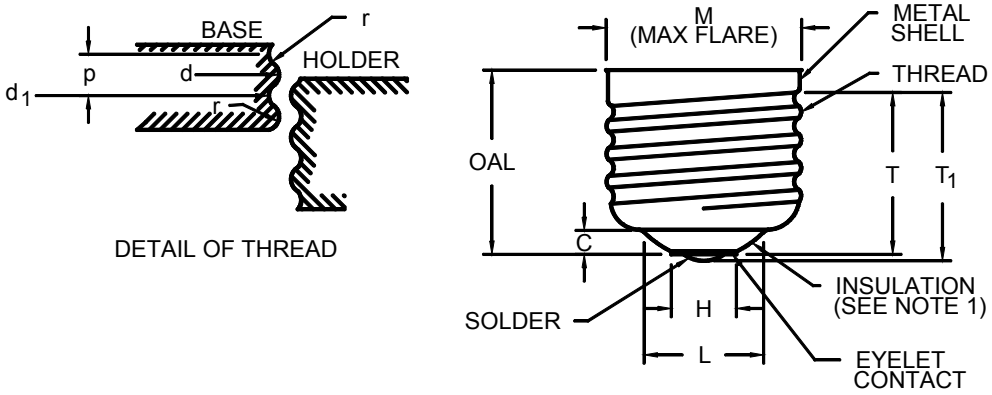
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E29/28 Single Contact Admedium Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission is E29/28. At the time of issuance of this standard, there was no comparable IEC standard in existence.

The drawing is intended to indicate only the dimensions to be controlled.



RIGHT-HAND THREAD SHOWN

Reference	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished Lamps	
	Min	Max	Min	Max	Min	Max	Min	Max
C	0.128	-	0.128	-	3.25	-	3.25	-
H	0.437		0.437		11.10		11.10	
L	0.738		0.738		18.75		18.75	
M (Note 2)	-	1.170	-	-	-	29.72	-	-
OAL (Note 2)	1.063	1.125	-	-	27.00	28.57	-	-
T	0.970	-	-	-	24.64	-	-	-
T_1	-	-	0.970	-	-	-	24.64	-
D	1.155	1.166	1.155	1.170	29.33	29.62	29.33	29.72
d_1	-	1.090	-	1.094	-	27.69	-	27.79

NOTES
1 Spacing over surface of insulator or through air shall not be less than .118 inch (3.00mm).
2 These dimensions are solely for base design and are not to be gauged on the finished lamps.

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Form of E29 Admedium Screw Threads	
Threads per inch	6
Pitch of thread, *p*	0.1667 (4.233mm)
Radius of thread, *r*	0.055 (1.40mm)
Direction of threads	Right hand

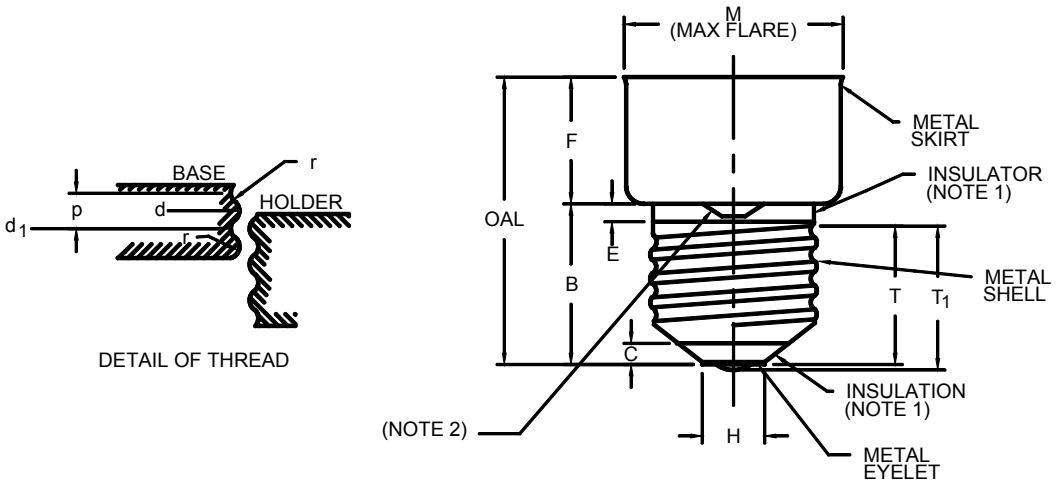
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E29/53x39 Skirted Admedium Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission is E29/53x39. At the time of issuance of this standard, there was no comparable IEC standard in existence.

The drawing is intended to indicate only the dimensions to be controlled.



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Reference	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 4)		On Finished Lamps		Unmounted (Note 4)		On Finished Lamps	
	Min	Max	Min	Max	Min	Max	Min	Max
B	1.222		1.222		31.03		31.03	
C	0.128	-	0.128	-	3.25	-	3.25	-
E	0.118		0.118		3.00		3.00	
F	0.870	0.900	0.870	0.900	22.10	22.86	22.10	22.86
H	0.437		0.437		11.10		11.10	
L	0.738		0.738		18.75		18.75	
M (Note 2)	-	1.550	-	-	-	39.37	-	-
OAL (Note 2)	2.074	2.139	-	-	52.68	54.33	-	-
T	0.970	-	-	-	24.64	-	-	-
T_1	-	-	0.980	-	-	-	24.89	-
D	1.155	1.166	1.155	1.170	29.33	29.62	29.33	29.72
d_1	-	1.090	-	1.094	-	27.69	-	27.79

NOTES:
1 Spacing over surface of insulator or through air shall not be less than .118 inch (3.00mm).
2 For finished lamps, the spacing between the insulated skirt and life parts in the wireway shall not be less than .079 inch (2.00mm).
3 Dimension r, which is derived from the theoretical thread profile, is not to be checked on the base.
4 These dimensions are solely for base design and are not to be gauged on the finished lamp.

Form of E29 Admedium Screw Threads	
Threads per inch	6
Pitch of thread, *p*	0.1667 (4.233mm)
Radius of thread, *r*	0.055 (1.40mm) (Note 3)
Direction of threads	Right hand

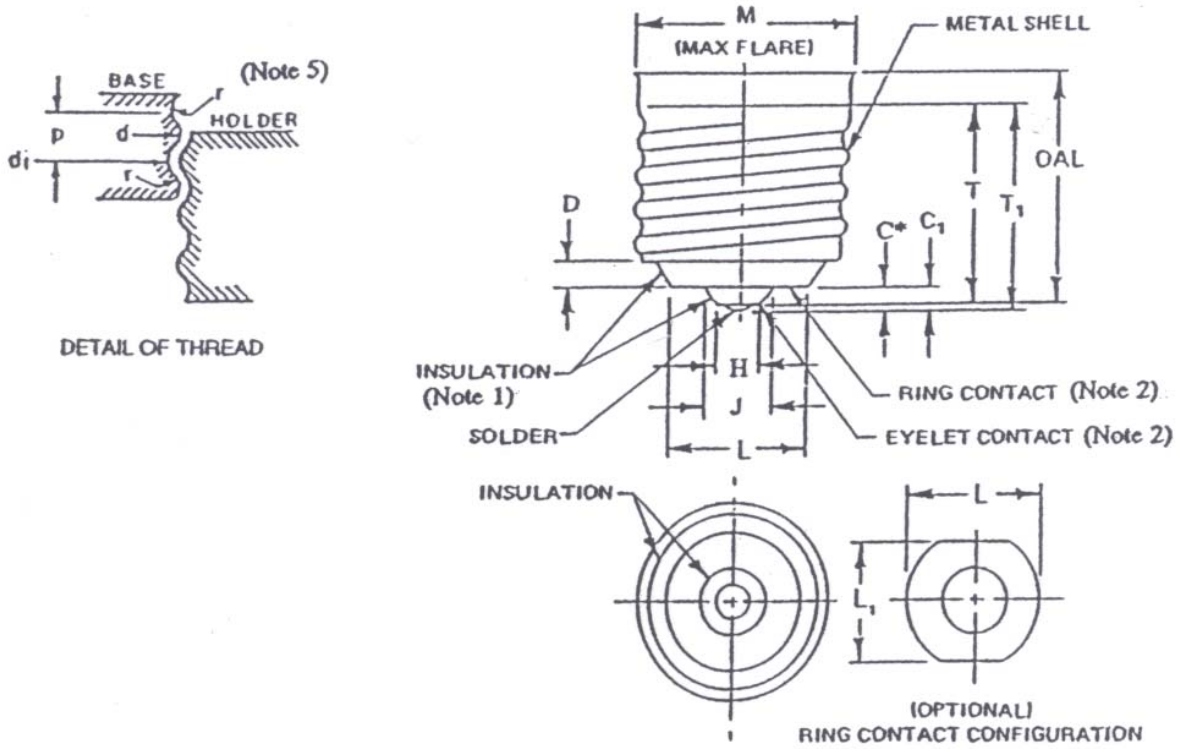
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E39d Double-Contact Mogul Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is E39d. At the time of issuance of this standard, there was no comparable IEC standard in existence.

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Reference	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 3)		On Finished Lamps		Unmounted (Note 3)		On Finished Lamps	
	Min	Max	Min	Max	Min	Max	Min	Max
C	0.109	0.141	-	-	2.77	3.58	-	-
C_1	-	-	0.109	0.196	-	-	2.77	4.98
D	0.172	0.203	-	-	4.37	5.15	-	-
H	0.296	0.328	0.296	0.328	7.52	8.33	7.52	8.33
J	0.460	0.500	-	-	11.68	12.70	-	-
L	0.984	1.016	0.984	1.016	24.99	25.80	24.99	25.80
L_1	0.840	1.016	0.840	1.016	21.33	25.80	21.33	25.80
M (Note 3)	-	1.585	-	-	-	40.26	-	-
OAL (Note 3)	1.633	1.679	-	-	41.48	41.64	-	-
T	1.185	-	-	-	30.10	-	-	-
T_1	-	-	1.190	-	-	-	30.23	-
d (Note 4)	1.537	1.553	1.537	1.558	39.04	39.44	39.04	39.56
d_1 (Note 4)	-	1.453	-	1.458	-	36.90	-	37.02

NOTES
1 Spacing over surface of insulation or through air shall not be less than 0.125 inch (3.18mm).
2 The eyelet and ring contacts shall not be of the opposite polarity.
3 These dimensions are solely for base design and are not to be gauged on the finished lamps.
4 The metric equivalents for dimensions d max and d_1 max are rounded downward to achieve better international harmonization.
5 Dimension r, which is derived from the theoretical thread profile, is not to be checked on the base.

Form of E39 Mogul Screw Threads	
Threads per inch	4
Pitch of thread, *p*	0.2500 inch (6.350 mm)
Radius of thread, *r*	0.09060 inch (2.301 mm)
Direction of threads	right hand

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Gauging
Threaded "go" gauge, 7006-24B: When the lamp is fully screwed into Gauge 7006-24B, the center contact of the base shall be in contact with surface X of the gauge. When the lamp is removed from the gauge, at least two full turns shall be required to disengage the threads.

“Not-go" ring gauge, 7006-24C: When the chamfered end of Gauge 7006-24C is placed over the base thread of a finished lamp held base up, the center contact shall not project beyond the opposite gauge surface. Only the weight of the gauge itself shall be used in the test.

Gauge for testing contact-making gauge, 7006-24A: It shall be possible to insert the lamp into Gauge 7006-24A until surface W reaches surface V or projects beyond it.

> NOTE - Some existing lamp designs employing G-shaped bulbs with short necks may not satisfy this gauge.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81-62, Standard Sheet 2-187.

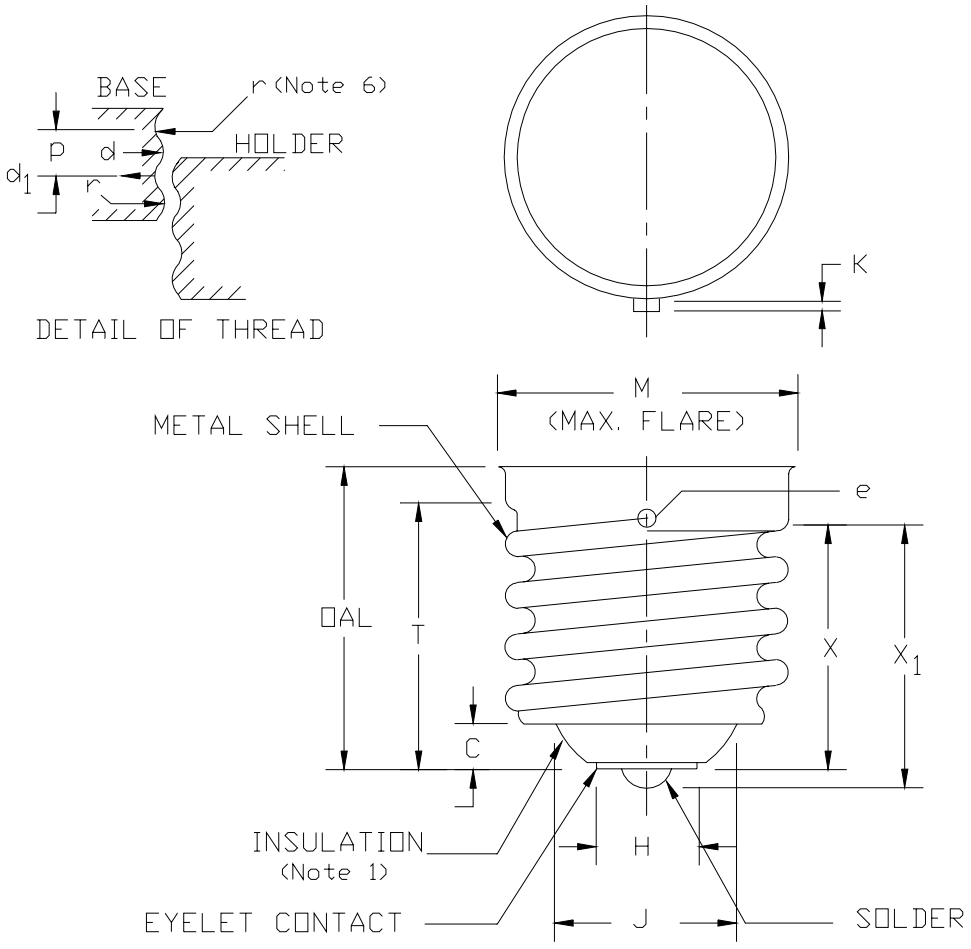
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EP39 Position-Oriented Mogul Screw Base

The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is EP39. At the time of publication there was no comparable IEC standard in existence.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished lamps	
	Min	Max	Min	Max	Min	Max	Min	Max
C	0.187	-	0.187	-	4.75	-	4.75	-
H	0.530	0.595	0.530	0.595	13.46	15.11	13.46	15.11
J (Note 2)	0.950	-	-	-	24.1	-	-	-
K	0.062	0.094	-	-	1.57	2.39	-	-
M (Note 3)	-	1.585	-	-	-	40.26	-	-
OAL (Note 3)	1.595	1.655	-	-	40.51	42.04	-	-
T	1.185	-	-	-	30.10	-	-	-
X (Note 4)	1.000	1.031	-	-	25.40	26.19	-	-
X_1	-	-	1.000	1.047	-	-	25.40	26.59
d (Note 5)	1.537	1.553	1.537	1.558	39.04	39.44	39.04	39.56
d_1 (Note 5)	-	1.453	-	1.458	-	36.90	-	37.02
e (dia)	0.090	0.095	-	-	2.29	2.41	-	-

NOTES
1 Spacing over surface of insulator or through air shall not be less than 0.200 inch (5.08 mm).
2 Dimension J min. is established to assure displacement of ring-shaped intermediate contacts in E39d holders, thus avoiding contact with the base shell.
3 These dimensions are solely for base design and are not to be gauged on finished lamps.
4 Pin is located on major thread diameter d.
5 The metric equivalents for dimensions d max. and d_1 max. are rounded downward to achieve better international harmonization.
6 Dimension r, which is derived from the theoretical thread profile, is not to be checked on the base.

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Form of EP39 Mogul Screw Threads	
Threads per inch	4
Pitch of thread, *p*	0.25000 inch (6.350 mm)
Radius of thread, *r*	0.0906 inch (2.301 mm)
Direction of threads	right hand

Gauging
"Not-Go" Ring Gauge 7006-24C: The center contact of a base shall not project beyond the opposite surface of the gauge. Only the mass of the gauge itself shall be used in the test.

Threaded "Go" Gauge 3-202: When a lamp is fully screwed into the gauge, the center contact of the base shall be in contact with surface x of the gauge.

Contact making Gauge 3-203: It shall be possible to insert the lamp into the gauge until surface w reaches surface v or projects beyond it.

See ANSI C81.63 for gauges.

Related Standard
Specifications for the E39 base are shown on Standard Sheet 7004-24A.

Lampholder
See ANSI C81.62, Standard Sheet 2-202.

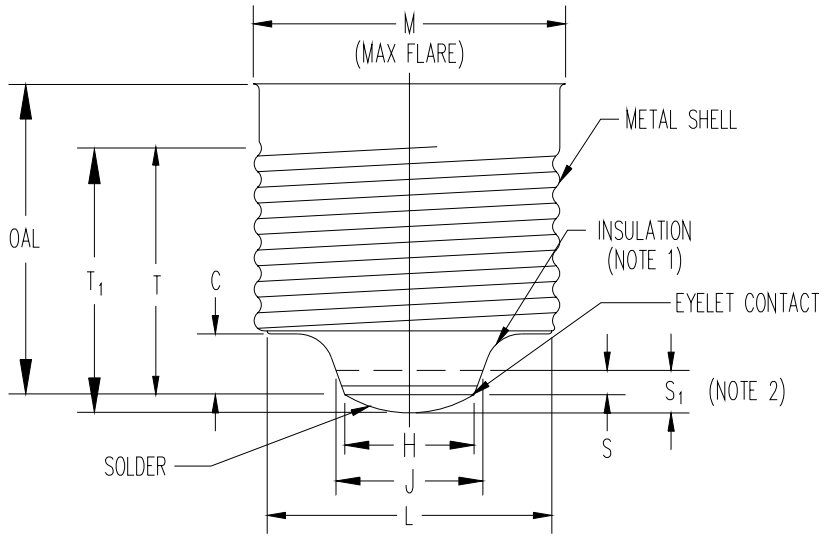
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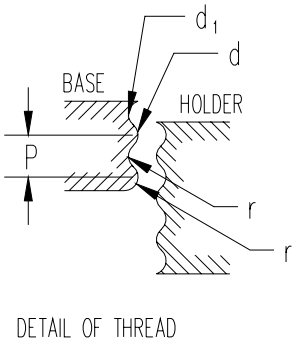
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EX39 Exclusionary Mogul Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is EX39. At the time of publication there was no equivalent IEC publication in existence.

The drawing is intended only to indicate the dimensions to be controlled.





DETAIL OF THREAD

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Reference	Standard Dimensions (inches)				Nearest Equivalent (millimeters)			
	Unmounted (Note 4)		Finished Lamp		Unmounted (Note 4)		Finished Lamp	
	Min	Max	Min	Max	Min	Max	Min	Max
C	0.366	-	0.366	-	9.30	-	9.30	-
H	0.390	0.410	0.390	0.410	9.91	10.41	9.91	10.41
J (Note 2)	-	0.500	-	0.500	-	12.70	-	12.70
L (Note 3)	0.950	-	-	-	24.13	-	-	-
M	-	1.585	-	-	-	40.26	-	-
OAL	1.595	1.655	-	-	40.51	42.04	-	-
S (Note 2)	0.250	-	-	-	6.35	-	-	-
S_1 (Note 2)	-	-	0.255	-	-	-	6.48	-
T	1.185	-	-	-	30.10	-	-	-
T_1	-	-	1.190	-	-	-	30.23	-
d (Note 5)	1.537	1.553	1.537	1.558	39.04	39.44	39.04	39.56
d_1 (Note 5)	-	1.453	-	1.458	-	36.90	-	37.02

NOTES
1 Spacing over surface of insulator or through air shall not be less than 0.200 inch (5.08 mm).
2 Dimension J max. (dia.) applies at dimensions S and S_1, min. and is a principle exclusionary dimension preventing interchangeability with E39 single contact bases.
3 Dimension L min. is established to assure displacement of ring-shaped intermediate contacts in E39d holders, thus avoiding contact with the base shell.
4 These dimensions are solely for base design and are not to be gauged on the finished lamp.
5 The metric equivalents for dimensions d max. and d_1 max. are rounded downward to achieve better international harmonization.
6 Dimension r, which is derived from the Theoretical Thread Profile, is not to be checked on the base.

Form of EX39 Mogul Screw Threads	
Threads per inch	4
Pitch of thread, p	0.25000 in (6.350 mm)
Radius of thread, r	0.0906 in (2.301 mm)
Direction of threads	right hand

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Gauging
When a lamp is fully screwed into Gauge 7006-24B, the center contact of the base shall be coplanar with, or project beyond, surface X of the gauge. During removal, at least two full turns shall be necessary to disengage the threads.

The center contact of a base shall not project beyond the opposite surface of Gauge 7006-24C. Only the mass of the gauge itself shall be used in the test.

It shall be possible to insert the lamp into Gauge 7006-24A until surface W reaches surface V or projects beyond it.

Note: Some existing lamp designs employing G-shaped bulbs with short necks may not satisfy this gauge.

When Gauge 7006-24A surfaces V and W are coincident, the top of the base, including any solder or other conductive material, shall not extend above surface X.

See ANSI C81.63 for Gauges.

Related Standard Sheet
Specifications for the E39 base are shown on Standard Sheet 7004-24A.

Lampholder
See ANSI C81.62, Standard Sheet 2-210.

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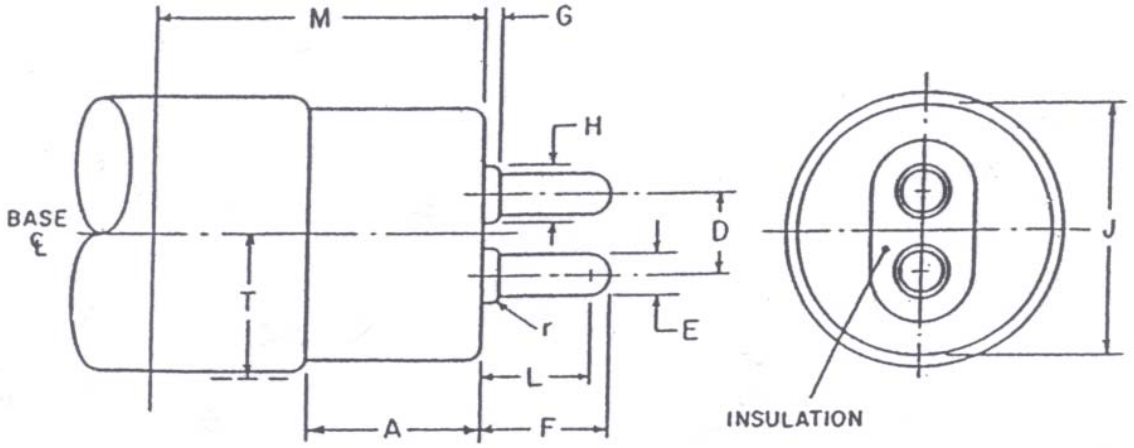
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G5 Miniature Bipin Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G5. This standard sheet is equivalent to IEC 60061.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A (Note 1)	0.343	-	-	8.71	-	-
D	-	0.187	-	-	4.75	-
E (Notes 2, 3)	0.090	-	0.105	2.29	-	2.67
F (Note 2)	0.260	-	0.300	6.60	-	7.62
G	-	-	0.030	-	-	0.76
H	-	-	0.130	-	-	3.30
J (Note 4)	-	-	0.610	-	-	15.49
L (Notes 5, 6)	0.205	-	-	5.21	-	-
M (Note 7)	0.750	-	-	19.05	-	-
T (Note 8)	-	-	0.340	-	-	8.64
r	0.015	-	-	0.38	-	-

NOTES
1 Dimension A is the length over which dimension J applies.
2 Diameter and length dimensions include solder.
3 Prior to welding or soldering, the pin diameter shall be 0.093 inch ± 0.003 inch (2.36 mm ± 0.076mm).
4 Maximum base shell diameter shown is for T5 bulb lamps.
5 This dimension is solely for base design and is not to be gauged on the finished lamp.
6 Dimension L is the minimum length of the cylindrical portion of the pin.
7 Represents length of lamp over which dimension T is applicable.
8 The T dimension includes allowance for possible offset of the bulb axis with respect to the base axis.

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Gauging
Finished lamps employing the G5 base shall satisfy Gauge 3-310. In applying this gauge, the force used shall not exceed 1 lbf. (4.5 N).

The pins of the bases on the finished lamps shall enter the two gauge holes E_2 at surface o. When fully inserted so that the surfaces of base and gauge are in contact, the end of the pins shall reach at least to surface x and shall not project beyond surface y. Each individual base pin shall enter gauge hole E_4 at surface o until the face of the base and the surface of the gauge are in contact. The cylindrical portion of each pin shall not be able to enter hole E_1.

See ANSI C81.63 for gauges.

Pin strength test
A base is acceptable if it passes either the torsion test or one of the pin force tests.

1 Torsion strength on the pins shall be tested by means of the Test Device on ANSI C81.63, Standard Sheet 3-311. Properly insert the base pins into the test device. Apply a rotational torque, increasing from 0 to 2.0 lbf.-in. (0.23 N.m.), hold for five seconds maximum.

2 A force perpendicular to the pin's axis shall be applied to any pin. With the test lamp mounted horizontally, force may be applied with either an anvil point (a) or a wire-weight (b) at a point 0.180 inch (4.57 mm) from the base face.

   a. Use a force gauge with an anvil point of a radius approximately 0.025 inch (0.64 mm) to apply a force of 4.0 lbs. (1.8 kg).

   b. Suspend a 4.0 lb. (1.8 kg) mass by a loop of solid wire 0.050 inch (1.27 mm) in diameter.

The pin under test shall sustain the force for five seconds without that degree of deformation that would allow the anvil or wire loop to slip off the end of the pin.

> Note - The test point, 0.180 inch (4.57 mm) from the base face, was chosen for measurement purposes so that the irregularities in the pin's surface near the ends of the pins could be avoided. In actual practice, smaller forces may occur out along the length of the pins.

Lampholder
See ANSI C81.62, Standard Sheet 2-310.

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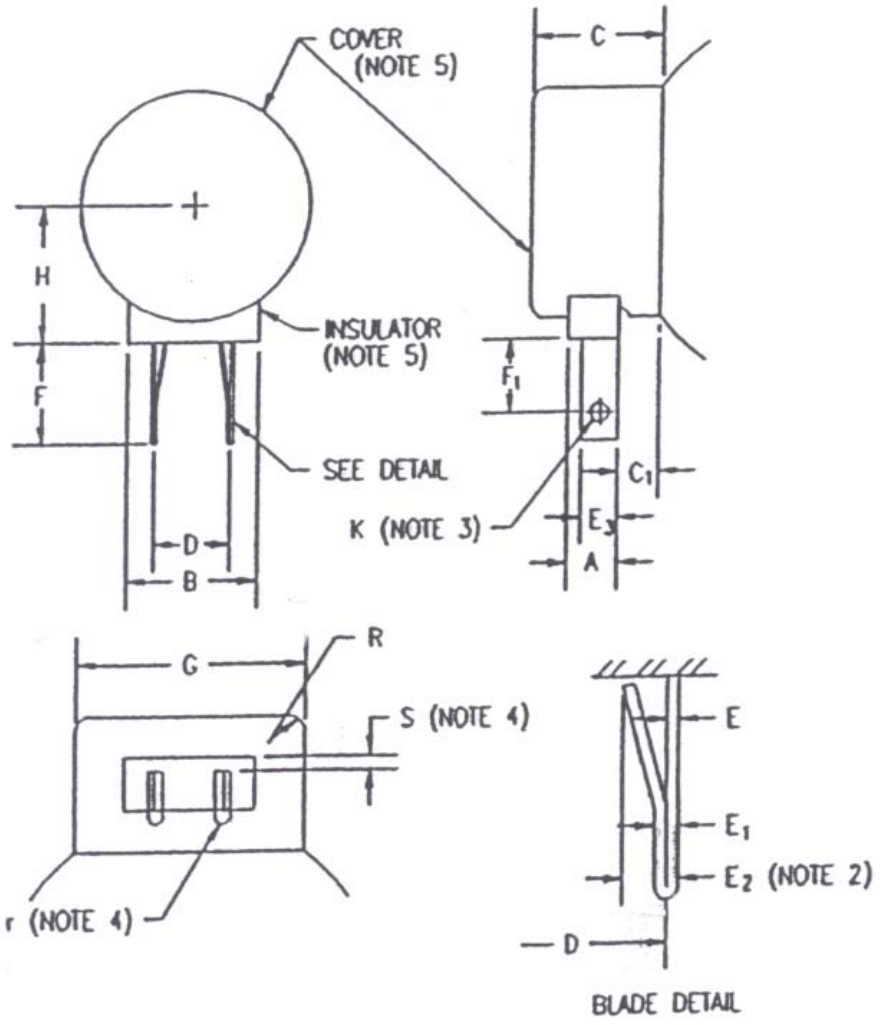
G12.7 Side Prong Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is G12.7.

At the time of publication of this standard, there was no comparable IEC standard in existence.

The dimensions shown apply to bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A (Note 1)	-	0.344	-	-	8.73	-
B (Note 1)	-	0.855	-	-	21.71	-
C (Note 1)	-	0.875	-	-	22.22	-
C_1 (Note 1)	-	0.270	-	-	6.85	-
D (Note 2)	-	0.50	-	-	12.70	-
E (Note 2)	0.020	-	-	0.51	-	-
E_1 (Note 2)	0.055	-	0.065	1.40	-	1.65
E_2 (Note 2)	0.055	-	0.125	1.40	-	3.17
E_3	0.240	-	0.260	6.09	-	6.60
F	0.610	-	0.718	15.49	-	18.23
F_1	0.475	-	0.485	12.06	-	12.32
G (Note 1)	-	1.50	-	-	38.10	-
H (Note 1)	-	0.891	-	-	22.63	-
K (Note 3)	-	0.125 Dia.	-	-	3.17 Dia.	-
R (Note 1)	-	0.10	-	-	2.54	-
r (Note 4)	0.093	-	-	2.36	-	-
S (Note 4)	0.093	-	-	2.36	-	-

NOTES
1 These dimensions are approximate, are solely for base design and are not to be gauged on finished lamps.
2 The spacing and basic design of the G12.7 base contacts are similar to the folded blade construction of a two pole, two wire attachment plug shown in UL 817 and ANSI/NEMA WD 6. See these documents for other contact design options.
3 A 0.156 in. (3.96 mm) x 45° nominal diameter countersink is to be around the 0.125 in. (3.17 mm) diameter hole on the outside of the contact.
4 If the cover is electrically conductive, dimensions r and S denote the clearance required between “live” parts.
5 The insulator and cover as shown are typical configurations. Other configurations are optional.

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Gauging
Under consideration.

Lampholder
Not applicable - general requirements must conform to UL817 for a two blade receptacle.

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G13 Medium Bipin Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G13. This standard sheet is nearly equivalent to IEC 60061.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.

Design variants of dimension J exist for application on three sizes of lamp bulbs.

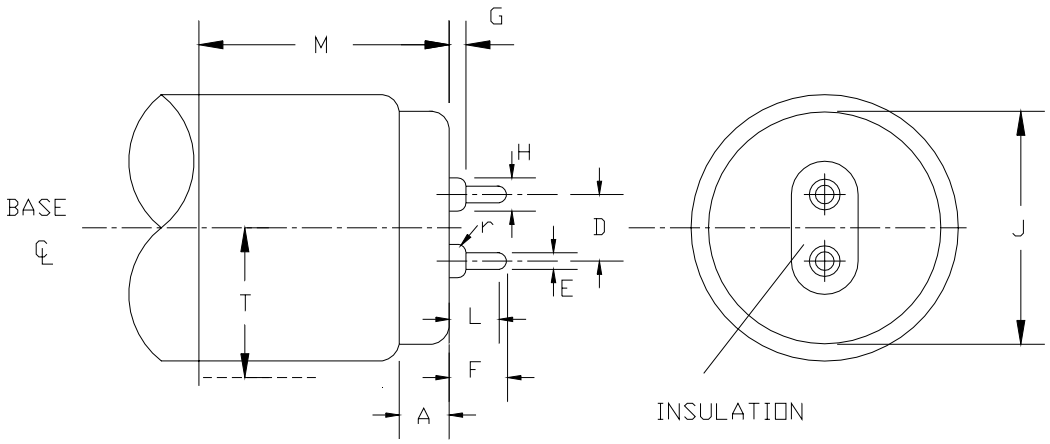


Figure 1
Base on Lamp

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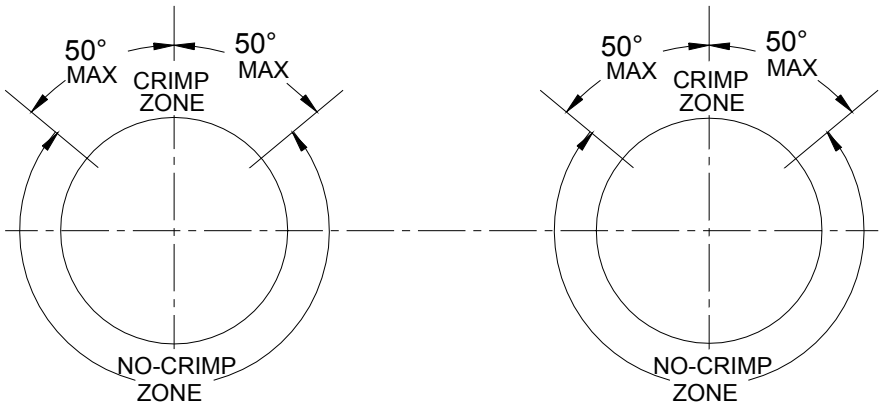


Figure 2
Enlarged Cross-Sectional View of Pins in a Plane Parallel to Base Face
(See Note 9(a))

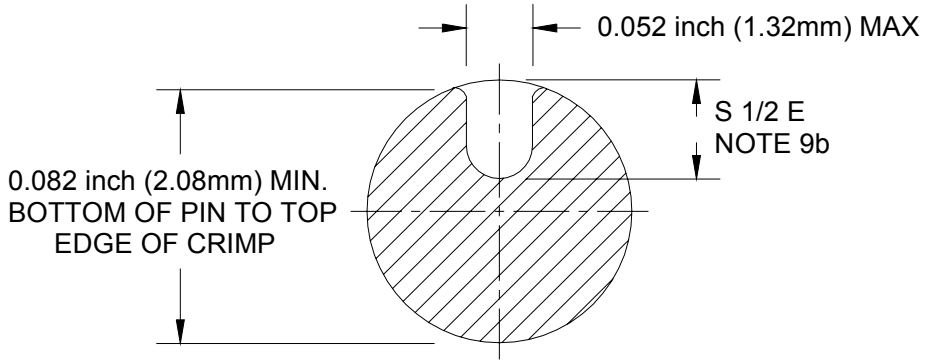


Figure 3
Enlarged Cross-Sectional View of an Indented or Grooved Pin in a
Plane Parallel to the Base Face at the Point of the Largest Crimp Diameter
(See Note 9)

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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A (Note 1)	0.343	-	-	8.71	-	-
D	-	0.500	-	-	12.70	-
E (Notes 2,3)	0.090	-	0.105	2.29	-	2.67
F	0.260	-	0.300	6.6	-	7.62
G	-	-	0.034	-	-	0.86
H	-	-	0.130	-	-	3.30
J (Note 4)	-	-	1.015(T8)	-	-	25.78(T8)
-	-	-	1.240(T10)	-	-	31.50(T10)
-	-	-	1.438(T12)	-	-	36.52(T12)
L (Notes 5, 6, 9)	0.205	-	-	5.21	-	-
M (Note 7)	1.25	-	-	31.75	-	-
T (Note 8)	-	-	0.555(T8)	-	-	14.10(T8)
-	-	-	0.680(T10)	-	-	17.27(T10)
r	-	-	0.800(T12)	-	-	20.32(T12)
-	0.015	-	-	0.38	-	-

NOTES

1 Dimension A is the length over which dimension J applies. The minimum limit is the same for T8 (T25), T10 (T32), and T12 (T38) bulbs.

2 Prior to welding, soldering, or crimping, the pin diameter shall be 0.093 inch ±0.003 inch (2.36mm ± 0.08mm). This dimension is not to be gauged on the finished lamp.

3 An allowance of 0.105 inch (2.67mm) maximum, for gauging, accounts for possible solder buildup, welding burn-over or distortion at the crimp.

4 Maximum base shell diameter J is shown separately for T8 (T25), T10 (T32), and T12 (T38) bulb lamps.

5 This dimension is solely for base design and is not to be gauged on the finished lamp.

6 Dimension L is the minimum length within which the pin shall be cylindrical, with the exception of the height of the bead, dimension G.

7 Dimension M represents length of lamp over which dimension T is applicable.

8 The T dimension includes allowance for possible offset of the bulb axis with respect to the base axis. This dimension is shown separately for T8 (T25), T10 (T32), and T12 (T38) bulb lamps.

9 Indentations or grooves in the surfaces of the pins are allowed provided that they do not extend into a zone of 0.016 inch (0.4mm) measured from the end of the pin.

a) One “crimp zone” per pin is allowed. Each zone is centered on the pin centerline perpendicular to a plane through both pins. The zone shall not exceed a total angle of 100°. The crimp may lie anywhere in the zone, but its radial width shall not exceed 0.052 inch (1.32mm). These zones are shown on both pins in Figure 2. They may also be located on the opposite side of the centerline. The diameter of the pins measured in the plane through the centerlines of the pins shall not be less than 0.90 inch (2.29mm) in every plane parallel to the base face.

b) They shall be such that the depth of the indentations be no greater than one-half the original pin diameter. See Figure 3.

c) Sharp corners of the crimp, which may hang up in lampholder contacts, should be avoided.

d) The cross-sectional shape of the indentation is not limited to the shape shown in Figure 3.

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Gauging
The pins of a finished lamp base shall enter Gauge 3-406, holes E_2 at surface o. When fully inserted, the surfaces of the base and gauge shall be in contact, and the ends of the pins shall reach at least to surface x and shall not project beyond surface y. Insertion force shall not exceed 1 lbf (4.45 N).

Each individual pin shall enter hole E_1 at surface o until the face of the base and the surface of the gauge contact.

The cylindrical portion of each pin shall not enter hole E_3.

Each individual pin of an unmounted base shall fully enter hole E_2 of Gauge 3-407 until the boss contacts the gauge. Each pin shall not fully enter hole E_1.

See ANSI C81.63 for gauges.

Pin strength test
A base is acceptable if it passes either the torsion test or one of the pin force tests.

Torsion strength of the pins shall be tested by means of Test Device 3-410. Properly insert the base pins into the test device. Apply a rotational torque, increasing from 0 to 6 lbf•in (0.68 N•m), and hold for 5 seconds maximum. A limit of 7 lbf•in (0.79 N•m) is under consideration.

A force perpendicular to the pin's axis shall be applied to any pin. With the test lamp mounted horizontally, force may be applied with either an anvil point or a wire-weight at a point 0.180 inch (4.57mm) from the base face.

Use a force gauge with an anvil point of a radius of approximately 0.025 inch (0.64 mm) to apply a force of 12 lb. (5.45 kg). A value of 14 lb. (6.35 kg) is under consideration.

Suspend a 12-lb (5.45-kg) mass by a loop of solid wire 0.050 inch (1.27 mm) in diameter. A value of 14 lb. (6.35 kg) is under consideration.

The pin under test shall sustain the force for 5 seconds without that degree of deformation that would allow the anvil or wire loop to slip off the end of the pin.

> NOTE: The test point, 0.180 inch (4.57 mm) from the base face, was chosen for measurement purposes so that irregularities in the pin's surface near the ends of the pins could be avoided. In actual practice, smaller forces may occur further along the length of the pins.

Lampholder
See ANSI C81.62, Standard Sheet 2-406.

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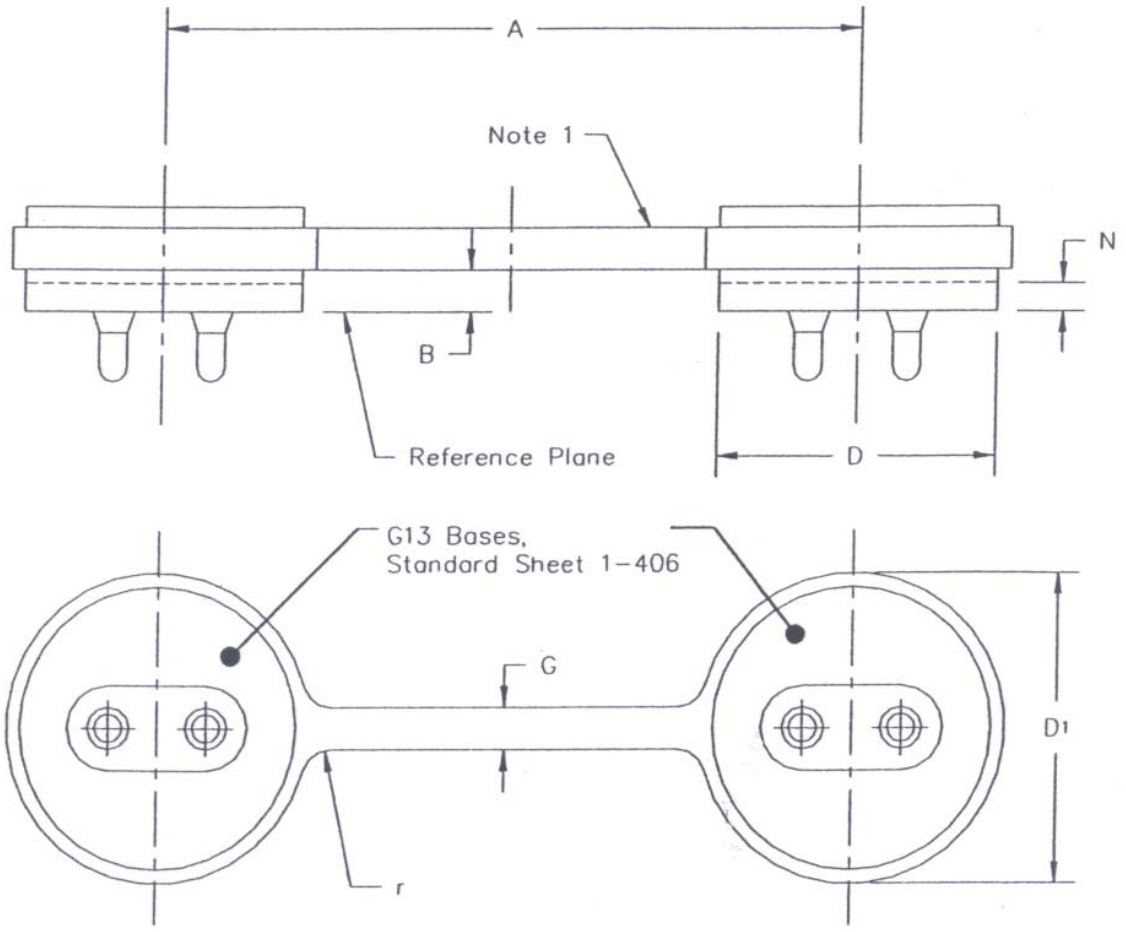
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2G13 U-Shaped Fluorescent Base

The designation assigned to this base, in accordance with the coding system of the International Electrotechnical Commission (IEC), is 2G13. This standard sheet is equivalent to IEC 60061.

The dimensions shown on this sheet apply to finished bases after assembly on U-shaped fluorescent lamps.

The drawing is intended only to indicate the dimensions essential for interchangeability.



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2G13-41 (1 5/3 in. spacing)

Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	-	1.625	-	-	41.0	-
B	0.098	-	-	2.5	-	-
D	-	-	0.015(T8)	-	-	25.78
D_1	-	-	1.098(T8)	-	-	27.90
G	-	-	0.512	-	-	13.0
N (Note 2)	0.078	-	-	2.0	-	-
r	-	-	0.138	-	-	3.5

2G13-92 (3 5/8 in. spacing)

Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	-	3.625	-	-	92	-
B	0.098	-	-	2.5	-	-
D	-	-	1.438(T12)	-	-	36.52
D_1	-	-	1.516(T12)	-	-	38.5
G	-	-	0.512	-	-	13.0
N (Note 2)	0.118	-	-	3.0	-	-
R	-	-	0.138	-	-	3.5

2G13-152 (6 in. spacing)

Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	-	6.00	-	-	152	-
B	0.098	-	-	2.5	-	-
D	-	-	1.438(T12)	-	-	36.52
D_1	-	-	1.516(T12)	-	-	38.5
G	-	-	0.512	-	-	13.0
N (Note 2)	0.118	-	-	3.0	-	-
r	-	-	0.138	-	-	3.5

NOTES
1 This cross-sectional shape of the brace is optional. The purpose of the leg brace is to maintain proper spacing of the lamp's legs. It shall not be used to retain or support the lamp in the lampholder of the fixture.
2 Dimension N denotes the minimum length over which dimensions D shall be observed.

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Gauging
Without using undue force, it shall be possible to insert the pins of the base into the slots of Gauge 3-420 so that the side of at least one pin of each pair is in contact with surface z. There shall be contact between the underside of at least one of the G13 sections of the base and surface x of the gauge.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-420.

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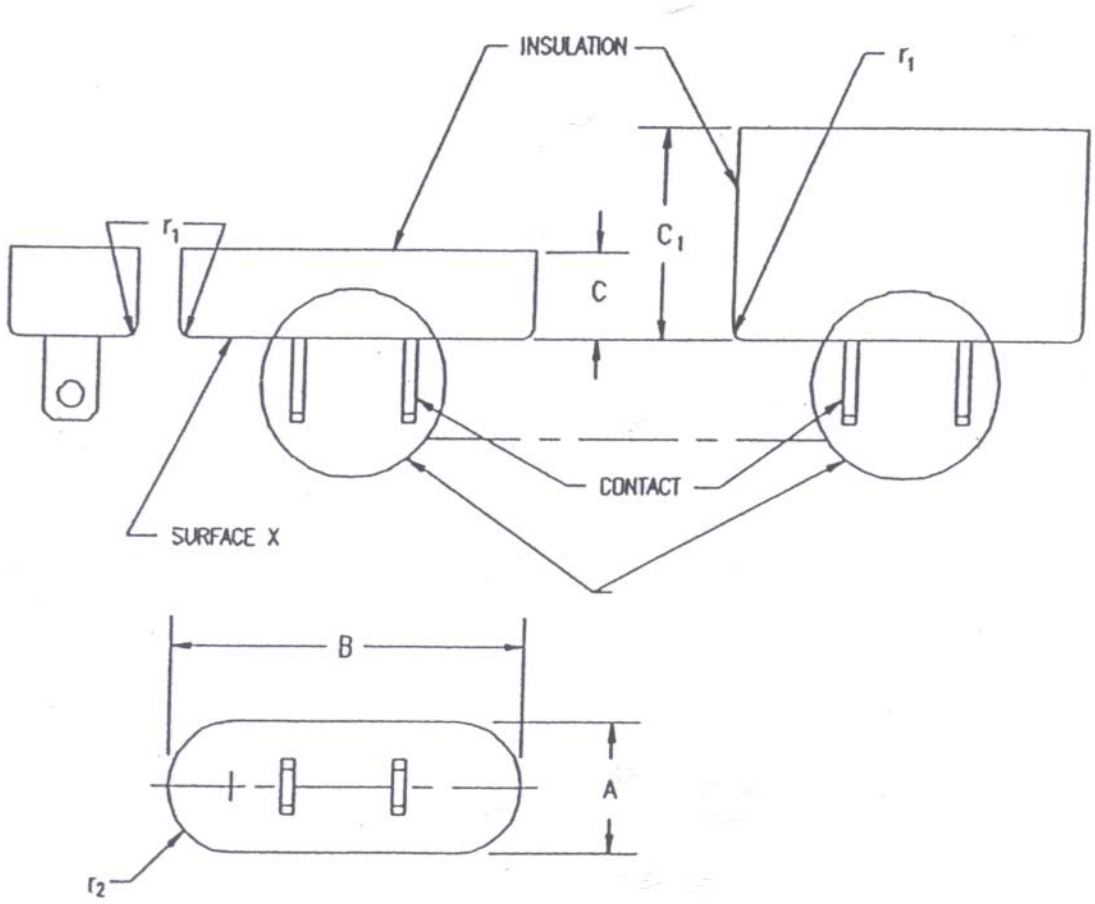
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G16d Mogul And Extended Mogul End-Prong Bases

The designation assigned to these bases, in accordance with the coding system of the International Electrotechnical Commission (IEC), is G16d. At the time of issuance of this standard sheet, there was no comparable IEC standard. NOTE: The termination G16d was formerly designated by ANSI as GX16d.

The dimensions shown apply to bases after assembly on lamps.

The drawings are intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.739	-	0.769	18.76	-	19.53
B	2.032	-	2.094	51.61	-	53.19
C (Note 1)	0.477	-	0.492	12.11	-	12.50
C_1 (Note 1)	1.230	-	1.285	31.24	-	32.64
r_1	0.039	-	-	1.0	-	-
r_2	0.365	-	-	9.27	-	-

NOTES
1 Dimensions C and C_1 are for base design and are not to be gauged on a finished lamp.
2 These bases are intended to provide an electrical connection function only, not a mechanical support function.
3 The insulation blocks may float relative to the fixed-position prongs on Standard Sheet 1-431.

Gauging
"Go" Gauge 3-430: It shall be possible to insert the base of a lamp into the cavity of the gauge without undue force. When the insulator surface x, or the tang area of a prong of the base is in contact with surface x of the gauge, the prongs shall extend at least to surface y, but not beyond surface z.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-430.

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G16d Termination

The designation assigned to this termination by the International Electrotechnical Commission (IEC) is G16d. This standard sheet is equivalent to IEC 60061.

The dimensions shown apply after assembly on finished lamps. This termination may represent the only features involved in interchangeability or it may be part of the base employing additional features.

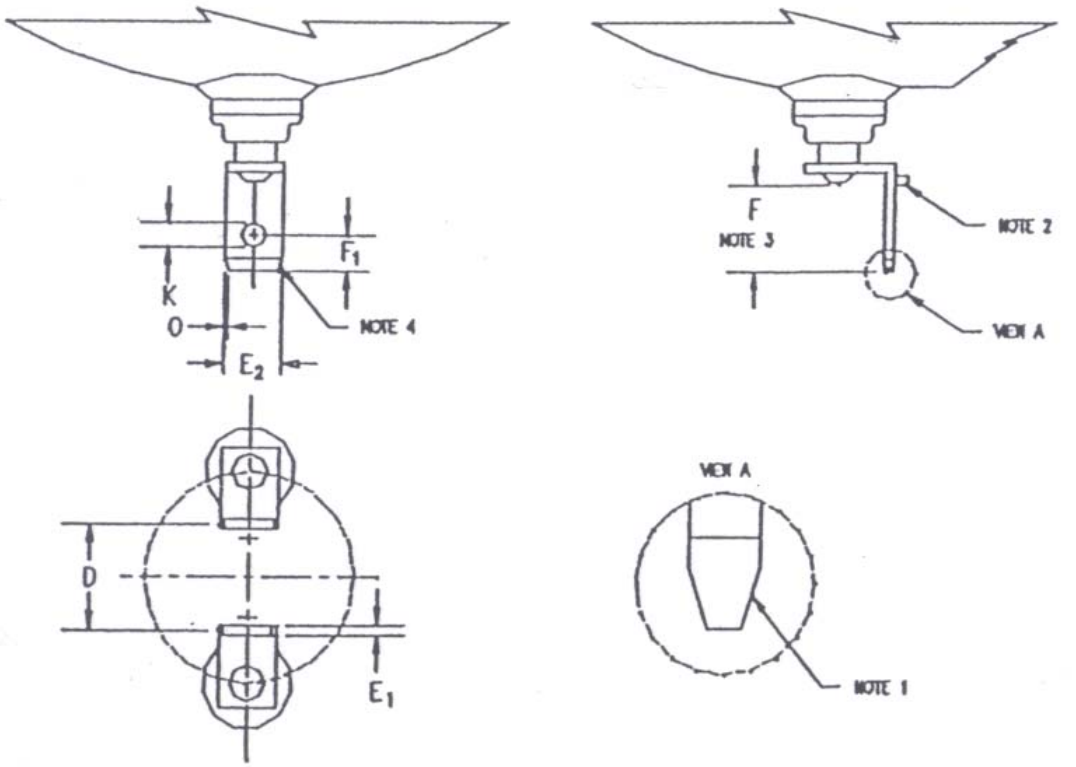


Figure 1
As Employed on a Pressed Glass Lamp

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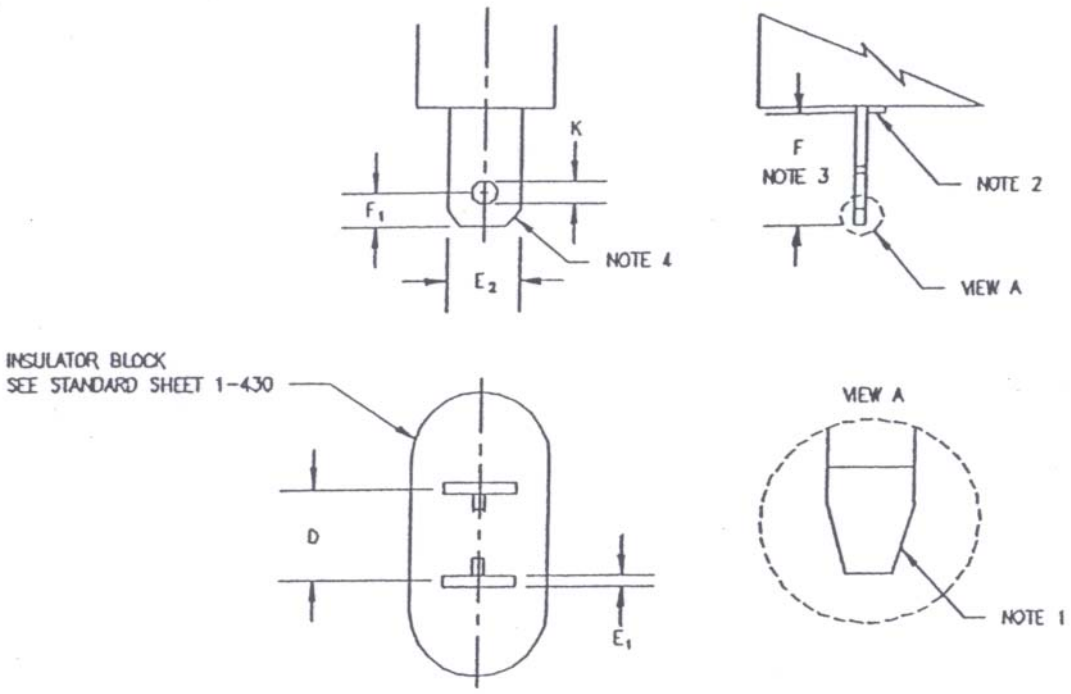


Figure 2
As Employed on a G16d Base

Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
D	-	0.656	-	-	16.66	-
E_1 (Note 5)	0.028	-	0.032	0.7	-	0.8
E_2 (Note 5)	0.304	-	0.320	7.7	-	8.1
F (Note 3)	0.464	-	0.535	11.8	-	13.6
F_1	0.171	-	0.198	4.35	-	5.05
K	0.118	-	0.130	3.0	-	3.3
O	0.032	-	0.078	0.8	-	2.0

NOTES for Figures 1 and 2:
1 Prong end taper optional. If present, provides a lead-in for insertion into holder.
2 Tang optional and may be on either side of prong.
3 Distance between prong and solder, or (optional) tang.
4 Slight chamfer or convex radius required on end of prong.
5 The metric equivalents have been rounded to agree with IEC.

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Gauging
No gauges have been developed for the pressed glass configuration. G16d bases are gauged via the requirements of Standard Sheet 1-430.

Lampholder
See ANSI C81.62, Standard Sheet 2-430.

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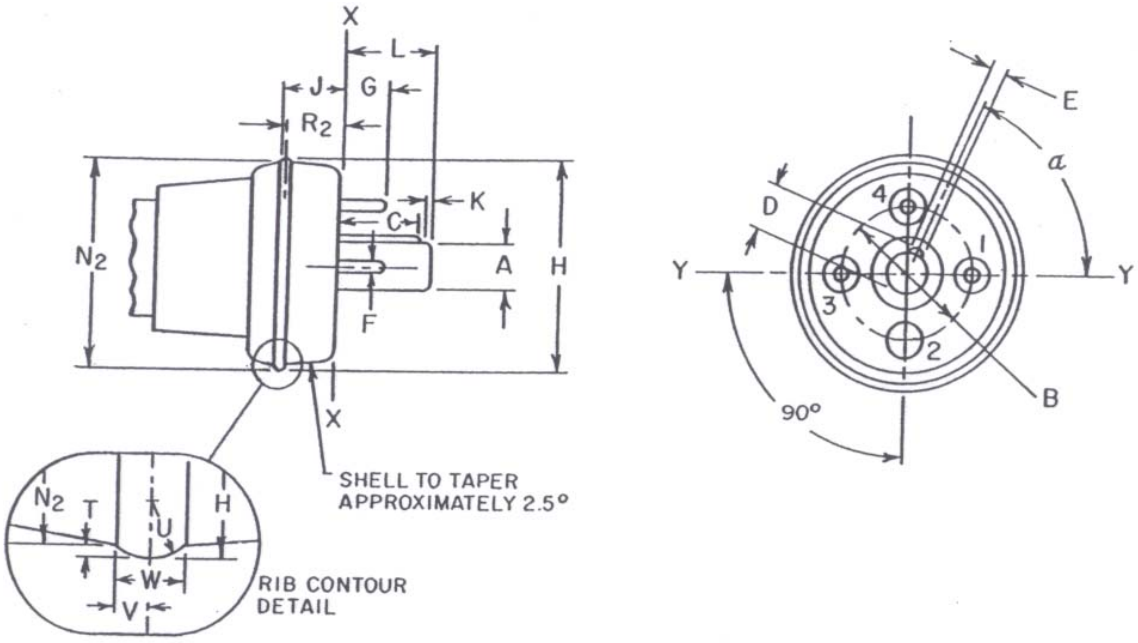
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G17t Tri-Pin Prefocus Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G17t. This standard sheet is nearly equivalent to IEC 60061.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



NOTE: For values of the indicated dimensions, refer to Standard Sheet 1-440.

Pin Arrangement

This base is identical to Gl7q (Standard Sheet 1-440) except that pin 2 has been omitted.

Lamps are aligned on pins 1 and 3; contact-making pins are 1 and 4. The reference planes are X-X, which defines the base seating surface, and Y-Y, which is at 90 degrees to X-X and passes through the center of pins 1 and 3, pin 1 being the primary reference and pin 3 merely serving to limit rotation about pin 1.

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Gauging
It shall be possible to insert a lamp into Gauge 3-439 until the base face is in contact with surface x. In this position, the end of each of the three pins shall be between surfaces s1 and s2 and the center post shall be between surfaces s3 and s4.

See ANSI C81.63 for gauge descriptions and procedures.

Related Standard Sheet
Specifications for the Gl7q base are shown on Standard Sheet 1-440.

Lampholder
See ANSI C81.62, Standard Sheet 2-440.

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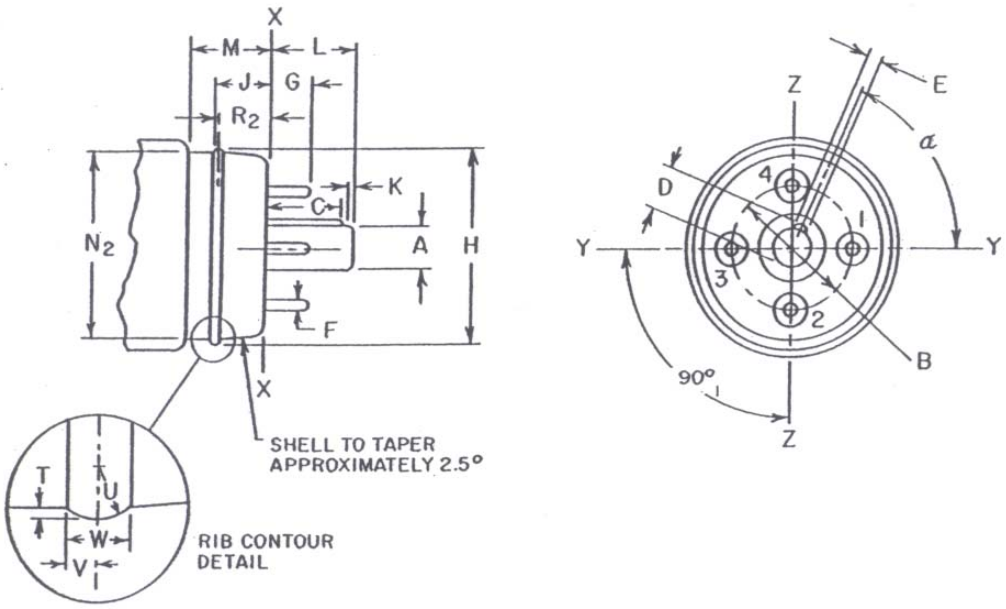
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G17q and GX17q Four-Pin Prefocus Bases

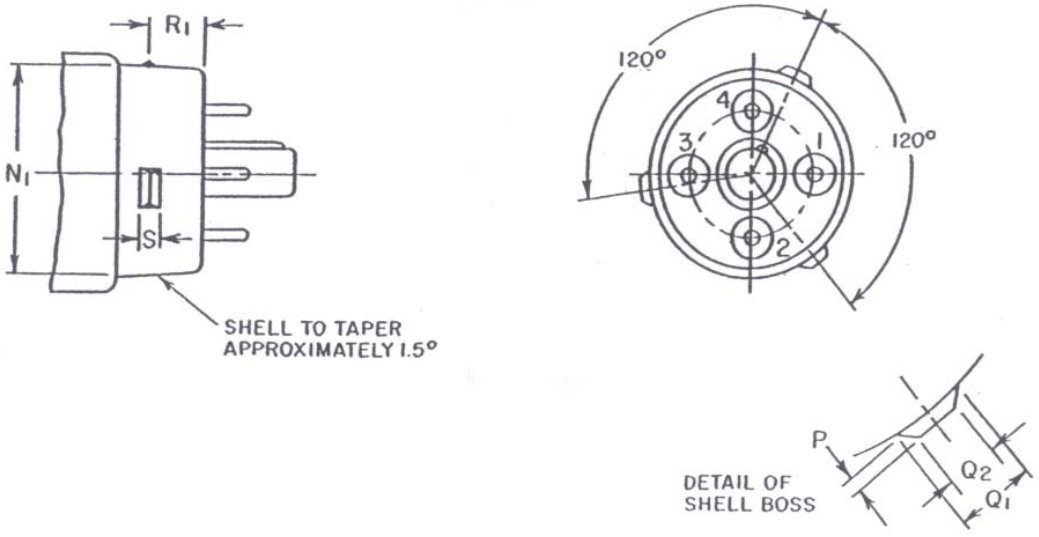
The designations assigned to these bases by the International Electrotechnical Commission (IEC) are G17q and GX17q. This standard sheet is nearly equivalent to IEC 60061.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawings are intended only to indicate the dimensions to be controlled.



The three shell bosses shown below are an alternative to the rib contour shown above. All other dimensions of the base remain the same



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.258	-	0.266	6.55	-	6.76
B	0.684	-	0.690	17.37	-	17.53
C	0.395	-	-	10.03	-	-
D	0.301	-	0.311	7.64	-	7.90
E	0.083	-	0.087	2.11	-	2.21
F	0.049	-	0.051	1.24	-	1.30
G	0.235	-	0.295	5.97	-	7.49
H (Note 1)	1.172	-	1.190	29.77	-	30.23
J	0.395	-	0.420	10.03	-	10.67
K	0.028	-	-	0.71	-	-
L	0.525	-	0.545	13.34	-	13.84
M	0.490	-	0.410	12.45	-	12.95
N_1	1.160	-	1.180	29.46	-	29.97
N_2 (Note 3)	-	1.170	-	-	29.72	-
P	0.020	-	0.030	0.51	-	0.76
Q_1	-	0.200 approx.	-	-	5.08 approx.	-
Q_2	0.100	-	-	2.54	-	-
R_1	0.325	-	0.345	8.26	-	8.76
R_2 (Note 3)	0.355	-	0.365	9.02	-	9.27
S	0.115	-	0.135	2.92	-	3.43
T	0.0025	-	0.0075	0.064	-	0.190
U (Note 3)	-	0.200	-	-	5.08	-
V (Note 3)	0.037	-	0.043	0.940	-	1.09
W (Note 3)	-	0.080	-	-	2.03	-
α (degrees) (Note 2)	-	67°37’	-	-	-	-

NOTES
1 The minimum dimension shall be checked with calipers. The maximum dimension shall be checked with a ring gauge. The nominal design center of diameter H shall be 1.180 inches (29.97 mm).
2 The angle α is the angle between the key and pin 1.
3 These dimensions are solely for base design and are not to be gauged on the finished lamp.

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Optical Axis
It is recommended that the direction of the optical axis of lamps using the four-pin prefocus base be specified by an angle measured clockwise from the primary reference pin when viewing the lamp from the base end. The plane containing the optical axis will normally pass through a point defined as being on a line between the two reference pins and at a distance of 0.3435 inch (8.72 mm) from the center of the primary reference pin.

Pin Arrangement 1 (See Note 4)
Lamps using this arrangement are aligned on pins 1 and 3; contact-making pins are 1 and 4 (the IEC designation for this arrangement is G17q). The reference planes are X-X, which defines the base seating surface, and Y-Y, which is at 90 degrees to X-X passing through the centers of pins 1 and 3, pin 1 being the primary reference and pin 3 merely serving to limit rotation about pin 1.

Pin Arrangement 2 (See Note 5)
Lamps using this arrangement are aligned on pins 2 and 4; contact-making pins are 1 and 2 (the IEC designation for this arrangement is GX17q). The reference planes are X-X, which defines the base seating surface, and Z-Z, which is at 90 degrees to X-X passing through the centers of pins 2 and 4, pin 2 being the primary reference and pin 4 merely serving to limit rotation about pin 2.

NOTES
4 Lamps using pin arrangement 1 are currently "standard" or "high-voltage" lamps.
5 Lamps using pin arrangement 2 are currently "low-voltage" lamps.

Gauging

Pin Arrangement 1
It shall be possible to insert a lamp in Gauge 3-439 until the base face is in contact with surface x. In this position, the end of each of the four pins shall be between surfaces s1 and s2, and the center post shall be between surfaces s3 and s4.

Pin Arrangement 2
It shall be possible to insert a lamp in Gauge 3-440 until the base face is in contact with surface x. In this position, the end of each of the four pins shall be between surfaces s1 and s2, and the center post shall be between surfaces s3 and s4.

See ANSI C81.63 for gauge description and testing procedures.

Related Standard Sheet
Specifications for the G17t base are shown on Standard Sheet 1-439.

Lampholder
See ANSI C81.62, Standard Sheet 2-440.

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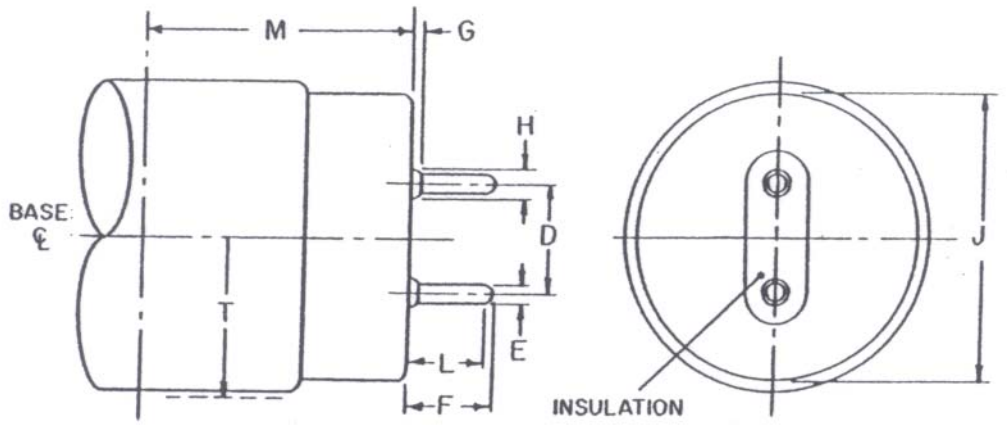
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G20 Mogul Bipin Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G20. This standard sheet is nearly equivalent to IEC 60061.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
D	-	0.781	-	-	19.84	-
E (Note 1)	0.120	-	0.139	3.05	-	3.53
F (Note 1)	0.615	-	0.660	15.62	-	16.76
G	-	-	0.065	-	-	1.65
H	-	-	0.190	-	-	4.83
J	-	-	2.040	-	-	51.82
L (Notes 2, 3)	0.500	-	-	12.70	-	-
M (Note 4)	2.0	-	-	50.8	-	-
T (Note 5)	-	-	1.110	-	-	28.19

NOTES
1 Diameter and length of pins include solder. Nominal pin diameter is 0.125 inch (3.18 mm).
2 This dimensions is solely for base design and is not to be gauged on the finished lamp.
3 Dimension L is the minimum length of the cylindrical portion of the pin.
4 Represents length of lamp over which dimension T is applicable.
5 The T dimension includes allowance for possible offset of the bulb axis with respect to the base axis.

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Gauging
It shall be possible for the bases on a lamp to enter Gauge 3-452 at the two holes E5 at surface o until the surface of the base and gauge contact each other. In this position, the ends of the pins shall reach at least to surface x and shall not project beyond surface y. Each individual base pin shall enter hole E4 at surface o until the face of the base and the surface of the gauge are in contact.

In applying this gauge, the force shall not exceed 1.5 lbf (6.67 N).

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-850.

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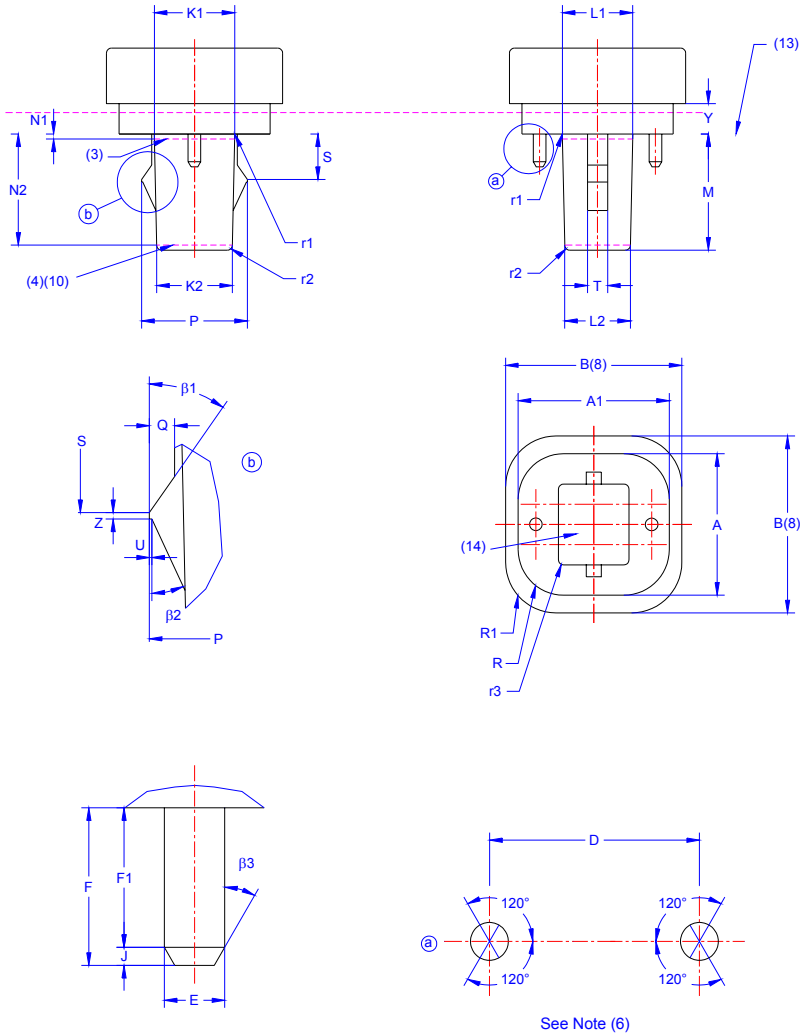
Caps on Finished Lamps G23-2

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is G23-2. At the time of issuance of this standard, there was no comparable IEC standard in existence.

The drawing is intended only to indicate the dimensions to be controlled.

Scope

The drawing is intended only to illustrate the dimensions essential for interchangeability.



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Reference	Minimum (millimeters)	Maximum (millimeters)
A	27.5	28.5
A_1 (6)	27.5	32.5
B	-	35.0
D	23.0	
E (2)	2.29	2.67 (1)
F	6.0	6.8
F_1	5.5	-
J	0.4	-
K_1 (3)	16.15	16.3
K_2 (4)	15.6	15.75
L_1 (3)	13.75	13.9
L_2 (4)	13.2	13.35
M	-	23.0
N_1 (3)	0.5	
N_2 (4) (10)	21.0	
P	20.6	21.0
Q	1.2	-
R (6)	8.4	9.5
R_1	9.0	-
S	8.85	9.15
T	3.5	4.5
U *	-	0.2
Y (6)	5.7	-
Z *	0.5	-
r_1	-	0.4
r_2 (5)	Approx. 0.8	
r_3	0.5	1.5
α	Nom. 35°	
β	20°	30°
δ	Approx. 30°	

NOTES

1 On unmounted caps E_{max} = 2.44 mm.

2 Indentations or grooves in the surface of the pins are allowed provided that they do not extend into that part of the pin-radius which is bounded by the angles of 60° and 120° to the parallel planes separated by dimension D (see detail x). The diameter of the pins measured in the direction perpendicular to these planes through the centre lines shall be not less than 2.29 mm in every plane parallel to the base face.

3 Dimensions K_1 and L_1 are measured at distance N_1 from the reference plane.

4 Dimensions K_2 and L_2 are measured at distance N_2 from the reference plane.

5 A chamfer of approx. 0.8 mm is also allowed.

6 The circumference of the cap, within dimension Y, shall lie between the limits determined by the dimensions A_{max}, $A1_{max}$ and R_{min} on the one side, and A_{min}, $A1_{min}$ and R_{max} on the other.

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Gauging

The combined displacement and diameter of the pins, the combined displacement and width of the keys, the maximum values of dimension K1, L1, P and T, the minimum and maximum diameter of the individual pins and the minimum and maximum pin lengths are checked by the related gauge shown on sheet 7006-69.

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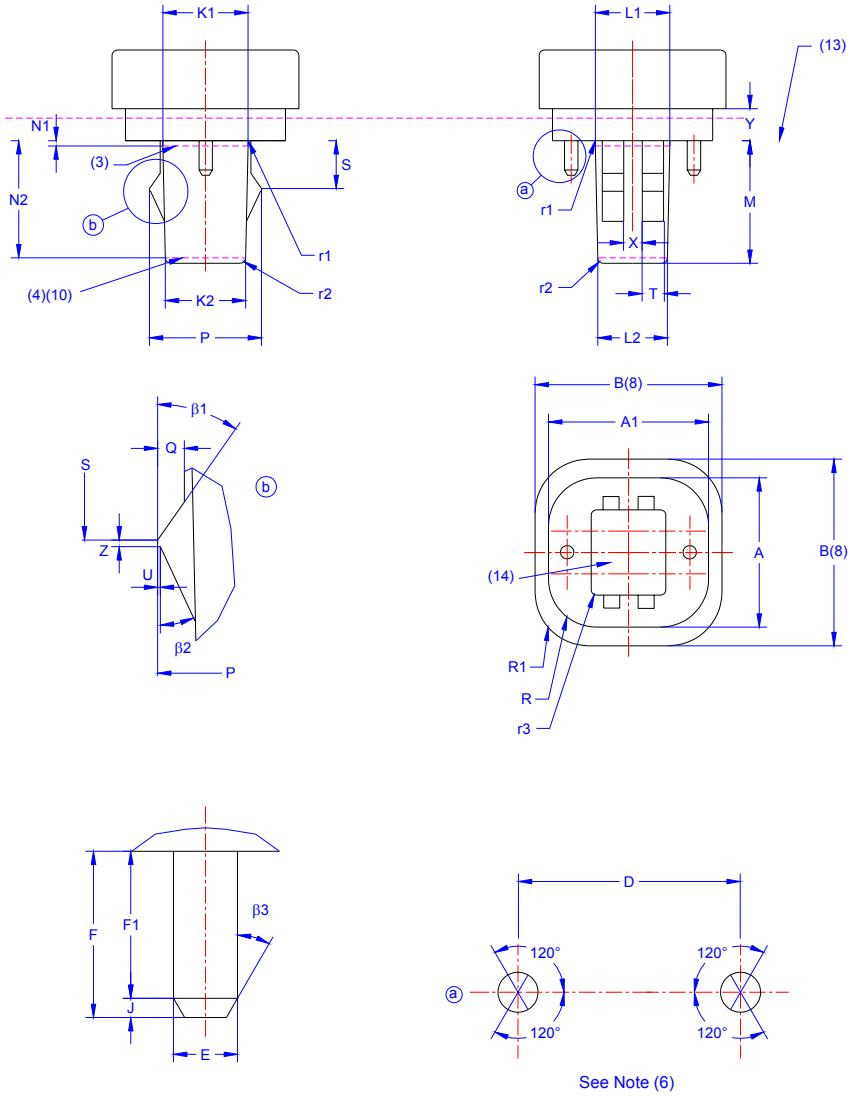
Caps on Finished Lamps GX23-2

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is GX23-2. At the time of issuane of this standard, there was no comparable IEC standard in existence.

The drawing is intended only to indicate the dimensions to be controlled.

Scope

The drawing is intended only to illustrate the dimensions essential for interchangeability.



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Reference	Minimum (millimeters)	Maximum (millimeters)
A	27.5	28.5
A_1 (6)	27.5	32.5
B	-	35.0
D	23.0	
E (2)	2.29	2.67 (1)
F	6.0	6.8
F_1	5.5	-
J	0.4	-
K_1 (3)	16.15	16.3
K_2 (4)	15.6	15.75
L_1 (3)	13.75	13.9
L_2 (4)	13.2	13.35
M	-	23.0
N_1 (3)	0.5	
N_2 (4) (10)	21.0	
P	20.6	21.0
Q	1.2	-
R (6)	8.4	9.5
R_1	9.0	-
S	8.85	9.15
T	3.5	4.5
U *	-	0.2
X	3.5	-
Y (6)	5.7	-
Z *	0.5	0.4
r_1	-	
r_2 (5)	Approx. 0.8	
r_3	0.5	1.5
α	Nom. 35°	
β	20°	30°
δ	Approx. 30°	

NOTES

1 On unmounted caps E_{max} = 2.44 mm.

2 Indentations or grooves in the surface of the pins are allowed provided that they do not extend into that part of the pin-radius which is bounded by the angles of 60° and 120° to the parallel planes separated by dimension D (see detail x). The diameter of the pins measured in the direction perpendicular to these planes through the centre lines shall be not less than 2.29 mm in every plane parallel to the base face.

3 Dimensions K_1 and L_1 are measured at distance N_1 from the reference plane.

4 Dimensions K_2 and L_2 are measured at distance N_2 from the reference plane.

5 A chamfer of approx. 0.8 mm is also allowed.

6 The circumference of the cap, within dimension Y, shall lie between the limits determined by the dimensions A_{max}, $A1_{max}$ and R_{min} on the one side, and A_{min}, $A1_{min}$ and R_{max} on the other.

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Gauging

The combined displacement and diameter of the pins, the combined displacement and width of the keys, the maximum values of dimension K1, L1, P and T, the minimum and maximum diameter of the individual pins and the minimum and maximum pin lengths are checked by the related gauge shown on sheet 7006-86.

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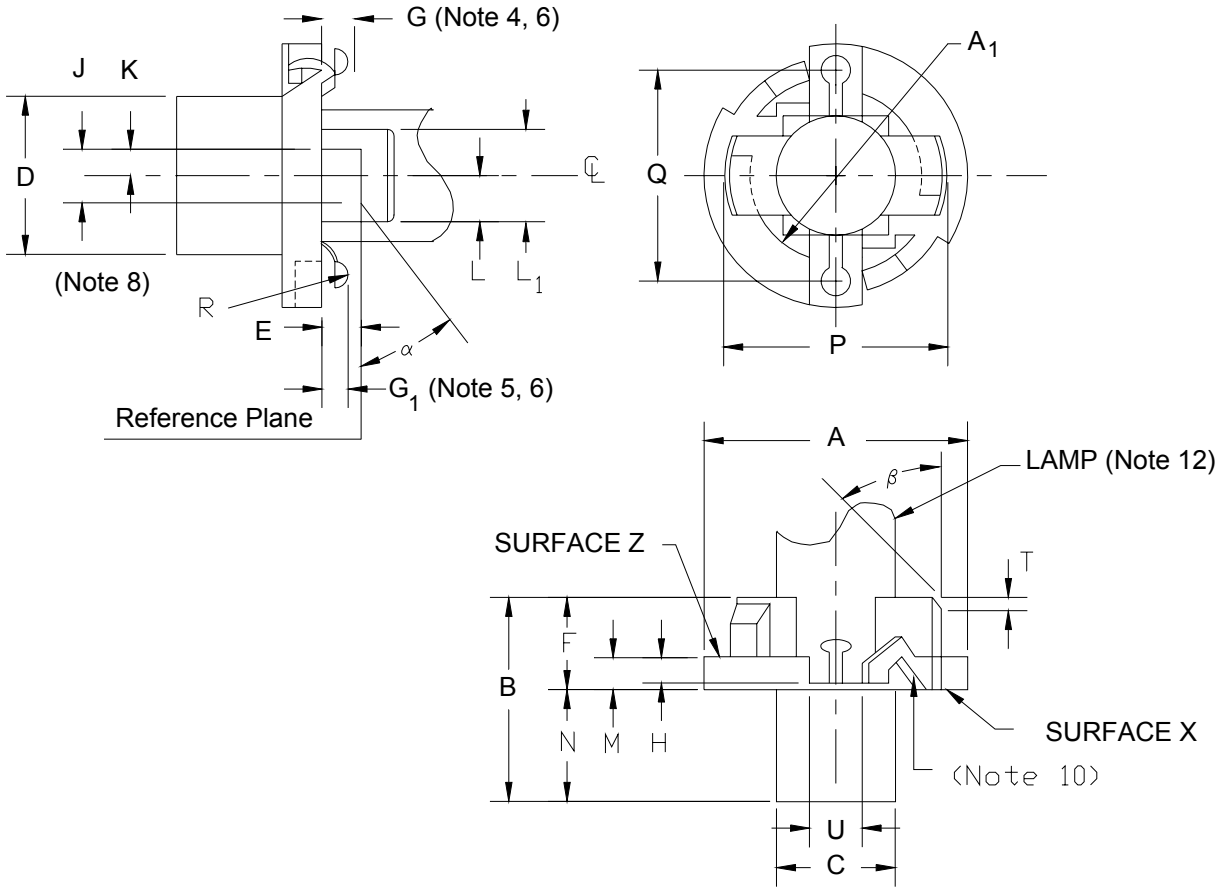
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P8.25d Base

The designation assigned in accordance with the system of the International Electrotechnical Commission (IEC) is P8.25d. At the time of issuance of this Standard there was no comparable IEC Publication in existence. It is commonly known as the PCT 1 3/4 in the United States.

The dimensions shown on this sheet apply to finished bases after assembly with lamps.

The drawing is intended only to indicate the dimensions to be controlled.



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Standard Dimensions (millimeters)			
Reference	Min.	Nom.	Max.
A (Note 1)	-	13.40	-
A_1 (Note 2)	8.10	-	8.40
B (Note 1)	-	11.10	-
C (Note 1)	-	5.40	-
D (Note 1)	-	7.45	-
E (Note 3)	1.90	-	2.00
F (Note 1)	-	3.30	-
G (Note 4, 6)	-	-	1.70
G_1 (Note 5, 6)	0.76	-	1.70
H (Note 6)	-	-	1.50
J	1.91	-	2.21
K	1.12	-	1.42
L	2.05	-	2.35
L_1	4.35	-	4.65
M	-	2.00	-
N (Note 1)	-	5.00	-
P	11.05	-	11.35
Q (Note 7)	-	12.00	-
R (Note 8)	-	0.86	-
T (Note 9)	-	0.30	-
U	-	2.80	-
α	-	35°	-
β (Note 9)	-	45°	-

NOTES

1 The dimensions A, B, C, D, F and N are for design only; they are not to be gauged. They represent a typical configuration. Other dimensional values are optional. Also optional is the shape denoted by dimensions C and D.

2 Small nodes or projections are allowed beyond dimension A_1 to aid the retention of a base in a holder.

3 Dimension E represents a dimension for use with a typical holder thickness of 1.52mm (0.060 in.) nominal. For other holder thicknesses, a range +/-0.05mm (from holder nominal) would apply.

4 Dimension G represents the contact in its relaxed position before depression.

5 Dimension G_1 represents the contact in its relaxed position after one depression to surface z.

6 Optional contact designs may require a larger clearance at Dimension H. If so, dimension H becomes 1.50mm (0.059in) minimum and dimensions G and G_1 would increase accordingly.

7 Dimension Q represents the contact spacing in the depressed condition.

8 Dimension R is for design purposes only; it is not to be gauged. It represents a typical contact design. Other designs are optional. A large radius is recommended to prevent sharp edges from damaging the holder during insertion.

9 Dimension T and β represent a lead-in to provide a lead-in for insertion into a holder. A radius of 0.30mm (0.011 in.) is an acceptable alternative

10 Optional fingers may be provided for retention in a holder.

11 No electrically conductive material to be within 0.50mm (0.019in.) of external surfaces except for the Holder interface portion of the contact(s).

12 The lamp may be of the non-renewable or removable type. For the removable type, the base must accommodate the gauge shown on ANSI C81.63, Standard Sheet 3-919. See ANSI C81.61, Standard Sheet 1-900 for the W2.1 x 4.9d Wedge Base Lamp configuration.

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Holder
See ANSI C81.62, Standard Sheet 2-530.

Gauging
There are no gauges for this fit.

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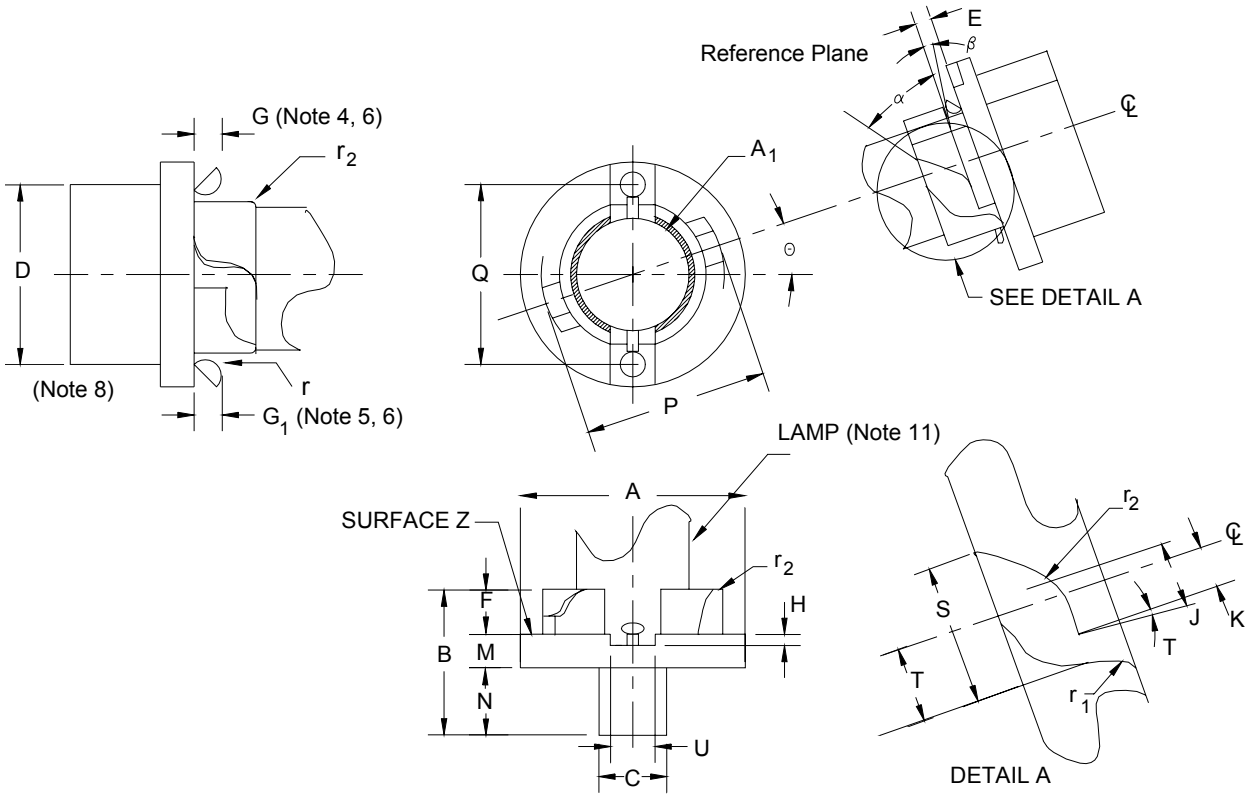
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P12.4d Base

The designation assigned in accordance with the system of the International Electrotechnical Commission (IEC) is P12.4d. At the time of issuance of this Standard there was no comparable IEC Publication in existence. It is commonly known as the PCT 3 ¼ in the United States.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



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Standard Dimensions (millimeters)			
Reference	Min.	Nom.	Max.
A (Note 1)	-	18.85	-
A_1 (Note 2)	12.30	-	12.45
B (Note 1)	-	14.95	-
C (Note 1)	-	6.50	-
D (Note 1)	-	14.40	-
E (Note 3)	1.80	-	1.90
F (Note 1)	-	4.75	-
G (Note 4, 6)	-	-	1.70
G_1 (Note 5, 6)	0.76	-	1.70
H (Note 6)	-	-	1.75
J	2.65	-	2.95
K	1.90	-	2.20
M	-	2.50	-
N	-	7.70	-
P	15.10	-	15.40
Q (Note 7)	16.2	-	17.2
R (Note 8)	-	0.86	-
S	-	-	6.50
T	-	-	3.30
U	-	3.50	-
r	-	1.25	-
r_1	-	1.25	-
r_2 (Note 9)	-	0.60	-
α	-	53°	-
β	-	5°	-
γ	-	3°	-
Θ	-	22°	-

NOTES
1 The dimensions A, B, C, D, F and N are for design only; they are not to be gauged. They represent a typical configuration. Other dimensional values are optional. Also optional is the shape denoted by dimensions C and D.
2 Small nodes or projections are allowed on surface z and beyond dimension A_1 to aid the retention of a base in a holder.
3 Dimension E represents a dimension for use with a typical holder thickness of 1.52mm (0.060 in.) nominal. For other holder thicknesses, a range +/-0.05mm (from holder nominal) would apply.
4 Dimension G represents the contact in its relaxed position before depression.
5 Dimension G_1 represents the contact in its relaxed position after one depression to surface z.
6 Optional contact designs may require a larger clearance at Dimension H. If so, dimension H becomes 1.50mm (0.059in) minimum and dimensions G and G_1 would increase accordingly.
7 Dimension Q represents the contact spacing in the depressed condition.
8 Dimension R is for design purposes only; it is not to be gauged. It represents a typical contact design. Other designs are optional. A large radius is recommended to prevent sharp edges from damaging the holder during insertion.
9 Dimension r_2 represents a lead-in for Holder insertion. A chamfer of 45° x 0.60mm (0.024 in.) is an acceptable alternative.
10 No electrically conductive material to be within 0.50mm (0.019in.) of external surfaces except for the Holder interface portion of the contact(s).
11 The lamp may be of the non-renewable or removable type. For the removable type, the base must accommodate the gauge shown on ANSI C81.63. Standard Sheet 3-920. See ANSI C81.61, Standards Sheet 1-920 for the W2.1 x 9.2d Wedge Base Lamp configuration.

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Holder
See ANSI C81.62, Standard Sheet 2-550.

Gauging
There are no gauges for this fit.

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P30 Candelabra Prefocus Bases

This standard sheet covers both single- and double-contact prefocus bases.

The designations assigned by the International Electrotechnical Commission (IEC) to the single-contact prefocus base is P30s-10.3 and the double-contact base is P30d-10.3 (see Note 5).

This base standard differs from a similar single-contact version covered by the IEC as P30s-10.3 in several ways. Diameter F of the focusing collar has a broader tolerance, and the tapered slot is slightly larger; these differences exist because applications in the United States have not required the high precision of focusing that other lamps need. The major shell diameter of this base is approximately 0.003 inch larger than the IEC version; this relates to a long-standing difference in the basic BA15 base designs between Europe and the United States.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.

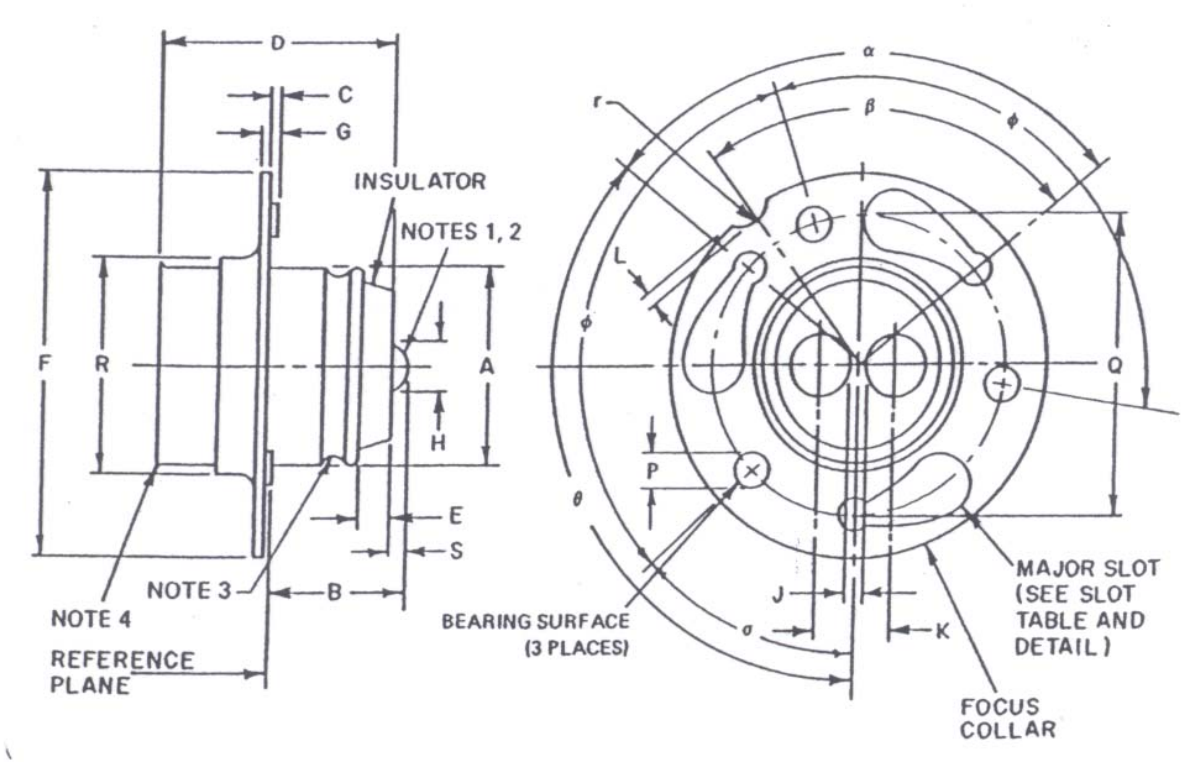
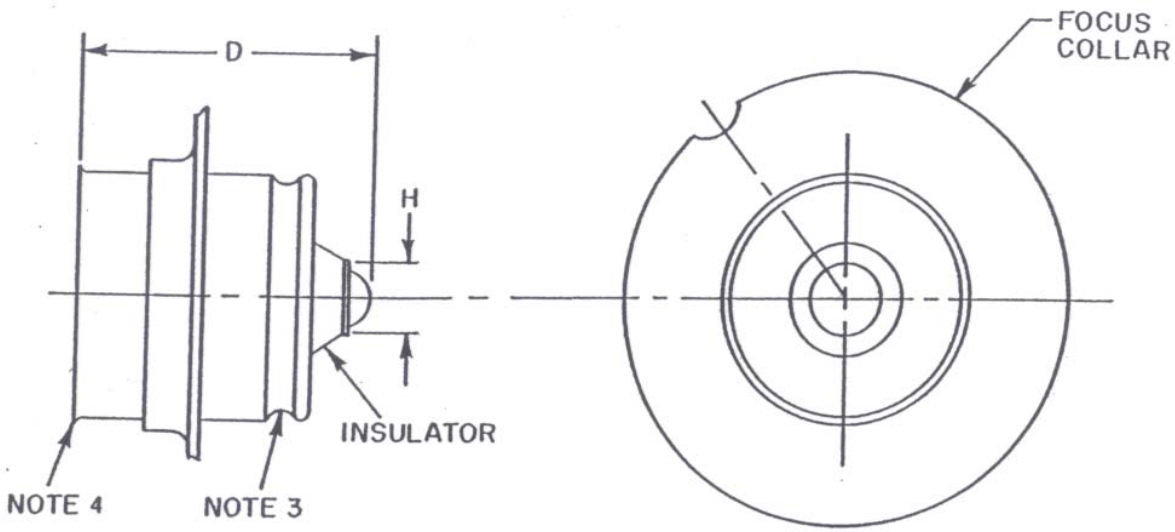


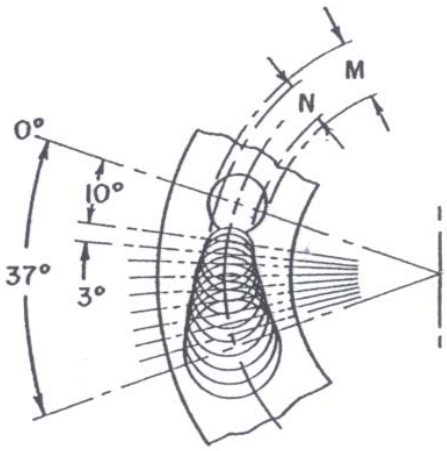
Figure 1
Double-Contact Base

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Slot Angle * (degrees)	Diameter	
	Inch	Millimeters
10	0.091	2.31
13	0.103	2.62
16	0.115	2.92
19	0.127	3.23
22	0.139	3.53
25	0.151	3.84
28	0.163	4.14
31	0.175	4.45
34	0.187	4.75
37	0.200	5.08
* Measured from 0 degree reference		



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	-	-	0.6025	-	-	15.30
B (Note 5)	0.356	-	0.456	9.04	-	11.58
C	0.006	-	0.012	0.15	-	0.30
D (Note 9)	0.741	-	0.760	18.82	-	19.30
E (Note 9)	0.059	-	-	1.50	-	-
F (dia)	1.180	-	1.186	29.98	-	30.12
G	-	-	0.044	-	-	1.11
H	1.177	-	0.205	4.50	-	5.20
J	0.047	-	-	1.19	-	-
K	0.255	-	0.279	6.48	-	7.08
L (Note 9)	-	0.031	-	-	0.79	-
M	0.121	-	0.129	3.07	-	3.27
N	0.086	-	0.096	2.18	-	2.43
P (dia)(Note 9)	-	0.093	-	-	2.36	-
Q (dia)	0.895	-	0.898	22.73	-	22.81
R (Note 9)	-	-	0.670	-	-	17.01
r (Note 9)	-	0.093	-	-	2.36	-
S (Note 6)	0.015	-	-	0.38	-	-
ϕ (degrees) (Note 9)	-	115°	-	-	115°	-
σ (degrees) (Note 9)	-	46.5°	-	-	46.5°	-
α (degrees)	98°	-	102°	98°	-	102°
β (degrees) (Note 9)	-	87°	-	-	87°	-
θ (degrees)	128°	-	132°	128°	-	132°

NOTES
1 On the double-contact bases, the solder heights of the two contacts shall be within 0.020 inch (0.5 mm) of each other.
2 On double-contact bases, the outer surfaces of the eyelets shall be coincident with or lie below the surface of the insulator.
3 For base insulator retention. The configuration may vary.
4 Flare optional. If used, the maximum diameter shall be 0.635 inch (16.12 mm).
5 Dimension B specifies the standard position of the prefocus collar for a P30s-10.3 or P39d-10.3 base. The identifier following the hyphen (10.3) denotes the additional dimension that is essential for the fit. Other collar positions may be in use, but they are considered to be nonpreferred. They would require a new identifier following the hyphen. When applying for assignment of an American National Standard lamp designation, the collar position should be specified, by its particular identifier, as part of the base description.
6 Applies to double-contact base only.
7 The collar orientation and the tilt angle tolerance are determined by the individual lamp design.
8 The slot data tolerances are ±1°, ±0.005 inch (±0.127 mm).
9 These dimensions are for base collar design and are not to be gauged on finished lamps.

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Gauging
When a lamp is inserted at opening X of gauge 3-709, the collar shall enter opening F_1. When inserted at opening Y, the collar shall not enter opening F_2.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-709.

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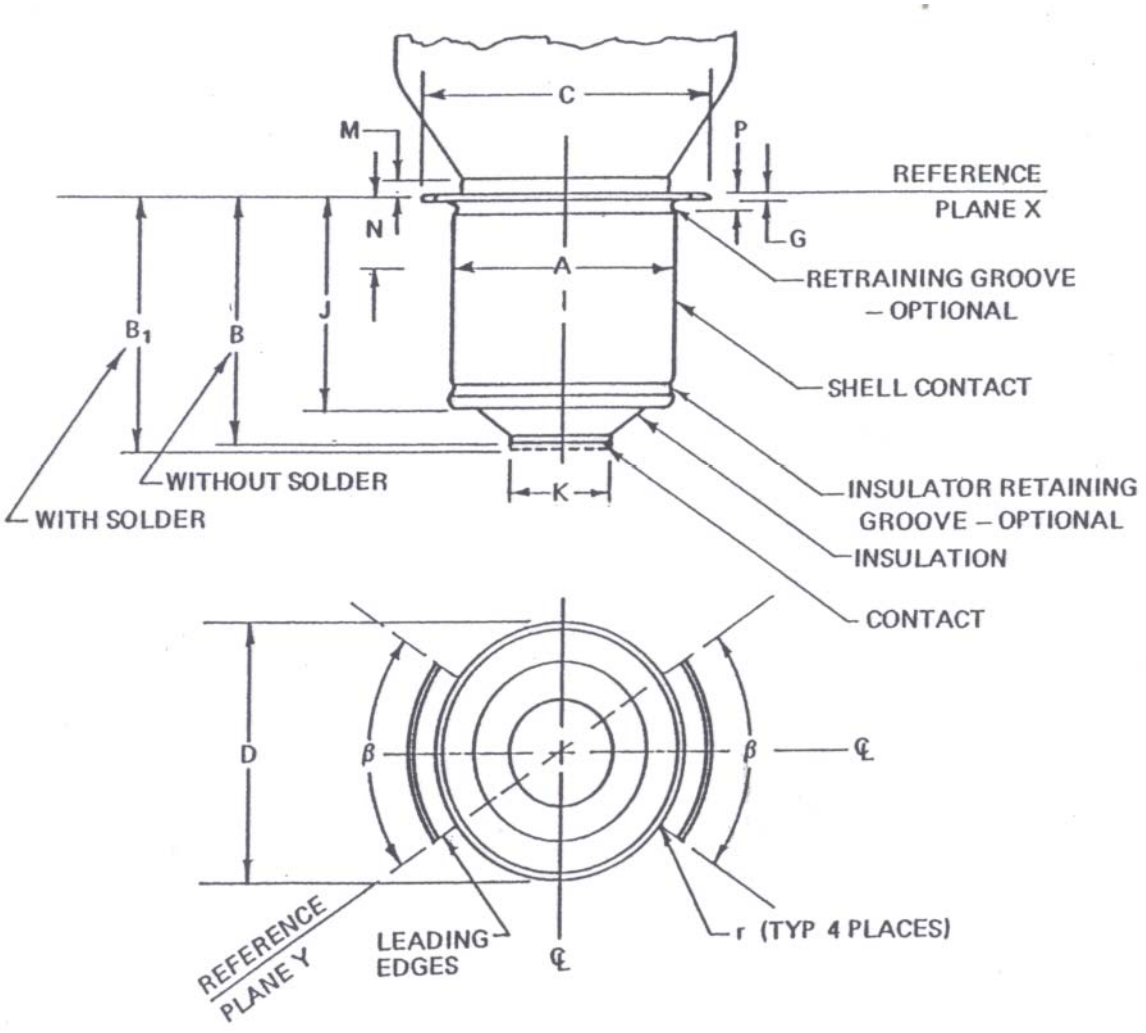
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P40 Mogul Prefocus Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is P40s/41.

There are several differences between this base and the one defined by the IEC as P40s/41. These differences have existed for a long time. The D max dimension is larger on this base; thus American lamps will not enter some European-made holders. This base has a looser tolerance on the maximum shell diameter A. Differences exist in dimensions K min, β min, and β max, but these are not critical to the fit.

The drawing is intended only to indicate the dimensions to be controlled.



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The winged flanges, together with the base shell diameter, are the intended means of reference for the lamp filament position. The top surface of the flanges (reference plane x) determines the vertical location; the diameter of the base shell determines the lateral location; and the leading edges of the flanges (reference plane y) determine the rotational alignment.

On finished lamps the creepage distance over insulation shall be not less than 5 mm.

Reference	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 1)		On Finished Lamps		Unmounted (Note 1)		On Finished Lamps	
	Min	Max	Min	Max	Min	Max	Min	Max
A	1.543	1.557	1.543	1.559	39.19	39.54	39.19	39.60
B	1.610	1.640	-	-	40.90	41.66	-	-
B_1	-	-	1.610	1.701	-	-	40.90	43.21
C	1.984	2.008	1.984	2.012	50.40	51.00	50.40	51.10
D	-	1.631	-	1.635	-	41.43	-	41.53
G	0.060	0.076	0.060	0.076	1.52	1.93	1.52	1.93
J	-	1.398	-	1.398	-	35.50	-	35.50
K	0.511	0.906	-	-	12.97	23.01	-	-
M (Note 3)	-	-	0.118	-	-	-	3.00	-
N (Note 2)	0.500	-	0.500	-	12.70	-	12.70	-
P	-	0.125	-	0.125	-	3.18	-	3.18
R	-	0.010	-	0.010	-	0.25	-	0.25
β (degrees)	69°	71°	69°	71°	69°	71°	69°	71°

NOTES:
1 These dimensions are solely for base design and shall not be gauged on the finished lamp.
2 Dimension N denotes the minimum length over which both the minimum and maximum limits of dimension A shall be observed, with the exception of the retaining groove area; below this, only the limits for A maximum shall apply.
3 Controls neck clearance required by fit to lampholder.

Gauging
When a lamp is fully inserted into Gauge 3-715, and the flanges pressed to surface x, the contact making surface shall reach to surface y, but shall not project beyond surface x. During insertion, the force shall not exceed 10 lbf (44.5 N).

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-715.

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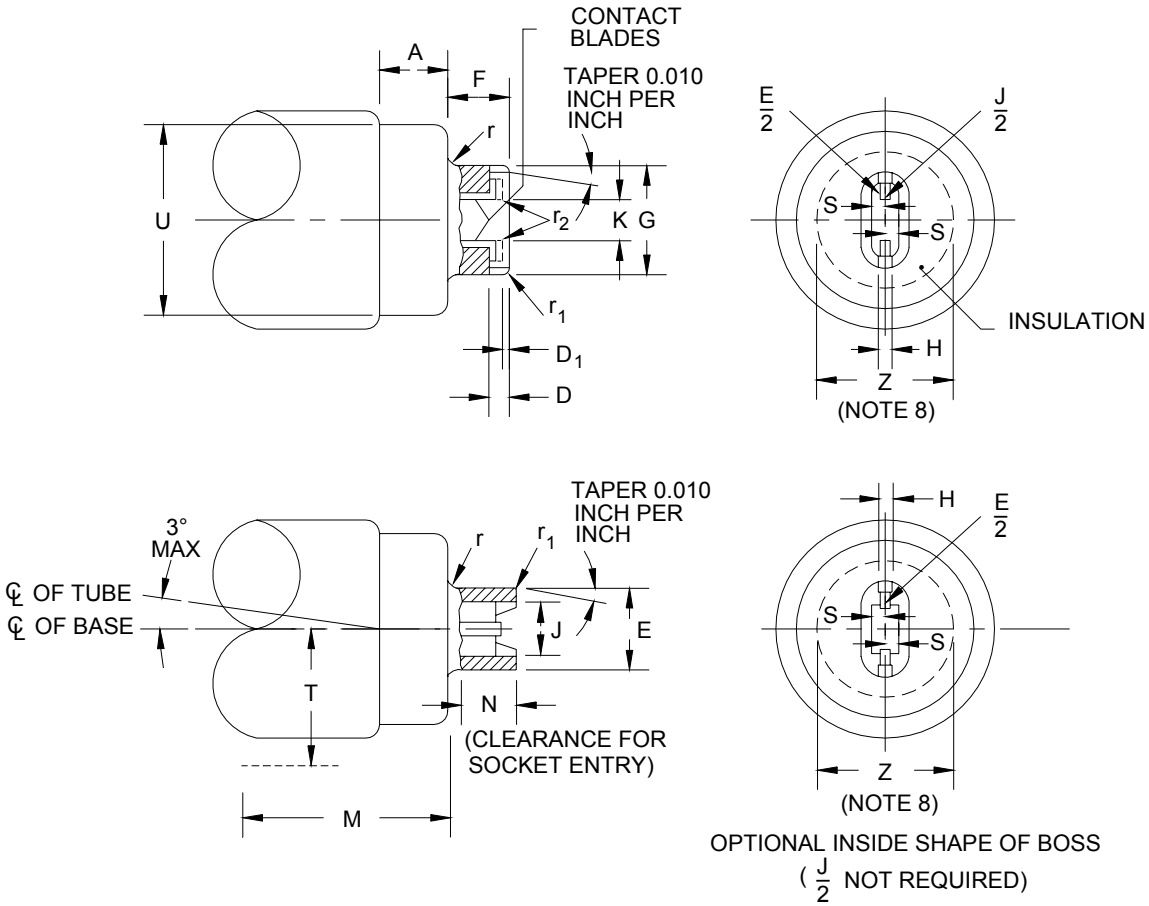
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R17d Recessed Double-Contact Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is R17d. This standard sheet is equivalent to IEC 60061.

The drawing is intended only to indicate the dimensions to be controlled.

These bases are used on fluorescent lamps with T8, T12, PG17, and TH17 bulbs.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A (Note 1)	0.343	-	-	8.71	-	-
D	-	-	0.075	-	-	1.90
D_1 (Note 2)	0.036	-	-	0.91	-	-
E (Note 3)	0.335	-	0.350	8.51	-	8.89
F (Note 4)	0.307	-	0.320	7.80	-	8.13
G (Note 3)	0.640	-	0.658	16.26	-	16.71
H	0.088	-	-	2.24	-	-
J	0.201	-	-	5.11	-	-
K	0.272	-	0.285	6.91	-	7.24
M (Note 5)	1.250	-	-	31.75	-	-
N	0.250	-	-	6.35	-	-
S	0.040	-	-	1.02	-	-
T (Note 6)	-	-	0.555(T8)	-	-	14.10(T8)
-	-	-	0.800(T12)	-	-	20.32(T12)
-	-	-	1.110(PG17)	-	-	28.19(PG17)
-	-	-	0.110(TH17)	-	-	28.19(TH17)
U (Note 7)	-	-	1.015(T8)	-	-	25.78(T8)
-	-	-	1.438(T12)	-	-	36.53(T12)
-	-	-	2.040(PG17)	-	-	51.82(PG17)
-	-	-	2.040(TH17)	-	-	51.82(TH17)
Z (Note 8)	0.896	-	-	22.76	-	-
r	-	0.05	-	-	1.27	-
r_1	0.030	-	-	0.76	-	-
r_2	0.020	-	0.050	0.51	-	1.27

NOTES
1 Represents length of base over which dimension U is applicable.
2 Includes solder or weld pip.
3 Dimensions E and G are measured as a point 0.050 inch (1.27mm) from flat surface of base.
4 Dimension F is from the highest flat surface of the base to the end of the boss.
5 Represents length of lamp over which dimension T is applicable
6 The T dimension includes allowance for possible offset of the bulb axis with respect to the base axis. This dimension is shown separately for T8, T12, PG17, and TH17 bulb lamps.
7 Maximum base shell diameter (U) is shown separately for T8, T12, PG17, and TH17 bulb lamps.
8 The base face should be reasonably smooth, surrounding the contact boss and within the area defined by dimension Z to provide a gasket seating surface.

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Clearance for Live Parts
The base contacts shall be recessed so that they cannot be touched by a test probe having a hemispherical end with a radius of 0.205 inch (5.2mm).

Gauging
When the “Go” end of Gauge 3-777 is inserted into a lamp base recess, it shall seat on surface x without binding. The “Not go” end of the gauge shall not enter.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-777.

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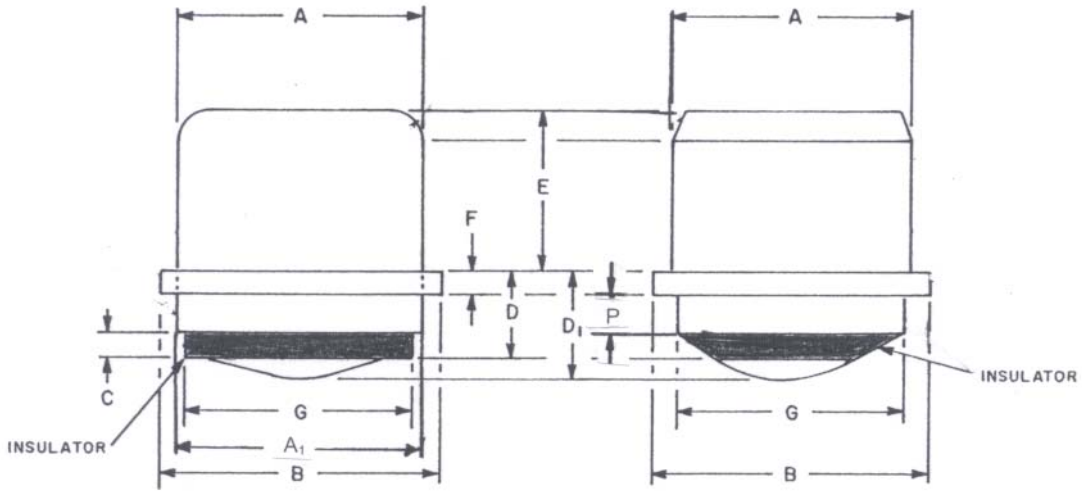
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SX4 Submidget Flanged Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is SX4. At the time of publication, there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



(a) Primary Design *(b) Alternate Design*

Reference	Standard Dimensions (inches)		Nearest Metric Equivalent (millimeters)	
	Min	Max	Min	Max
A	0.153	0.159	3.89	4.04
B	0.176	0.186	4.47	4.72
C	0.017	0.023	0.43	0.58
D	0.051	0.059	1.30	1.50
D_1 (Note 2)	0.061	0.085	1.55	2.16
E	0.101	0.107	2.57	2.72
F	0.013*	0.017*	0.33*	0.43*
G	0.146	0.154	3.71	3.91
N (Note 3)	0.125*	-	3.18*	-
R	-	0.030*	-	0.76*

NOTES:
1 Chamfer or radius optional.
2 This dimension includes solder.
3 Inside diameter of base.
4 A solder hole in the cylindrical part of the shell is permissible, except that on finished lamps, the diameter, including the solder, shall not exceed A max.
* Solely for base design, not to be gauged on a finished lamp.

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Gauging
When Gauge 3-850 is placed over the bulb end of a finished lamp (bulb end up), the gauge shall drop to the base's flange. Only the mass (weight) of the gauge itself shall be used. While the bottom of the gauge is in contact with the flange, the upper rim of the base shall not project beyond the uppermost surface of the gauge.

When Gauge 3-851 is placed over the bulb end of a finished lamp (bulb held up), the gauge shall not pass beyond the chamfered or curved section of the base's rim. Only the mass (weight) of the gauge itself shall be used.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-850.

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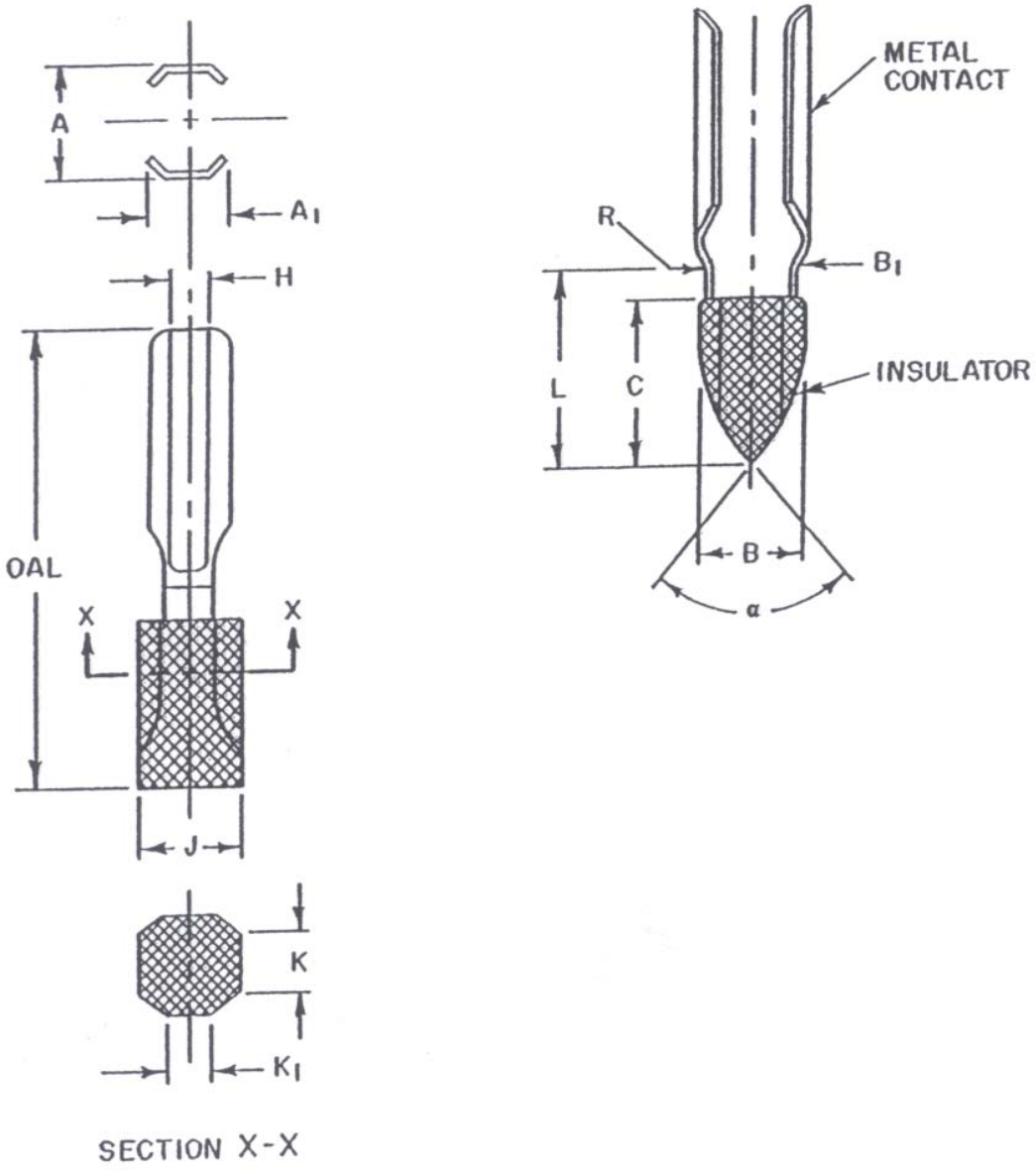
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T7.2-1 Telephone Slide Base No. 1 for T2 Lamps

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2- 1. At the time of publication there was no comparable IEC standard in existence.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
B	-	-	0.265	-	-	6.73
B_1	0.205	-	0.245	5.21	-	6.22
C	-	0.422	-	-	10.72	-
H	0.078	-	-	1.98	-	-
J	-	-	0.260	-	-	6.60
K	-	0.156	-	-	3.97	-
K_1	-	0.141	-	-	3.58	-
L	-	-	0.531	-	-	13.49
OAL	-	1.188	-	-	30.18	-
R	-	0.031	-	-	0.79	-
α	-	80°	-	-	80°	-

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder standard has not been developed for use with this base standard.

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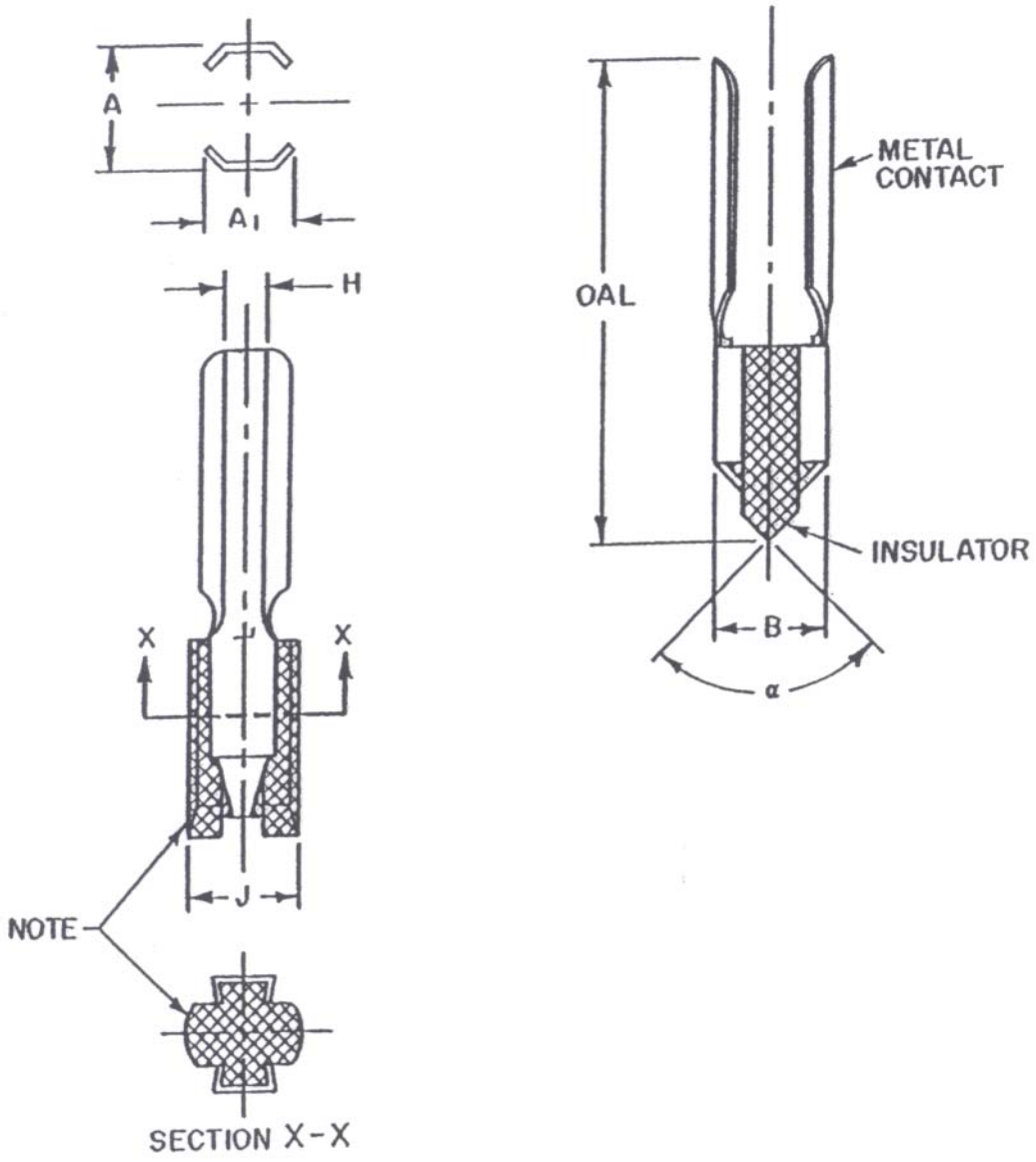
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T7.2-2 Telephone Slide Base No. 2 for T2 Lamps

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2-2. At the time of publication there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
B	-	-	0.270	-	-	6.86
H	0.078	-	-	1.98	-	-
J	-	-	0.275	-	-	6.99
OAL	-	1.188	-	-	30.18	-
α	-	90°	-	-	90°	-
NOTE Sides may be flat or have a slight radius						

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder standard has not been developed for use with this base standard.

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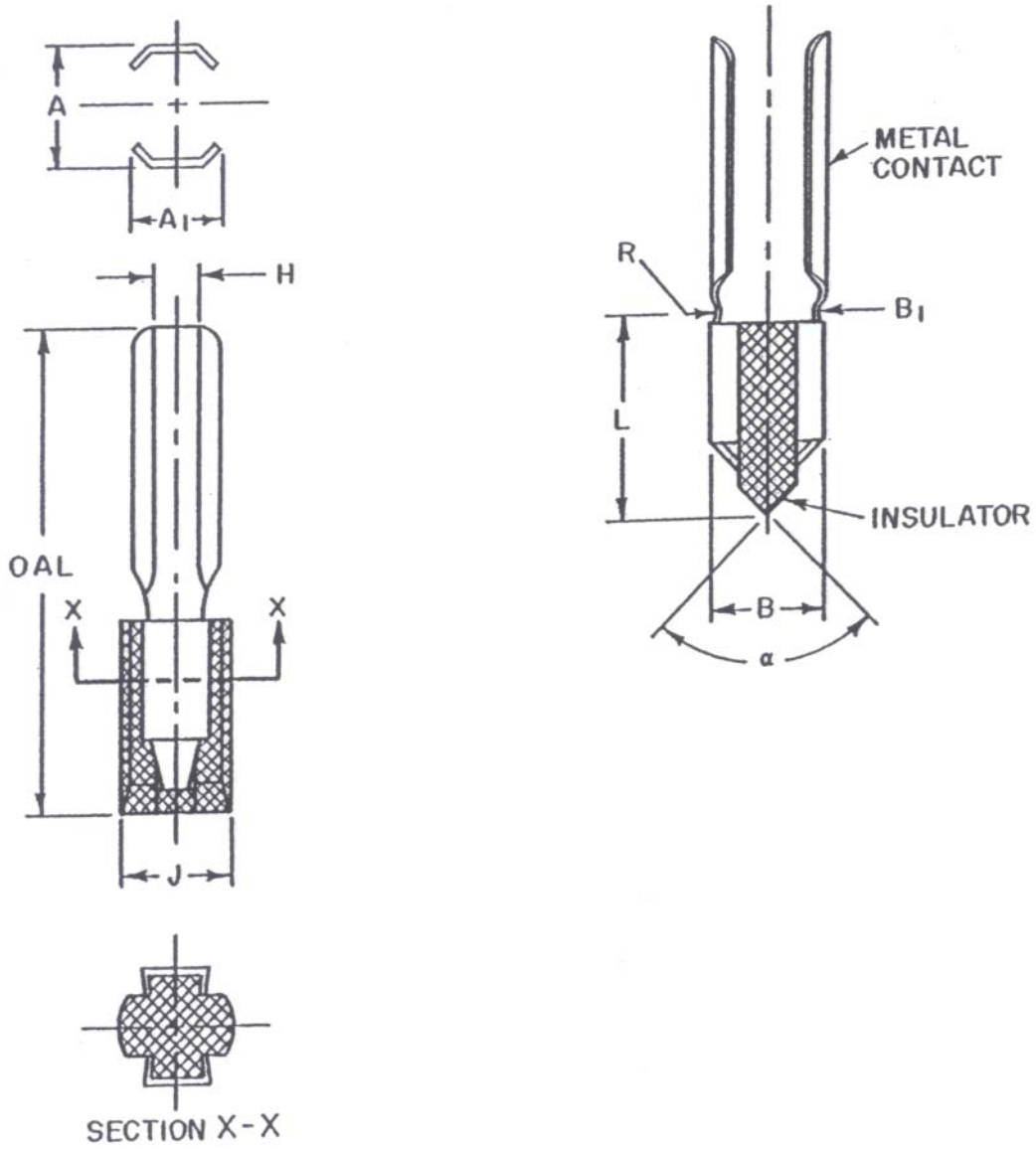
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T7.2-3 Telephone Slide Base No. 3 for T2 Lamps

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2-3. At the time of publication there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
B	-	-	0.270	-	-	6.86
B_1	0.205	-	0.245	5.21	-	6.22
H	0.078	-	-	1.98	-	-
J	-	-	0.275	-	-	6.99
L	-	-	0.531	-	-	13.49
OAL	-	1.188	-	-	30.18	-
R (rad.)	-	0.031	-	-	0.79	-
α	-	90°	-	-	90°	-

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder standard has not been developed for use with this base standard.

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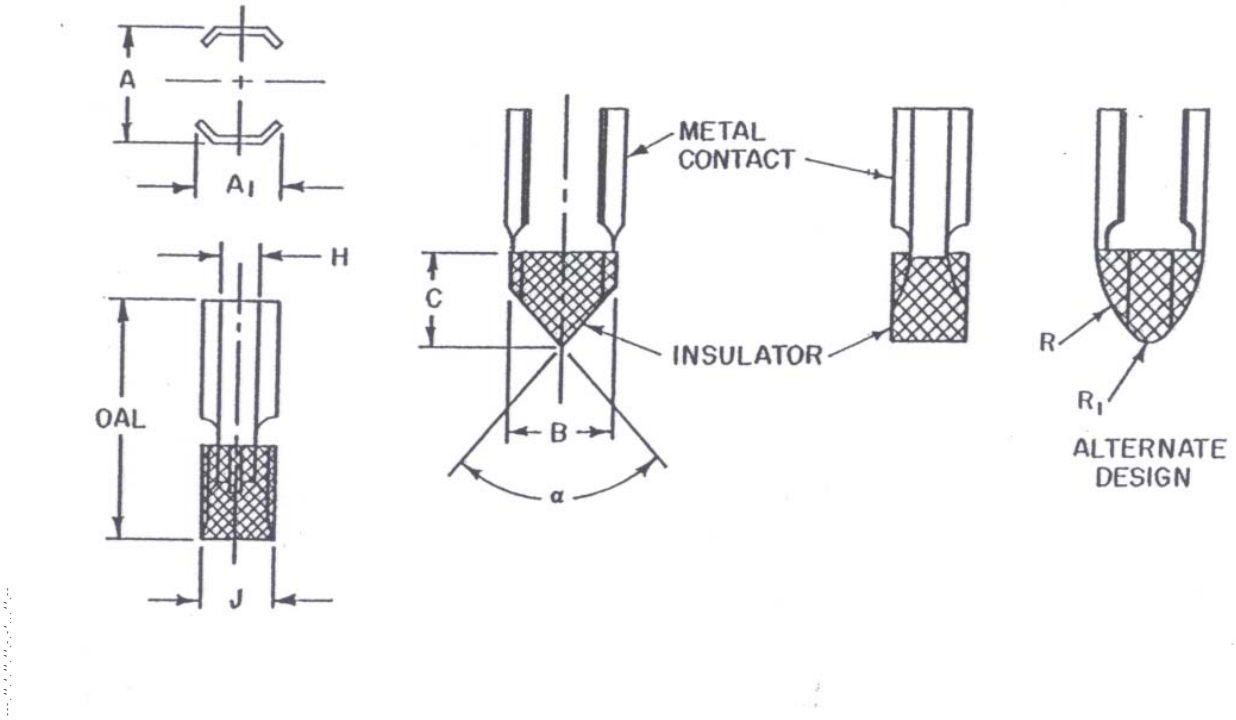
Not for Resale

T7.2-5 Telephone Slide Base No. 5 for T2 Lamps

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2-5. At the time of publication there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
B	-	-	0.280	-	-	7.11
C	-	0.219	-	-	5.56	-
H	0.078	-	-	1.98	-	-
J	-	-	0.245	-	-	6.22
OAL	-	0.656	-	-	16.67	-
R	-	0.375	-	-	9.53	-
R_1	-	0.046	-	-	1.17	-
α	-	80°	-	-	80°	-

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder standard has not been developed for use with this base standard.

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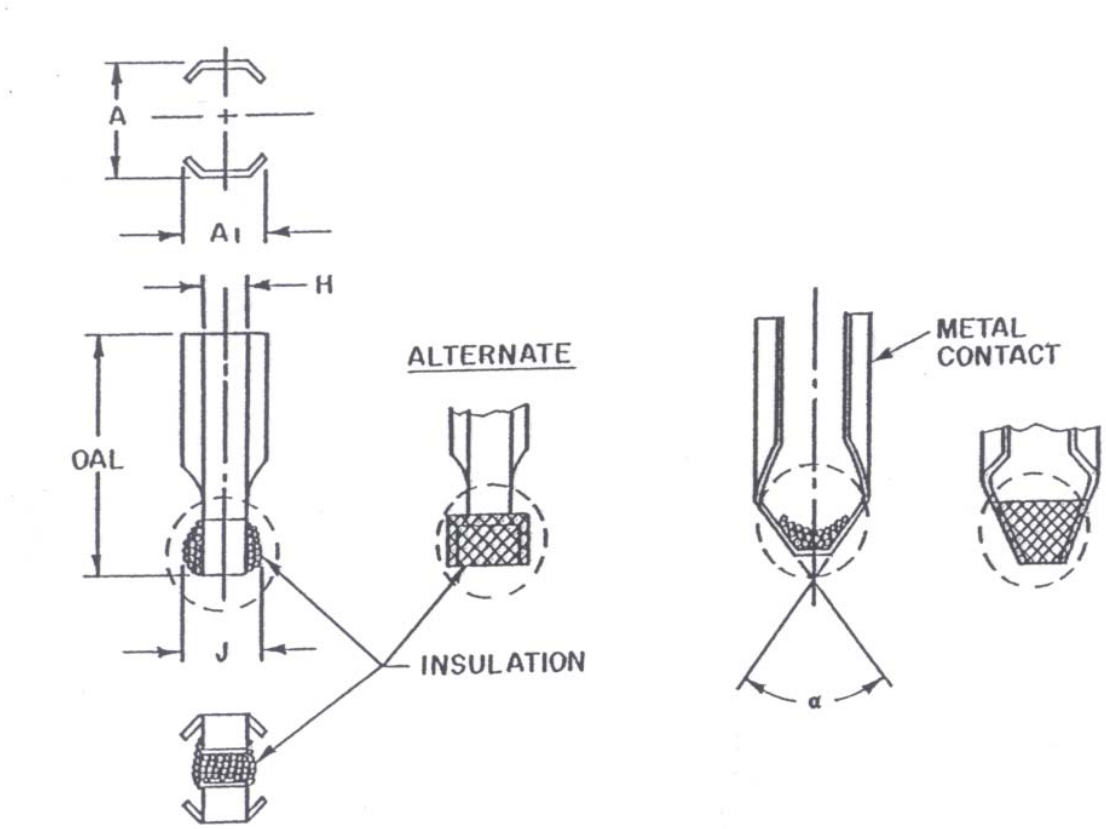
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T7.2-6 Telephone Slide Base No. 6 for T2 Lamps

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2-6. At the time of publication there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
H	0.078	-	-	1.98	-	-
J	-	-	0.245	-	-	6.22
OAL	-	0.625	-	-	15.88	-
α	-	72°	-	-	72°	-

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder has not been developed for use with this base standard.

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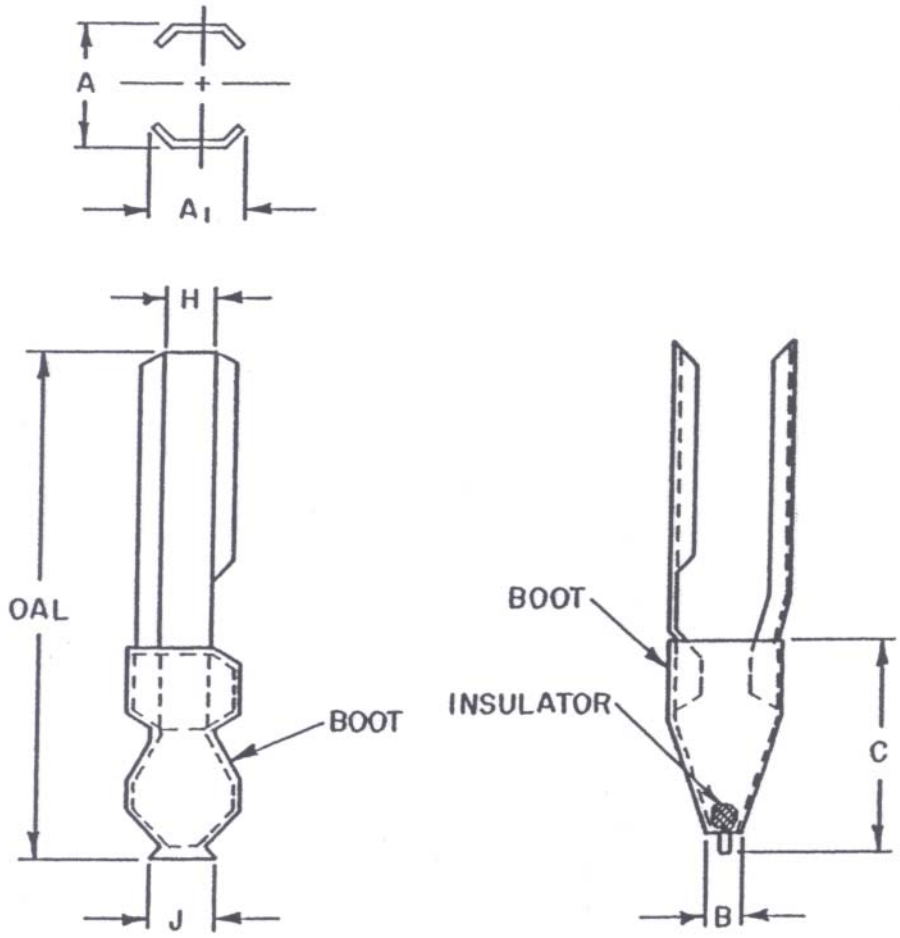
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T7.2-7 Telephone Slide Base No. 7 for T2 Lamps

The dimension assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2-7. At the time of publication there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
B	-	-	0.165	-	-	4.19
C	-	-	0.531	-	-	13.49
H	0.078	-	-	1.98	-	-
J	-	0.260	-	-	6.60	-
OAL	-	1.188	-	-	30.16	-

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder standard has not been developed for use with this base standard.

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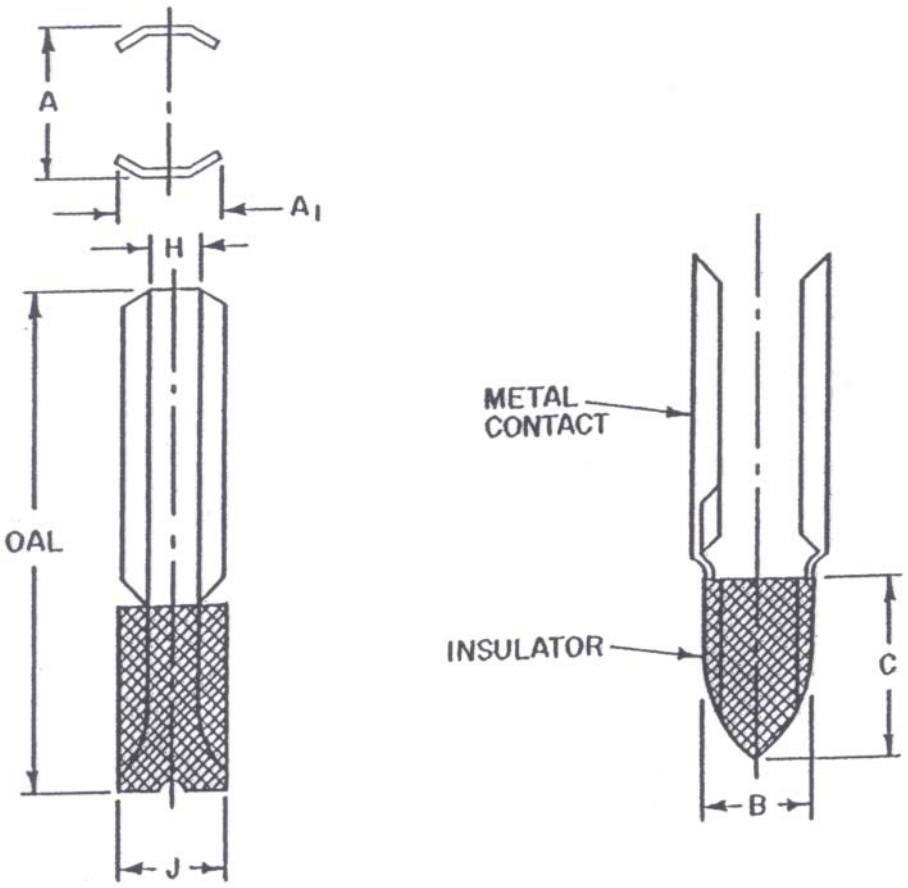
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T7.2-8 Telephone Slide Base No. 8 for T2 Lamps

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is T7.2-8. At the time of publication there was no comparable IEC standard in existence.

The dimensions shown on this sheet apply to finished bases after assembly on lamps.

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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.270	-	0.300	6.86	-	7.62
A_1	-	-	0.234	-	-	5.94
B	-	-	0.245	-	-	6.22
C	-	-	0.531	-	-	13.49
H	0.078	-	-	1.98	-	-
J	-	-	0.245	-	-	6.22
OAL	-	1.250	-	-	31.75	-

Gauging
Gauges have not been developed for this base.

Lampholder
A lampholder standard has not been developed for use with this base standard.

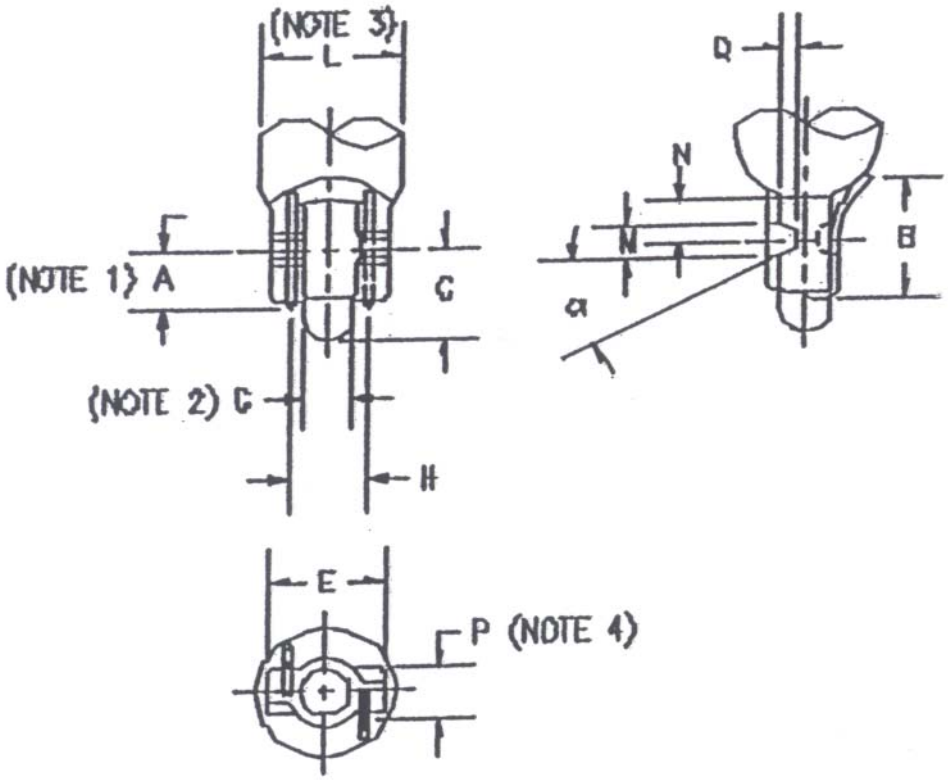
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W2.1x4.9d Wedge Base

The designation assigned in accordance with the system of the International Electrotechnical Commission (IEC) is W2.1x4.9d. This standard is similar to, but not fully compatible to IEC 60061. It is commonly known as the Sub-Miniature Wedge T1-3/4 (SAE Type W-1) in the United States.

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Reference	Standard Dimensions (millimeters)			Nearest Metric Equivalent (inches)		
	Min	Nom	Max	Min	Nom	Max
A (Note 1)	2.03	-	3.04	0.080	-	0.120
B	3.04	-	5.08	0.120	-	0.200
C	-	-	5.08	-	-	0.200
E	4.82	-	5.08	0.190	-	0.200
G (Note 2)	-	-	3.10	-	-	0.120
H	-	3.30	-	-	0.130	-
L (Note 3)	-	-	5.84	-	-	0.230
M	-	1.52	-	-	0.060	-
N	1.65	-	-	-	0.065	-
P (Note 4)	1.78	-	2.28	0.070	-	0.090
Q	-	0.51	-	-	0.020	-
α	10°	-	18°	10°	-	18°

NOTES
1 Dimension A to be measured on the longest side only, with the wire in intimate contact with the bottom of the glass.
2 Dimension G applies to the cylindrical section, and for exhaust tip clearance.
3 Dimension L applies only to lamps designed to fit P8.25d bases. See ANSI C81.61 Standard Sheet 1-530.
4 Dimension P to be measured over the lead wire.
5 The metric dimensions were derived from original inch dimensions, of which some were two place, and reflect true conversions.

Gauging
Retention gauges 3-919:
The base shall accept both the minimum and maximum retention gauges.

See ANSI C81.63 for gauges.

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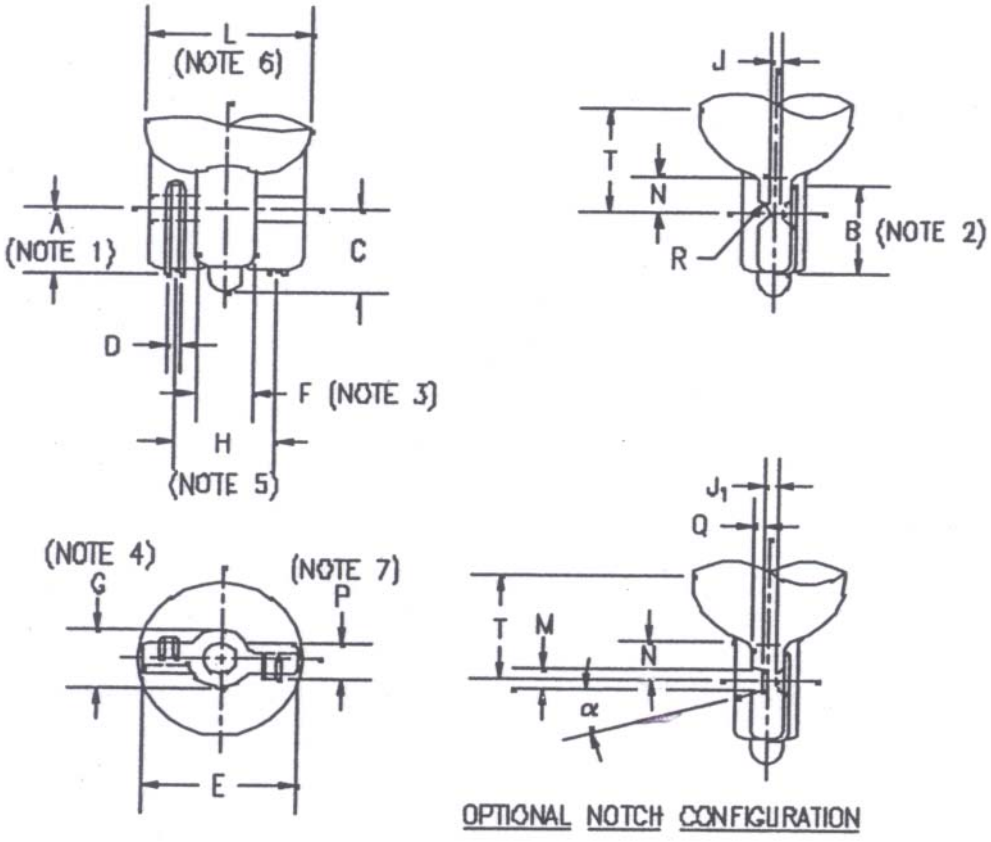
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W2.1x9.2d Wedge Base

The designation assigned in accordance with the system of the International Electrotechnical Commission (IEC) is W2.1x9.2d. This standard is similar to, but not fully compatible to IEC 60061. It is commonly known as the Miniature Wedge, T3-1/4 (SAE Type W2) in the United States.

The drawing is intended only to indicate the dimensions to be controlled.



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Reference	Standard Dimensions (millimeters)			Nearest Metric Equivalent (inches)		
	Min	Nom	Max	Min	Nom	Max
A (Note 1)	3.43	-	4.45	0.135	-	0.175
B (Note 2)	4.83	-	-	0.190	-	-
C	-	-	6.35	-	-	0.250
D	-	1.50	-	-	0.060	-
E	8.89	-	9.50	0.350	-	0.374
F (Note 3)	-	-	3.04	-	-	0.120
G (Note 4)	-	-	4.06	-	-	0.160
H (Note 5)	-	5.58	-	-	0.220	-
J	-	0.76	-	-	0.031	-
J_1	-	1.20	-	-	0.047	-
L (Note 6)	-	-	10.30	-	-	0.405
M	-	1.25	-	-	0.050	-
N	1.65	-	-	0.065	-	-
P (Note 7)	1.91	-	2.41	0.075	-	0.095
Q	0.53	-	0.67	0.021	-	0.026
R	-	0.76	-	-	0.030	-
T (Note 8)	4.90	-	7.50	0.193	-	0.295
α	10°	-	18°	10°	-	18°

NOTES
1 Dimension A to be measured on the longest side only, with the wire in intimate contact with the bottom of the glass.
2 Inside of lead loop to extend past detent and remain on the flat portion of the base.
3 Dimension F is for exhaust tip clearance.
4 Dimension G applies to the cylindrical section.
5 Dimension H is to be maintained over entire length as specified by Dimension B.
6 Dimension L applies to lamps designed to fit P12.4d bases, and is applicable for 7.1mm (0.283 in) minimum from notch center line. See ANSI C81.61 Standard Sheet 1-550.
7 Dimension P to be measured over the lead wire.
8 Dimension T applies from notch center line to the full diameter of the bulb.
9 The metric dimensions were derived from original inch dimensions, of which some were two place, and reflect true conversions.

Gauging

Retention gauges 3-920:
The base shall accept both the minimum and maximum retention gauges.

See ANSI C81.63 for gauges.

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PART III -- United States Deviations to IEC Harmonized Electric Lamp Base Standard Sheets

Base (cap)	Sheet Number	Deviation
E10	7004-22-6	H = 3.58 – 4.37mm (0.141 – 0.172 in.)
E26/50x39	7004-130-1	d max = 26.47mm (1.042 in.) A future objective is 26.41mm (1.040 in.)

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Part IV – Annexes

Annex A (Informative)

Contrast of Projection Methods on Engineering Drawings

Annex B (Informative)

Related Standards

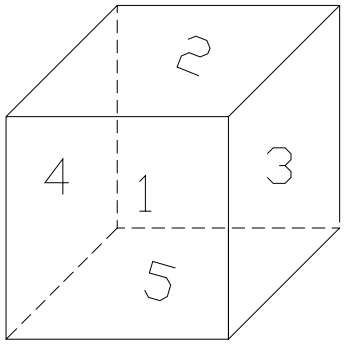
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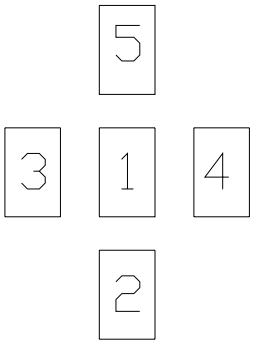
ANNEX A
(informative)

Contrast of projection methods on engineering drawings

I. European Method: First angle projection

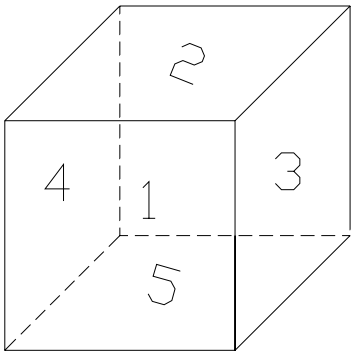


Product

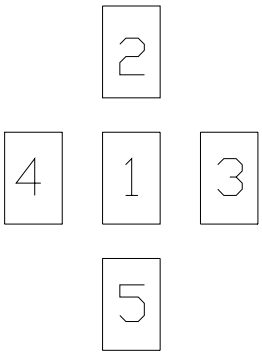


Drawing projections

II. American Method: Third angle projection



Same Product



Drawing projections

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Annex B

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Bibliography

B.1 Related Standards

These standards are listed here for information

ANSI C81.64-1993, *Guidelines and General Information for Electric Lamp Bases, Lampholders and Gauges*

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