American National Standard

Approved February 20, 2002 Secretariat: American National Standards Lighting Group - NEMA

For Electric Lamps

For Lampbases
Supplement-

INSTRUCTIONS:

Remove Standard Sheet 1-202-1(3 pages) and insert sheet 1-202-2 (3 pages)

Remove Standard Sheet 1-320-1(2 pages) and insert sheet 7004-73-2 (1 page)

Remove any prior versions of the "Universal Contents" and insert version C81.61bb-2002.

Discard this instruction sheet when finished.

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

LB	RV
C81/2407 C81/2415	C81/2408 C81/2416

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Universal Contents of C81.61 - Electric Lamp Bases

System	Title	Standard. Sheet No.	Published In
BA9	Miniature Bayonet Base	1-10-2	C81.61z-98
BA15s, BA15d	Candelabra Single-Contact & Double Contact Bayonet Bases	1-20-1	C81.61-90
BAY15s, BAY15d	Bases [Bayonet: Offset Pins]	1-22-1	C81.61-90
BAZ15d	Base [Bayonet : Offset & Non-Aligned Pins]	1-23-1	C81.61-90
BY22d	Base	7004-17-3	C81.61v-00
E5	Midget Screw Base	1-100-1	C81.61-90
E10	Miniature Screw Base	1-111-2	C81.61p-97
E11	Mini-Can Screw Base	1-123-2	C81.61f-96
E12	Candelabra Screw Base	1-131-2	C81.61a-93
E17	Screw Cap	7004-26-2	C81.61w-98
E26/24	Single-Contact Medium Screw Base	1-157-1	C81.61-90
E26d	Double-Contact Medium Screw Base	1-158-1	C81.61-90
E26/50x39	Skirted Medium Screw Base	1-159-1	C81.61-90
E26/53x39	Skirted Medium Screw Base	1-162-1	C81.61-90
E39	Screw Caps [Mogul]	7004-24A-1	C81.61g-97
E39d	Double-Contact Mogul Screw Base	1-187-2	C81.61c-95
EP39	Position-Oriented Mogul Screw Base	1-202-2	C81.61bb-02
Fa8	Single-Pin Base	1-250-1	C81.61-90
G1.3-2.4	Subminiature Bipin Base for T3/4 Lamps	1-288-1	C81.61-90
GY1.3	Subminiature Bipin Bases for T1 Lamps	1-291-2	C81.61j-97
GY2.5	Subminiature Bipin Base for T1-1/4 lamps	1-294-2	C81.61j-97
GY3.2	Subminiature Bipin Base for T1-3/4 lamps	1-297-2	C81.61j-97
G3.9	Base	1-300-1	C81.61-90
GU4	Bi-Pin Lamp Bases	7004-108-2	C81.61w-98
GZ4	Bi-Pin Lamp Base	7004-67-3	C81.61x-01
G5	Miniature Bipin Base	1-310-2	C81.61e-96
G5.3	Bi-Pin Cap	7004-73-2	C81.61bb-02
GU5.3	Bi-Pin Lamp Bases	7004-109-1	C81.61g-97
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GZ6.35	Base	1-342-1	C81.61a-93
2G7	Cap	7004-102-1	C81.61g-97
2GX7	Cap	7004-103-1	C81.61g-97
GU7	Bi-Pin Lamp Bases	7004-113-1	C81.61ss-99
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GR8	Cap	7004-68-3	C81.61w-98
G9.5	Base	1-368-1	C81.61-90
GY/GZ9.5	Bases	1-369-1	C81.61-90
G10q	Four-Pin Circular Fluorescent Lamp Base	1-383-1	C81.61-90
GR10q	Cap	7004-77-2	C81.61w-98
2G11	Cap	7004-82-1	C81.61g-97

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System	Title	Standard. Sheet No.	Published In
G12	Caps on Finished Lamps [Bipin]	7004-63-1	C81.61g-97
G12.7	Side Prong Base	1-403-1	C81.61c-95
G13	Medium Bipin Base	1-406-1	C81.61-90
2G13	U-Shaped Fluorescent Base	1-420-2	C81.61s-98
G16d	Mogul & Extended Mogul End-Prong Bases	1-430-3	C81.61n-97
G16d	Termination	1-431-3	C81.61n-97
G17t	Tri-Pin Prefocus Base	1-439-1	C81.61-90
G/GX17q	Four-Pin Prefocus Base	1-440-1	C81.61-90
G20	Mogul Bipin Base	1-452-1	C81.61-90
G22	Medium Bipost Base	1-466-1	C81.61-90
G23	Bi-Pin Cap	7004-69-1	C81.61g-97
GX23	Bi-Pin Cap	7004-86-1	C81.61g-97
G/GX/GY24	Caps on Finished Lamps	7004-78-2	C81.61g-97
G/GX/GY32	Caps on Finished Lamps	7004-87-2	C81.61g-97
G38	Mogul Bipost Base	1-519-1	C81.61-90
PG/PGX12	Caps on Finished Lamps	7004-64-3	C81.61ss-99
P13.5s	Single-Contact Miniature Flanged Base	1-600-1	C81.61-90
P28	Medium Prefocus Base	1-700-1	C81.61-90
P30	Candelabra Prefocus Bases	1-709-1	C81.61-90
P32 & PK32d	Prefocus Caps	7004-111-1	C81.61x-00
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T7.2-1	Telephone Slide Base No. 1 for T2 Lamps	1-875-1	C81.61-90
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T7.2-3	Telephone Slide Base No. 3 for T2 Lamps	1-877-1	C81.61-90
T7.2-5	Telephone Slide Base No. 5 for T2 Lamps	1-878-1	C81.61-90
T7.2-6	Telephone Slide Base No. 6 for T2 Lamps	1-879-1	C81.61-90
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T7.2-8	Telephone Slide Base No. 8 for T2 Lamps	1-881-1	C81.61-90
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W2.1x9.2d	Wedge Base	1-920-1	C81.61h-96
W2.5x16	Wedge Base	7004-104-1	C81.61u-98
W4.3x8.5d	Cap	7004-115-1	C81.61w-98

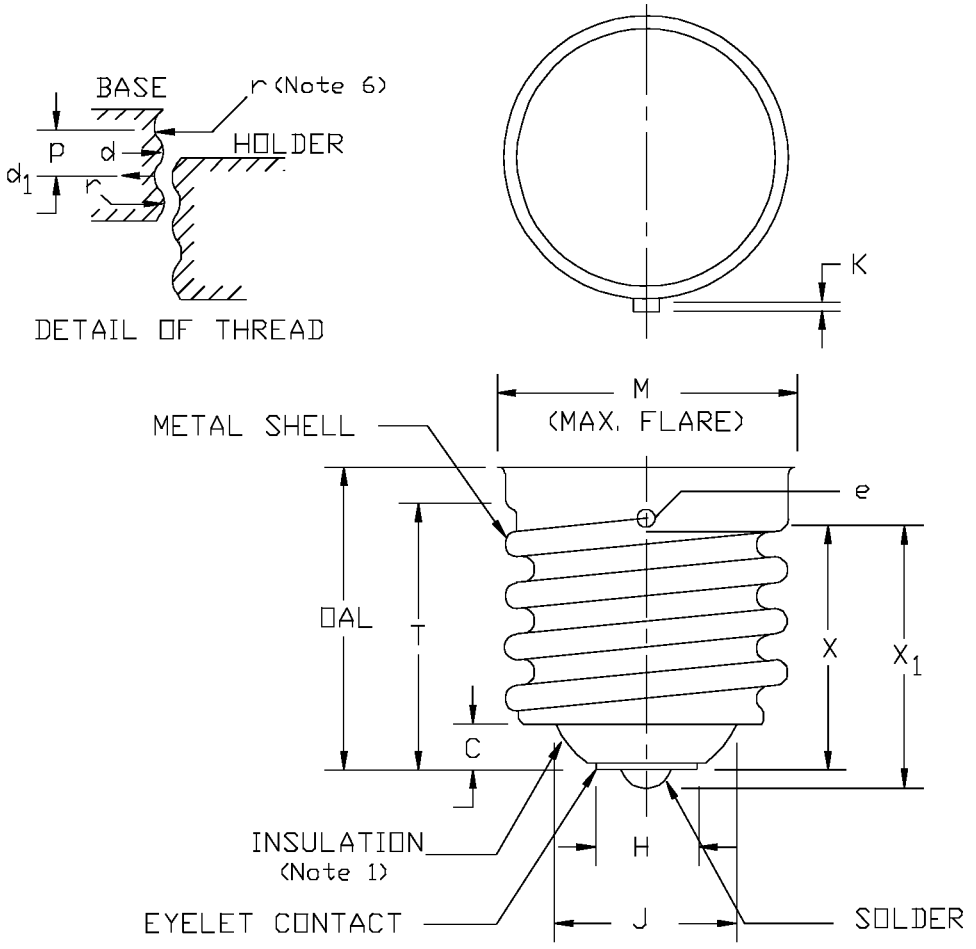
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EP39 Position-Oriented Mogul Screw Base

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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	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished lamps	
Reference	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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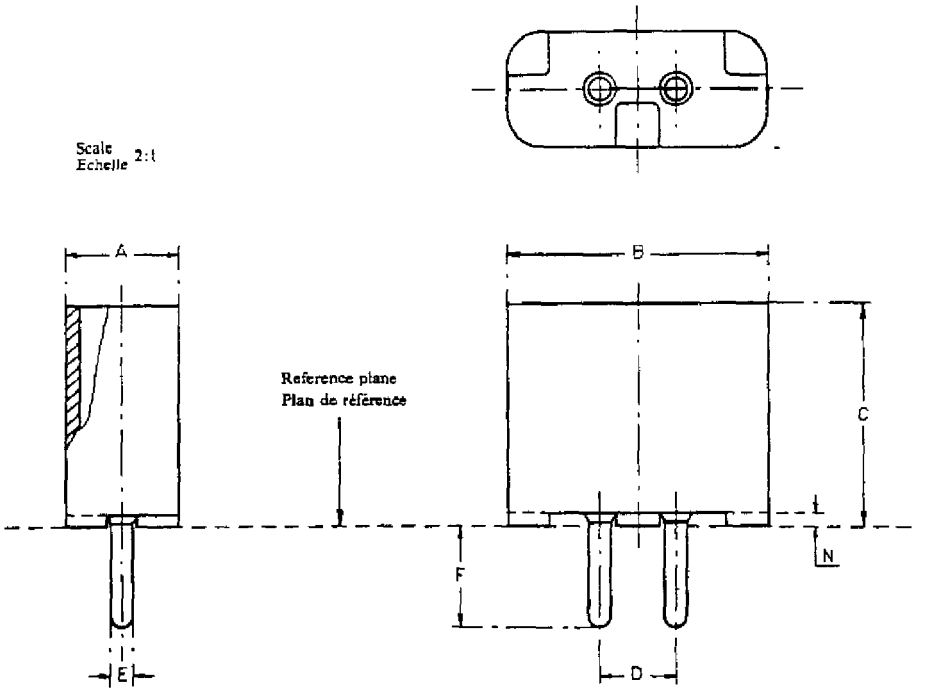
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BI-PIN CAP
CULOT À DEUX BROCHES

G5.3

Dimensions in millimetres — Dimensions en millimètres

The drawing is intended only to indicate the dimensions to be controlled.
Le dessin a pour seul but d'indiquer les dimensions à contrôler.



The bosses of the pins shall not project beyond the reference plane.
For finished lamps the creepage distance over insulation shall be not less than 2.5 mm.

Les bossages des broches ne doivent pas être en dessous du plan de référence.
Pour les lampes terminées, la ligne de fuite sur l'isolant ne doit pas être inférieure à 2,5 mm.

Standard dimensions Dimensions normalisées			Nearest equivalents in inches Equivalents arrondis en pouces	
Dimension	Min.	Max.	Min.	Max.
A	7.52	8.76 (1)	0.296	0.345 (1)
B	18.11	18.92 (1)	0.713	0.745 (1)
C	15.24 (1)	—	0.600 (1)	—
D (1)	5.33		0.210	
E (1)	1.47	1.65 (2)	0.058	0.065 (2)
F (1)	6.10	7.11 (2)	0.240	0.280 (2)
N	0.76	—	0.030	—

(1) To be checked by means of the gauge shown on sheet 7006-73.
(2) This value includes an allowance for solder.

(1) A vérifier à l'aide du calibre selon la feuille 7006-73.
(2) Cette valeur tient compte de la présence possible de soudure.

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Supplement to
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GZ4 & P32d/PK32d Bases

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Part 1 of 4:
GU4 Bases

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Supplement to
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E17, GR8, GR10q and W4.3x8.5d Bases

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Supplement to
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BY22d Bases

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Supplement to
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W2.5 x 16 Bases

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Approved June 24, 1998

Secretariat: American National Lighting Group
In Affiliation with National Electrical Manufacturers Association

Supplement to
American National Standard for

Electric Lamp Bases

S14s/d Bases

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In Affiliation with National Electrical Manufacturers Association

Supplement to
American National Standard for

Electrical Lamp Bases

GU7 & PG12/PGX12 Bases

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American National Standard

Approved March 3, 1998 Secretariat: National Electrical Manufacturers Association

for electric lamps—

Electrical Lamp Bases

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Approved September 25, 1997 Secretariat: National Electrical Manufacturers Association

for electric lamps:

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Supplement to C81.61-1990 (R1996)

American National Standard

Approved January 30, 1997 Secretariat: National Electrical Manufacturers Association

for electric lamp bases:

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Supplement to ANSI C81.61-1990

American National Standard

Approved August 29, 1996 | Secretariat: National Electrical Manufacturers Association

for electric lamps:

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American National Standard

Approved March 22, 1996 Secretariat: National Electrical Manufacturers Association

for electric lamps:

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American National Standard

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Base	Common Name Number	Standard Sheet
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American National Standard

Approved November 15, 1995 Secretariat: National Electrical Manufacturers Association

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ANSI C81.61c-1995
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American National Standard

Approved April 18, 1995 Secretariat: National Electrical Manufacturers Association

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System Designation	Common Name	Standard Sheet Number
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1-506-1	G32/GX32	1-506-2	10-10/94

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American National Standard

Supplement to C81.61-1990 and
partial revision and consolidation
of ANSI C81.10-1976, C81.20-1976,
C81.30-1976, C81.40-1976, and C81.50-1976

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This publication replaces C81.55-1989, never published.

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for Electrical Lamp Bases

ANSI C81.61-1990

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ANSI C81.61 90 ■ 0724150 0005965 1 ■

ANSI ®
C81.61-1990

partial revision and consolidation of
ANSI C81.10-1976,
C81.20-1976, C81.30-1976, C81.40-1976,
and C81.50-1976

American National Standard

for Electrical Lamp Bases

Secretariat
National Electrical Manufacturers Association

Approved October 27, 1989
American National Standards Institute, Inc

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Foreword

(This Foreword is not part of American National Standard C81.61-1990.)

ANSI C81.61-1990 was a new presentation of the standard sheets of electric lamp bases. This standard does not contain any sheets for lampholders or gauges.

This arrangement is a major departure from the previous standards in the C81 series. A primary feature of this new format is that all the new base sheets are concentrated in one standard. Secondly, the general format of the sheets has been revised to offer better associations among related bases, lampholders, and gauges. Also, on the ANSI sheets, test requirements are now located on the products sheets (base sheet or holder sheet) to which they apply, as opposed to being located on the gauge sheets as is done in IEC.

A standard in the old series of standards (ANSI C81.10, ANSI C81.20, and so on) contained the standard sheets for a certain category of bases along with their associated holders and gauges. Under the new approach, base sheets are in ANSI C81.61-1990, holders in another standard (ANSI C81.62-1991), and gauges in a third standard (ANSI C81.63-1991). In addition, a fourth standard (ANSI C81.64-1993) contains detailed information on designations, threads, gauging tolerances etc. This pattern is similar to the organization of the IEC standards for base and holder systems.

Under this new scheme, ANSI C81.61-1990, ANSI C81.62-1991 and ANSI C81.63-1991, have replaced the old standards. Therefore, the old standards have been withdrawn.

With this issue in the new format, the titles of the data sheets show new names for the bases. These names are generally a combination of an IEC designation and a common name. It is assumed that a transition phase, of several years duration, in which both kinds of identification are shown will help familiarize users with the IEC designations. Eventually, it is expected that use of IEC designations will be sufficient. New fits, for which common names have never been assigned, bear only their IEC designations.

The new base standard sheets in this document are generally not changed technically from older versions. However, some work being processed by the C81 subcommittees has been merged into the new standard. Also, some new base types have been added.

With the issuance of this supplement, C81.61g, a major change has taken place. IEC standards which are fully harmonized with their ANSI equivalents have been adopted as American National Standards and replace the old ANSI standard sheets. While the ANSI/IEC sheets have a different system of sheet numbering, they are filed in alphanumeric sequence of IEC designation with the remaining ANSI standard sheets. The Annex contains a cross-reference, relating the new ANSI sheet numbers and ANSI/IEC sheet numbers to the old (withdrawn) system.

The ANSI/IEC standard sheets are taken from IEC 61-1. The drawings on these internationally standardized sheets are in first angle projection rather than third angle commonly used in North American approved standard sheets. Annex B 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 contains an annex which is informative and is not considered a part of this standard.

Suggestions for improvement of this standard will be welcome. They shall be sent to the National Electrical Manufacturers Association, 1300 North 17th St., Suite 1847, Rosslyn, VA 22209.

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ANSI C81.61g-1996
Supplement to ANSI C81.61-1991

This standard was processed and approved for submittal by Accredited Standards Committee on Electrical Lamp Bases and Holders, C81, and Sub-Committees C81-1 for Specialty-Use Bases and Holders, C81-5 for Fluorescent Lamp Bases and Holders, C81-10 for General Use Lamp Bases and Holders, and C81-11 for Bases and Holders for Photo Lamps. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time of publication of this standard, the Committees had the following members:

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Randolph N. Roy, Secretariat
Jeanne L. Spicer, Coordinating Editor

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General Electric Lighting	John P. Krissinger
Leviton Manufacturing Company	Charles Chase
National Electrical Manufacturers Association	Dennis Oddsen (delegate)
OSRAM SYLVANIA INC	Peter Bleasby
Philips Lighting	Al Rousseau

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Charles Chase, Chairman C81-5
David H. Fox, Chairman C81-11

Organizations Represented	*Name of Representative*
Eastman Kodak Company	William E Moore
Ford Motor Company	Roman Witek
General Electric Company	Don Kikta
	Fred Hetzel
GE Lighting Company	Bernard W. Rachel
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Universal Contents of C81.61 - Electric Lamp Bases

System	Title	Std. Sheet No.	Published In
BA9	Miniature Bayonet Base	1-10-2	C81.61z-98
BA15s, BA15d	Candelabra Single-Contact & Double-Contact Bayonet Bases	1-20-1	C81.61-90
BAY15s, BAY15d	Bases [Bayonet: Offset Pins]	1-22-1	C81.61-90
BAZ15d	Base [Bayonet: Offset & Non-Aligned Pins]	1-23-1	C81.61-90
BY22d	Base	7004-17-3	C81.61v-00
E5	Midget Screw Base	1-100-1	C81.61-90
E10	Miniature Screw Base	1-111-2	C81.61p-97
E11	Mini-Can Screw Base	1-123-2	C81.61f-96
E12	Candelabra Screw Base	1-131-2	C81.61a-93
E17	Intermediate Screw Base	1-144-2	C81.61f-96
E26/24	Single-Contact Medium Screw Base	1-157-1	C81.61-90
E26d	Double-Contact Medium Screw Base	1-158-1	C81.61-90
E26/50x39	Skirted Medium Screw Base	1-159-1	C81.61-90
E26/53x39	Skirted Medium Screw Base	1-162-1	C81.61-90
E39	Screw Caps [Mogul]	7004-24A-1	C81.61g-97
E39d	Double-Contact Mogul Screw Base	1-187-2	C81.61c-95
EP39	Position-Oriented Mogul Screw Base	1-202-1	C81.61-90
Fa8	Single-Pin Base	1-250-1	C81.61-90
G1.3-2.4	Subminiature Bi-Pin Base for T3/4 Lamps	1-288-1	C81.61-90
GY1.3/2.5/3.2	Subminiature Bi-Pin Bases for T1 Lamps	1-291-2	C81.61j-98
GY2.5	Subminiature Bi-Pin Base for T1-1/4 Lamps	1-294-2	C81.61j-98
GY3.2	Subminiature Bi-Pin Base for T1-3/4 Lamps	1-297-2	C81.61j-98
G3.9	Base	1-300-1	C81.61-90
GU4	Bi-Pin Lamp Bases	7004-108-2	C81.61w-98
G5	Miniature Bi-Pin Base	1-310-2	C81.61e-96
G5.3	Base	1-320-1	C81.61-90
GU5.3	Bi-Pin Lamp Bases	7004-109-1	C81.61g-97
GX5.3	Base	1-321-1	C81.61-90
GY5.3	Base	1-322-1	C81.61-90
G/GY6.35	Bases	1-340-1	C81.61-90
GZ6.35	Base	1-342-1	C81.61-90
2G7	Cap	7004-102-1	C81.61g-97
2GX7	Cap	7004-103-1	C81.61g-97
GU7	Bi-Pin Lamp Bases	7004-113-1	C81.61ss1-99
G/GX7.9	Bases	1-356-2	C81.61aa-98
G9.5	Base	1-368-1	C81.61-90
GY/GZ9.5	Bases	1-369-1	C81.61-90
G10q	Four-Pin Circular Fluorescent Lamp Base	1-383-1	C81.61-90
2G11	Cap	7004-82-1	C81.61g-97
G12	Caps on Finished Lamps [Bi-Pin]	7004-63-1	C81.61g-97
G12.7	Side Prong Base	1-403-1	C81.61c-95
G13	Medium Bi-Pin Base	1-406-1	C81.61-90
2G13	U-Shaped Fluorescent Base	1-420-2	C81.61s-98
G16d	Mogul & Extended Mogul End-Prong Bases	1-430-3	C81.61n-97
G16d	Termination	1-431-3	C81.61n-97
G17t	Tri-Pin Prefocus Base	1-439-1	C81.61-90
G/GX17q	Four-Pin Prefocus Base	1-440-1	C81.61-90
G20	Mogul Bi-Pin Base	1-452-1	C81.61-90

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Universal Contents of C81.61 - Electric Lamp Bases

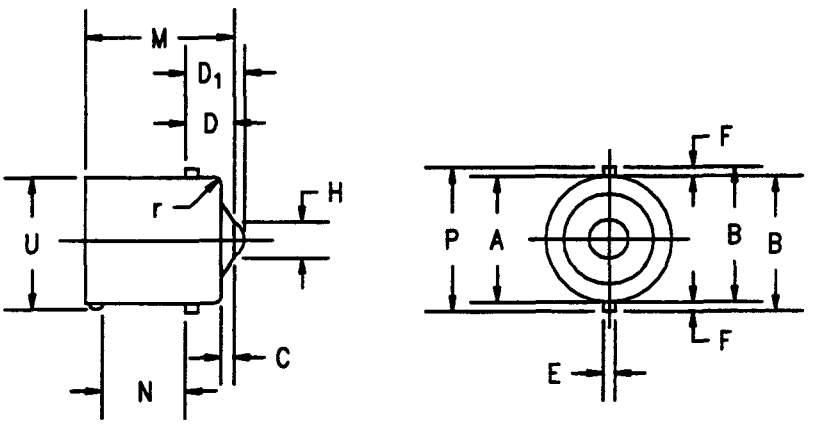
System	Title	Std. Sheet No.	Published In
G22	Medium Bipost Base	1-466-1	C81.61-90
G23	Bi-Pin Cap	7004-69-2	C81.61g-97
GX23	Bi-Pin Cap	7004-86-1	C81.61g-97
G/GX/GY24	Caps on Finished Lamps	7004-78-2	C81.61g-97
G/GX/GY32	Caps on Finished Lamps	7004-87-2	C81.61g-97
G38	Mogul Bipost Base	1-519-1	C81.61-90
PG/PGX12	Caps on Finished Lamps	7004-64-2	C81.61g-97
P13.5s	Single-Contact Miniature Flanged Base	1-600-1	C81.61-90
P28	Medium Prefocus Base	1-700-1	C81.61-90
P30	Candelabra Prefocus Bases	1-709-1	C81.61-90
P40	Mogul Prefocus Base	1-715-1	C81.61-90
R7s	Recessed Single-Contact Base	1-770-1	C81.61-90
R17d	Recessed Double-Contact Base	1-777-2	C81.61r-98
SX4	Submidget Flanged Base	1-850-1	C81.61-90
S5.7	Midget Grooved Base	1-856-1	C81.61-90
SX6	Midget Flanged Base	1-862-1	C81.61-90
S14	Base	7004-112-1	C81.61t-99
T7.2-1	Telephone Slide Base No. 1 for T2 Lamps	1-875-1	C81.61-90
T7.2-2	Telephone Slide Base No. 2 for T2 Lamps	1-876-1	C81.61-90
T7.2-3	Telephone Slide Base No. 3 for T2 Lamps	1-877-1	C81.61-90
T7.2-5	Telephone Slide Base No. 5 for T2 Lamps	1-878-1	C81.61-90
T7.2-6	Telephone Slide Base No. 6 for T2 Lamps	1-879-1	C81.61-90
T7.2-7	Telephone Slide Base No. 7 for T2 Lamps	1-880-1	C81.61-90
T7.2-8	Telephone Slide Base No. 8 for T2 Lamps	1-881-1	C81.61-90
W2.1x4.9d	Wedge Base	1-900-1	C81.61h-96
W2.1x9.2d	Wedge Base	1-920-1	C81.61h-96
W2.5x16	Wedge Base	7004-104-1	C81.61u-98

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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.



	Standard Dimensions (millimeters)				Nearest Equivalent (inch)			
	Unmounted (Note 7)		Finished Lamp		Unmounted (Note 7)		Finished Lamp	
Reference	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.).

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(4) Dimension N denotes the minimum length of shell that shall conform to the 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 on 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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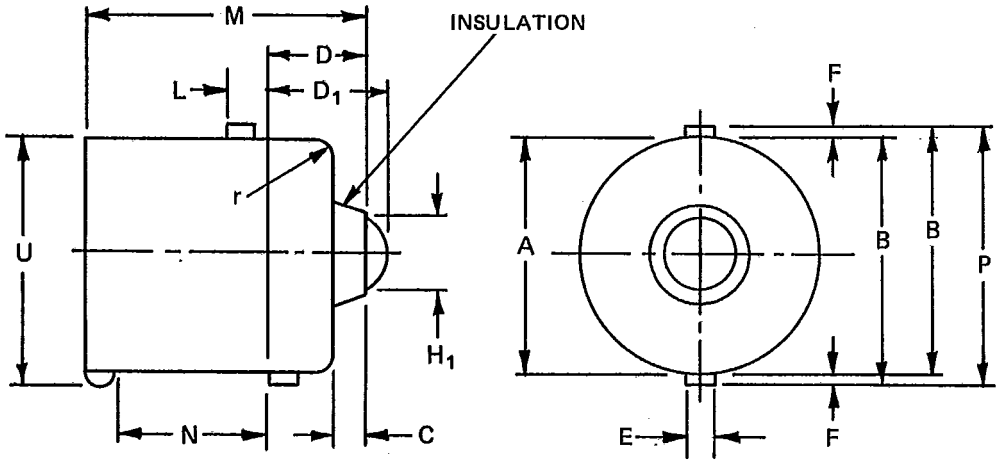
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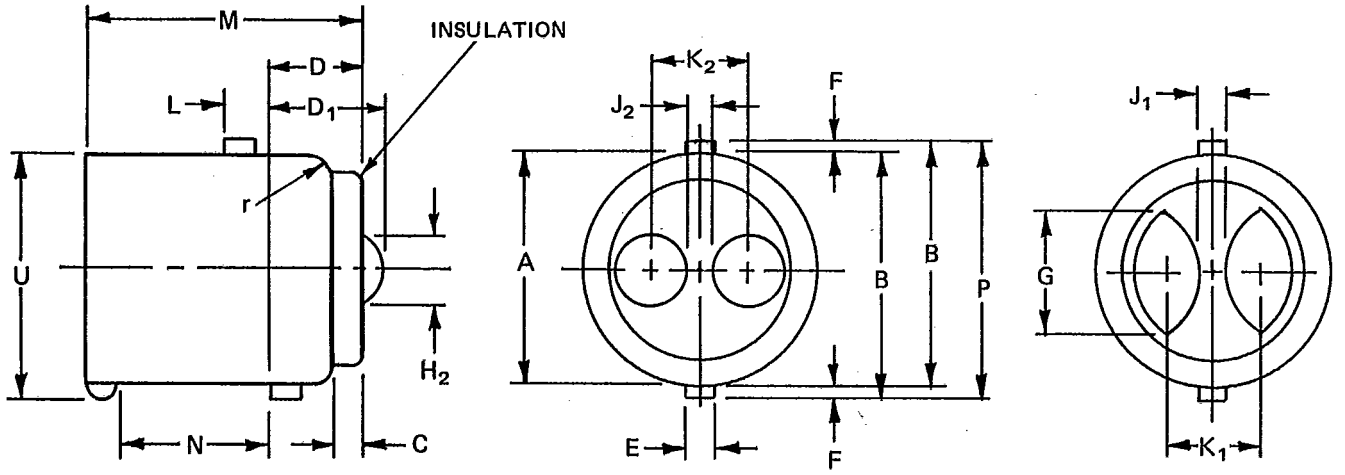
BA15s, BA15d Candelabra Single-Contact and Double-Contact Bayonet Bases

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 Publication 61.

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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	Standard Dimensions (millimeters)				Nearest Equivalent (inches)			
	Unmounted (Note 8)		Finished Lamp		Unmounted (Note 8)		Finished Lamp	
Reference	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	7.50	–	–	0.249	0.295
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 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 BA15/19 base. For the BA15/17.5 base, the limits are 17.25 mm–17.75 mm (0.679 inch–0.699 inch), and for the BA15/21 base, the limits are 20.75 mm–21.25 mm (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.

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

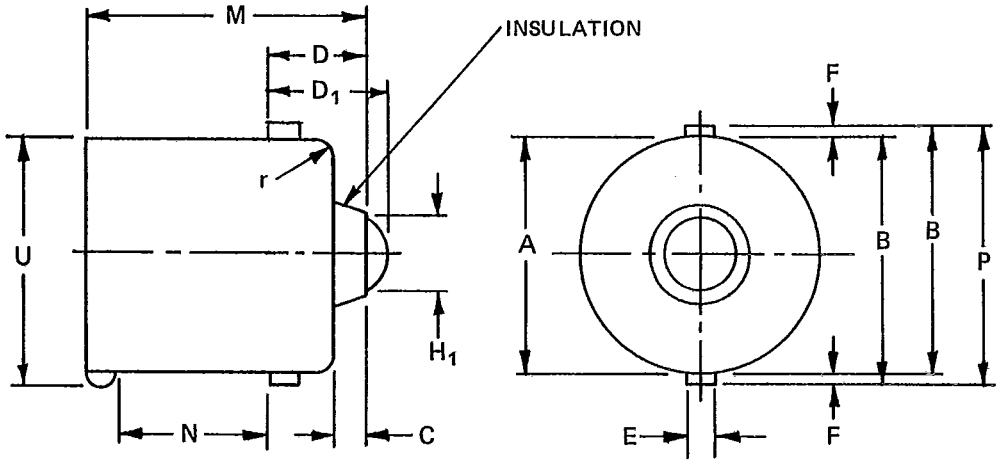
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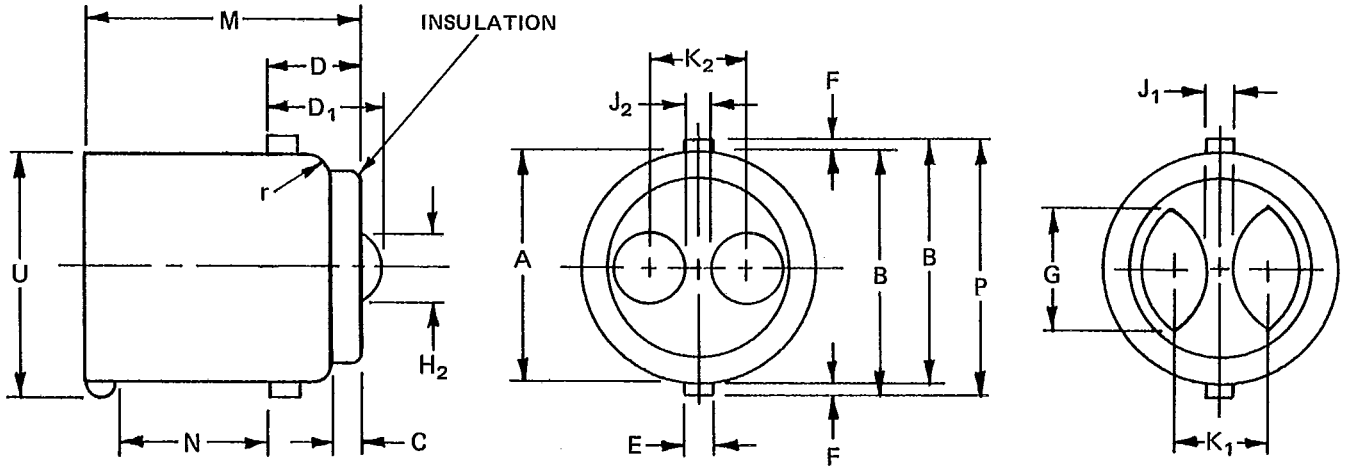
BAY15s and BAY15d Bases

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 Publication 61.

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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	Standard Dimensions (millimeters)				Nearest Equivalent (inch)			
	Unmounted (Note 8)		Finished Lamp		Unmounted (Note 8)		Finished Lamp	
Reference	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	7.50	–	–	0.249	0.295
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 20.75 mm–21.25 mm (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.

Gauging

Gauges have not been developed for this base.

Lampholder

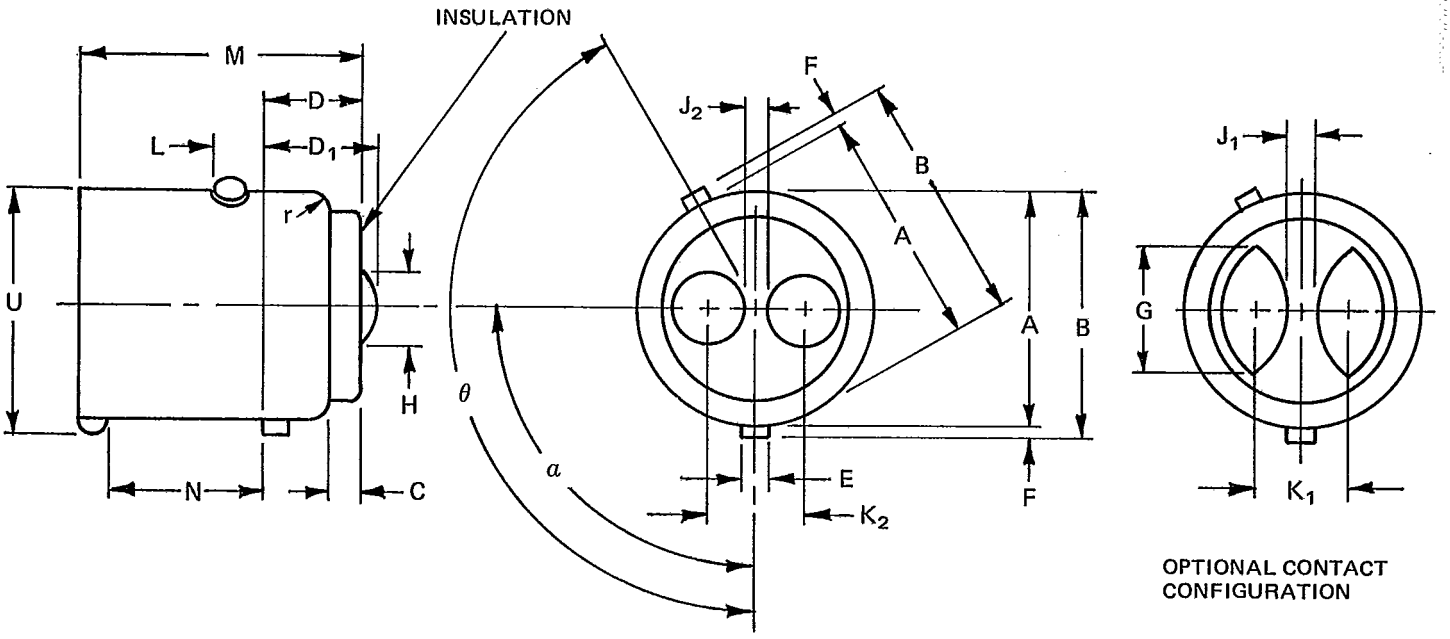
A lampholder standard has not been developed for use with this base standard.

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BAZ15d Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is BAZ15d. This standard sheet is equivalent to IEC Publication 61.

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



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	Standard Dimension (millimeters)				Nearest Equivalent (inch)			
	Unmounted (Note 8)		Finished Lamp		Unmounted (Note 8)		Finished Lamp	
Reference	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	7.50	–	–	0.249	0.295
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)	90° Nom		90° Nom		90° Nom		90° Nom	
θ (degrees)	150° Nom		150° Nom		150° Nom		150° 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 20.75 mm–21.25 mm (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.

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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BAYONET CAP

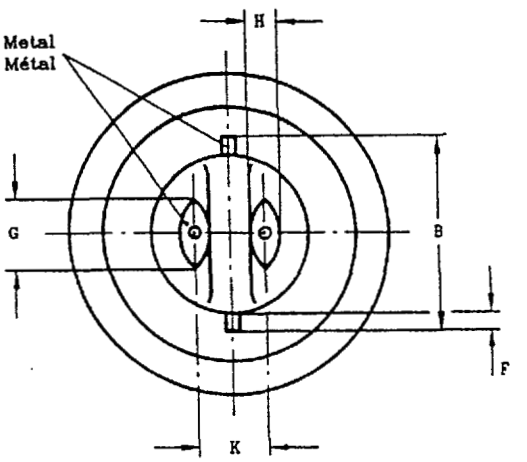
CULOT A BAIONNETTE

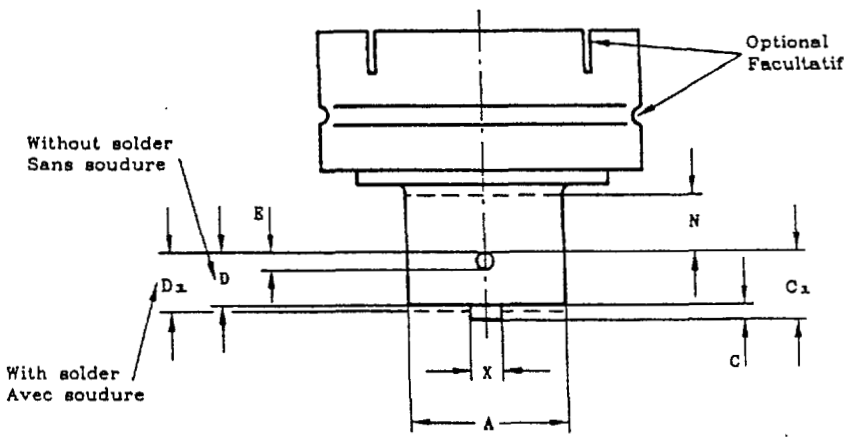
BY22d

Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to indicate the dimensions essential for interchangeability.
Le dessin a pour seul but d'indiquer les dimensions essentielles pour l'interchangeabilité.

For details of lampholder BY22d, see sheet 7005-17.
Pour les détails de la douille BY22d, voir feuille 7005-17.





Caps may be made with a flare, the diameter of which shall be not more than 1 mm* greater than that of the corresponding cap without a flare.
The creepage distances shall, bearing in mind the properties of the insulating material used and the service conditions, be adequate for voltages of 500 V, 750 V or 1 000 V between live parts and between live parts and other metal parts. Specific requirements are under consideration

Les culots peuvent être munis d'un évasement à condition que le diamètre de cet évasement n'excède pas de plus de 1 mm* le diamètre du culot correspondant sans évasement.
La longueur des lignes de fuite doit être fonction du matériau employé et des conditions de service, et être adéquate pour tensions de 500 V, 750 V ou 1 000 V entre les parties sous tension et entre les parties sous tension et autres parties métalliques. Les valeurs à préciser sont à l'étude.

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BAYONET CAP
CULOT A BAIONNETTE
BY22d

Dimensions in millimetres - Dimensions en millimètres

Dimension	Min.	Max.
A	21,5 (3)	22,0 (4)
B (2)	26,5	27,0
C	1,8	-
C_1	-	10,2 (4)
D	7,0	7,5
D_1 (4)	7,5	9,0
E	1,8	2,2
F	Approx. 2,5	
G*	10,0	-
H*	Approx. 6	
K	Approx. 10	
N (1)	6,7 (4)	-
X	-	4,2

* These dimensions are solely for cap design and are not to be gauged on the finished lamp.

(1) Dimension N denotes the minimum length over which both the minimum and maximum limits of dimension A shall be observed. Below dimension N, only the maximum limits for dimension A apply.

(2) To be checked by means of the gauge shown on sheet 7006-4A.

(3) To be checked by means of the gauge shown on sheet 7006-10.

(4) To be checked by means of the gauge shown on sheet 7006-17A.

* Ces dimensions s'appliquent seulement au culot et ne doivent pas être vérifiées sur la lampe terminée.

(1) La dimension N définit l'intervalle minimal le long duquel les limites minimale et maximale de la dimension A doivent être respectées. Au-dessous de l'intervalle N, seules les valeurs maximales de la dimension A sont applicables.

(2) A vérifier avec le calibre selon la feuille 7006-4A.

(3) A vérifier avec le calibre selon la feuille 7006-10.

(4) A vérifier avec le calibre selon la feuille 7006-17A.

GAUGING: Caps BY22d on finished lamps shall fulfil the tests of the gauges shown on sheets 7006-4A, 7006-10 and 7006-17A.

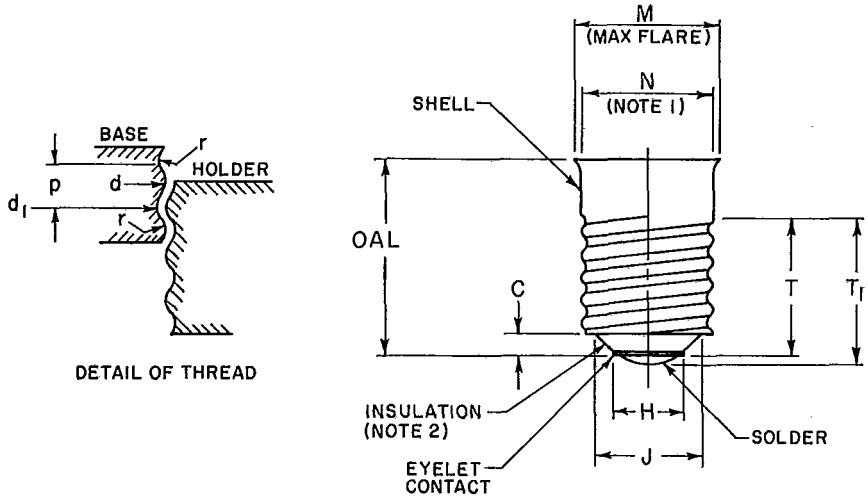
VERIFICATION: Les culots BY22d sur lampes terminées doivent satisfaire aux essais avec les calibres selon les feuilles 7006-4A, 7006-10 et 7006-17A.

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E5 Midget Screw Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is E5. This standard sheet is nearly equivalent to IEC Publication 61.

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



	Standard Dimensions (inch)				Metric Equivalents of Standard Dimensions (millimeters)			
	Unmounted (Note 5)		On Finished Lamps		Unmounted (Note 5)		On Finished Lamps	
Reference	Min	Max	Min	Max	Min	Max	Min	Max
C	0.031	–	0.031	–	0.79	–	0.79	–
H	0.100	0.120	0.100	0.120	2.54	3.05	2.54	3.05
J	–	0.175	–	0.175	–	4.44	–	4.44
T	0.213	–	–	–	5.41	–	–	–
T_1	–	–	0.213	–	–	–	5.41	–
OAL (Notes 3, 4, and 5)	0.310	0.340	–	–	7.87	8.64	–	–
d	0.206	0.210	0.206	0.210	5.23	5.33	5.23	5.33
d_1	–	0.188	–	0.188	–	4.77	–	4.77
M (Note 5)	–	0.228	–	–	–	5.79	–	–
N (Note 5)	0.181	–	–	–	4.60	–	–	–

NOTES:

(1) Minimum inside diameter of unthreaded portion of metal shell.

(2) Spacing over surface of insulator or through air shall not be less than 0.031 inch (0.79 mm).

(3) Bases used on lamps for series-connected decorative applications must have a reduced overall length so that the total base length, including solder, does not exceed 0.359 inch (9.13 mm).

(4) The IEC limits for overall length of the E5/9 base are 0.331 inch min (8.4 mm) to 0.346 inch max (8.8 mm).

(5) These dimensions are solely for base design and are not to be gauged on the finished lamp.

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Form of E5 Midget Screw Threads

Threads per inch	25.4
Pitch of thread, *p*	0.03937 inch (1.00 mm)
Radius of thread, *r*	0.0115 inch (0.293 mm)
Direction of threads	right hand

Gauging

The base on a finished lamp shall enter Gauge 3-100 until the center contact is flush with or projects beyond the gauge surface. From the position where the center contact is flush with the gauge surface, a minimum of two turns shall be required to disengage the thread.

The center contact shall not project beyond the uppermost surface of Gauge 3-101. Only the mass of the gauge itself shall be used.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-100.

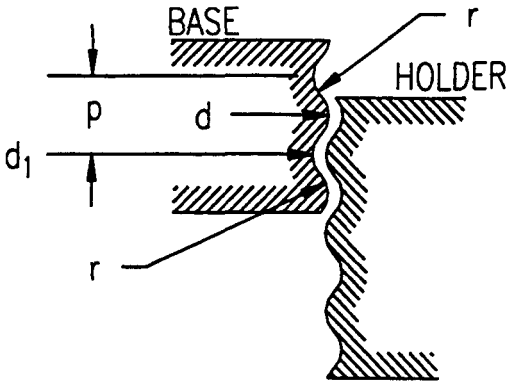
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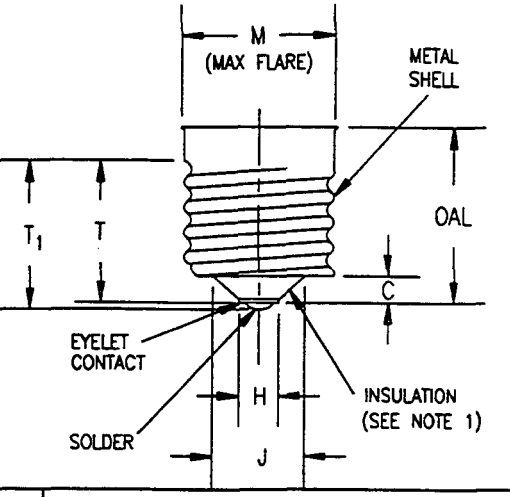
E10 Miniature Screw Base

The dimension assigned to this base by the International Electrotechnical Commission (IEC) is E10/12. This standard sheet is equivalent to IEC 61.

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



DETAIL OF THREAD



Reference	Standard Dimensions (in)				Nearest Metric Equivalent (mm)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished Lamps	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
C	0.055	-	0.055	-	1.40	-	1.40	-
H	0.141	0.172	0.141	0.172	3.58	4.37	3.58	4.37
J	-	0.260	-	0.260	-	6.60	-	6.60
M(Note 2)	-	0.390	-	-	-	9.91	-	-
OAL (Note 2)	0.464	0.504	-	-	11.79	12.81	-	-
T	0.305	-	-	-	7.75	-	-	-
T_1	-	-	0.320	-	-	-	8.13	-
d	0.365	0.375	0.365	*0.375	9.27	9.53	9.27	*9.53
d_1	-	0.335	-	*0.335	-	8.51	-	*8.51

Notes

1 Spacing over surface insulator or through air shall not be less than 0.059 inch (1.5mm).

2 These dimensions are solely for base design and are not to be gauged on the finished lamp.

Form of E10 miniature screw threads

Threads per inch	14
Pitch of thread, *p*	0.07143 inch (1.814mm)
Radius of thread, *r*	0.0210 inch (0.533mm)
Direction of threads	right hand

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First Edition
December 1997

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Gauging:

The center contact shall not project beyond the opposite surface of Gauge 3-111. Only the mass of the gauge itself shall be used.

When the lamp is fully screwed into Gauge 3-112, the center contact shall be in contact with surface x of the gauge and the top edge of the base including solder or any other conductive material shall not protrude above surface z.

See ANSI C81.63 for gauges.

Lampholder:

See ANSI C81.62, Standard Sheet 2-111.

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First Edition
December 1997

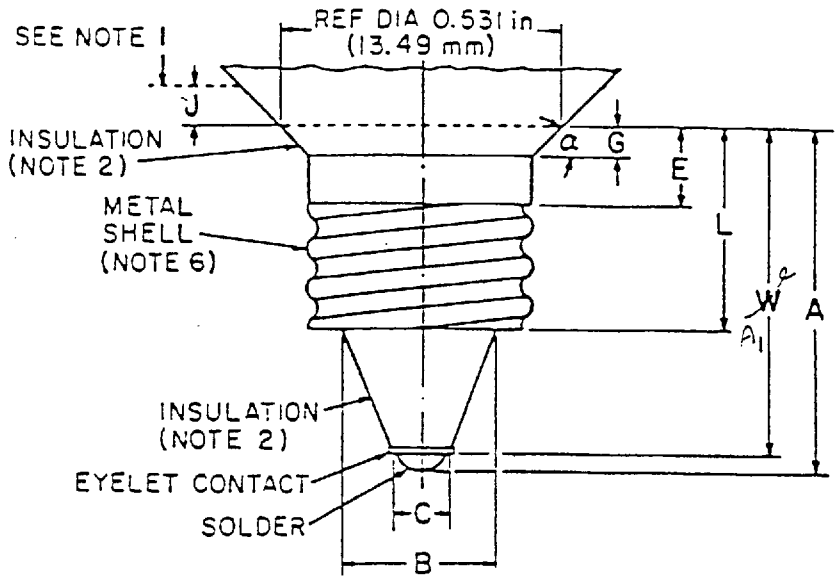
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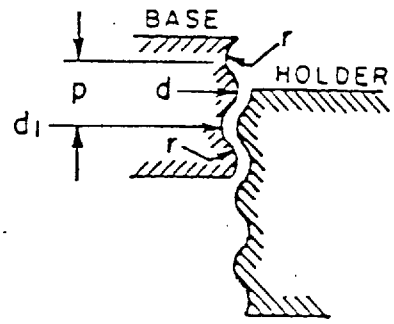
E11 Mini-Can Screw Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is E11. This standard is fully compatible with IEC 61.

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.





DETAIL OF THREAD

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Reference	Standard Dimensions (inches)		Nearest Metric Equivalent (millimeters)	
	Min.	Max.	Min.	Max.
A (Notes 3,4)	0.550	0.615	13.97	15.62
A_1 (Notes 3,5)	0.550	0.590	13.97	14.99
B	–	0.300	–	7.62
C	–	0.140	–	3.56
E (Note 3)	–	0.161	–	4.09
G (Note 3)	0.053	–	1.35	–
J (Note 1)	0.062	–	1.57	–
L (Note 3)	0.370	0.415	9.40	10.54
d	0.415	0.425	10.54	10.80
d_1	–	0.385	–	9.78
$\alpha°$ (degrees)	43°	47°	43°	47°

NOTES
1 Above this line the diameter of the base is not restricted to the conical section shown.
2 Spacing over surface of insulator or through air shall not be less than 0.125-inch (3.18mm).
3 Dimensions A, A_1, E, G, and L are measured from "Ref. Dia." of 0.531-inch (13.49mm).
4 This dimension includes solder.
5 This dimension is solely for base design and is not to be gauged on the finished lamp. This dimension excludes solder, but includes eyelet.
6 The upper edge of the metal shell shall not extend into the conical insulation section.
7 If the metal shell is threaded up to the interface of the insulation, dimension M as defined on the threaded "go" gauge, Std. Sheet 3-123-1, is not a separate form.
8 Dimension r, which is derived from the theoretical thread profile, is not to be checked on the base. The metric equivalent differs slightly from the direct English/metric conversion when dimension r is calculated in the metric system.

Form of Mini-Can Screw Threads

Threads per inch	14
Pitch of thread, *p*	0.0714 inch (1.814mm)
Radius of thread, *r* (Note 8)	0.021 inch (0.531mm)
Direction of threads	right hand

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Gauging

Threaded "Go" Gauge 3-123: When a lamp or unmounted base is screwed into gauge 3-123 the sloping shoulder of the base shall seat against the 45° shoulder at the entrance to the gauge. In this position the bottom of the metal shell shall be coplanar with or project beyond surface r and shall not project beyond surface s.. The ultimate position of the center contact shall be below surface x but shall not project beyond surface y.

The torque required to seat the lamp shall not exceed 4 inch pounds (0.45 newton meter). During removal, at least two full turns shall be necessary to disengage the threads.

See ANSI C81.63, standard sheet 3-123 for gauge.

Lampholder

See ANSI C81.62, Std. Sheet 2-123.

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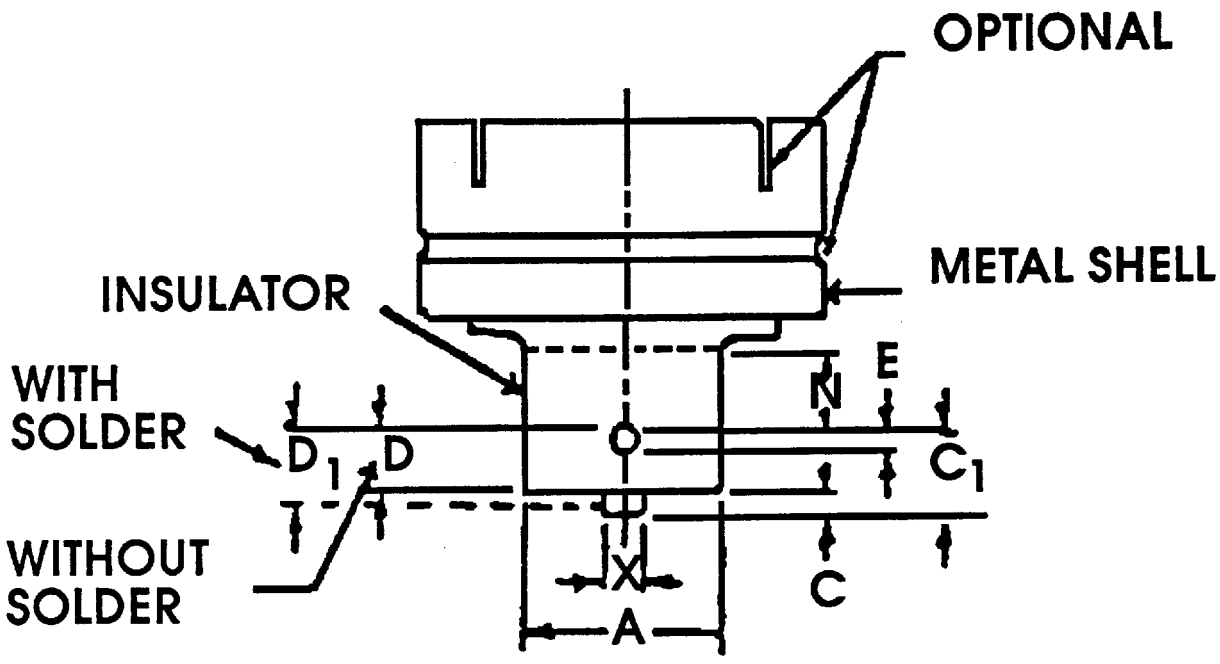
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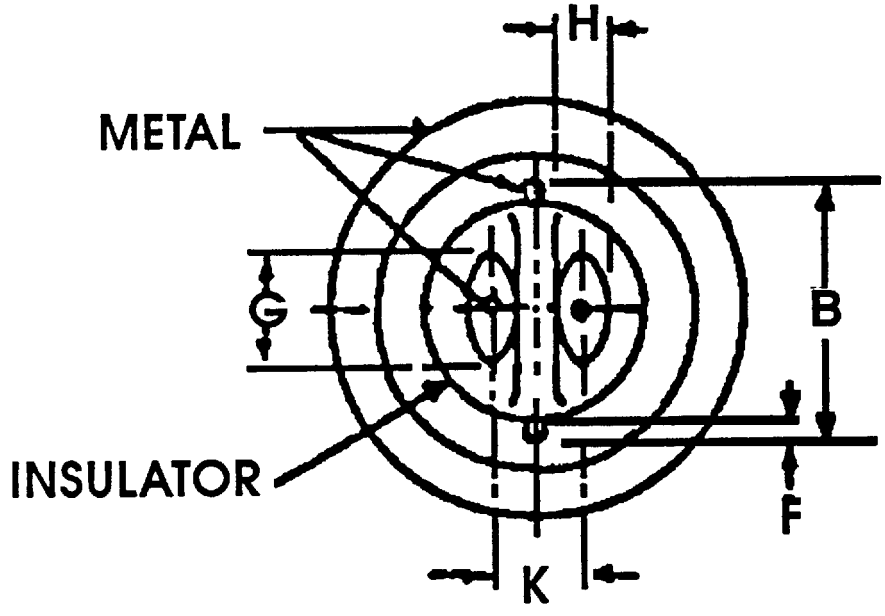
BY22d Base

ANSI C81.61a-1993
Std Sheet 1-30-2
Page 1

The designation assigned to this base by the International Electrotechnical Commision (IEC) is BY22d. This standard sheet is equivalent to IEC Publication 61.

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





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Reference	Dimensions (millimeters) Min	Max.
A (Note 1)	21.5	22.1
B (Note 2)	26.5	27.0
C	1.3	—
C_1 (Note 3)	—	10.2
D	7.0	7.5
D_1 (Note 3)	7.5	9.0
E (dia.)	1.8	2.2
F	2.5 approx	
G (Note 4)	10.0	—
H (Note 4)	6.0 approx	
K (Note 4)	10.0 approx	
N (Notes 2, 5)	6.7	—
X	—	4.2

NOTES:
(1) To be checked by the gauge shown on Standard Sheet 3-30
(2) To be checked by the gauge shown on Standard Sheet 3-32
(3) To be checked by the gauge shown on Standard Sheet 3-31
(4) These dimensions are solely for base design and are not to be gauged on the finished lamp.
(5) Dimension N denotes the minimum length over which both the minimum and maximum limits of dimension A shall be observed. Below dimension N, only the limits for dimension A maximum apply.
(6) Bases may be made with a flare, the diameter of which shall be not more than 1 mm greater than that of the corresponding base without a flare.

Gauging

"Not-go" Gauge 3-30: The bases on finished lamps shall be assumed to be correct if the gauge does not pass over the base by its own weight.

"Go" Gauge 3-31: With the bayonet pins in contact with surface S of the gauge, the contact-making surfaces shall be coplanar with or fall between the surface X and Z, and the extreme end of the base shall not project beyond surface W. Dimension A of the gauge checks the diameter of the base for a sufficient length to ensure interchangeability of the base in the holders.

Gauge for Testing Insertion, Gauge 3-32: It shall be possible to insert the base into the gauge without using undue force until the pins have passed completely through the slots.

Lampholders

See ANSI C81.62-1991, Standard Sheet 2-30.

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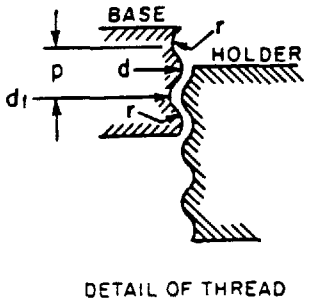
E12 Candelabra Screw Base

ANSI C81.61a-1993
Std Sheet 1-131-2
Page 1

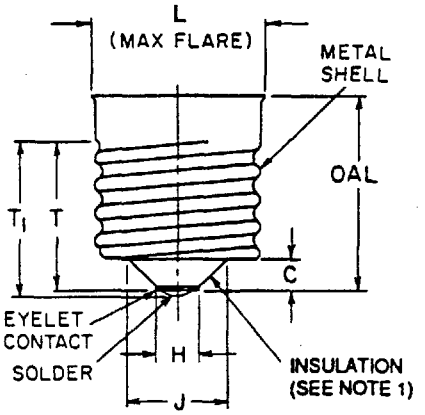
The designation assigned to this base, according to the coding system of the International Electrotechnical Commission (IEC), is E12/15.

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.



DETAIL OF THREAD



	Standard Dimensions (inch)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished Lamps	
Reference	Min	Max.	Min	Max.	Min	Max.	Min	Max.
C	0.063	—	0.063	—	1.60	—	1.60	—
H	0.141	0.172	0.141	0.172	3.58	4.37	3.58	4.37
J	—	0.290	—	0.290	—	7.37	—	7.37
L (Note 2)	—	0.485	—	—	—	12.32	—	—
OAL (Note 2)	0.574	0.614	—	—	14.58	15.60	—	—
T	0.420	—	—	—	10.66	—	—	—
T_1	—	—	0.440	—	—	—	10.17	—
d (Note 3)	0.455	0.465	0.455	0.468	11.56	11.81	11.56	11.89
d_1 (Note 3)	—	0.415	—	0.418	—	10.54	—	10.62

NOTES:

(1) Spacing over surface of insulator or through air shall not be less than 0.079 inch (2 mm).

(2) These dimensions are solely for base design and are not to be gauged on the finished lamp.

(3) The metric equivalents of dimensions d max. and d_1 max. are rounded upward to achieve better international harmonization.

(4) Dimension r, which is derived from the theoretical thread profile, is not to be checked on the base.

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Form of E12 Candelabra Screw Threads	
Threads per inch	10
Pitch of thread, *p*	0.1000 inch (2.540 mm)
Radius of thread, *r*	0.0312 inch (0.792 mm)
Direction of threads	Right hand

Gauging

Threaded "Go" Gauge 3-130: When the lamp is fully screwed into the gauge, 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.

"Go" Ring Gauge 3-131: The gauge shall pass over the threads of the base. The maximum force used shall not exceed 1.0 lb (4.5 N).

Gauge 3-131 should be used only in conjunction with gauge 3-130.

"Not-go" Ring Gauge 3-132: When the chamfered end of the gauge is placed over the base threads 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 this test.

Note: Gauge 3-132 may also be used on unmounted bases.

Gauge for Checking Contact-making, Gauge 3-133: The shape of the lamp with regard to the fit in the lampholder is assumed to be correct if the lamp can be pushed into the gauge until gauge surface W reaches surface V or projects beyond it.

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

See ANSI C81.63-1991 for gauges.

Lampholder

See ANSI C81.62-1990, Standard Sheet 2-131.

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SCREW CAP

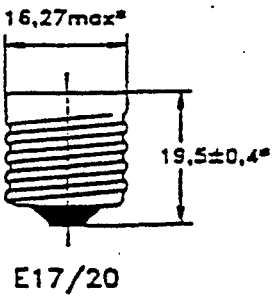
CULOT A VIS

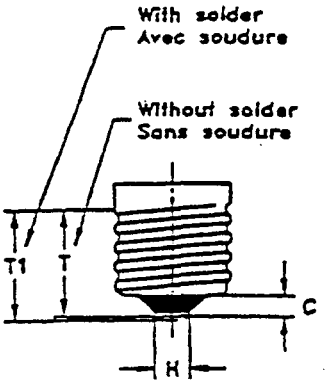
E17

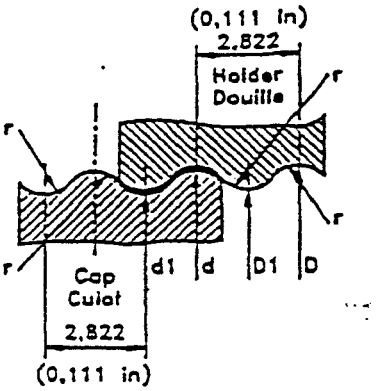
Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holder E17, see sheet 7005-20.
Pour les détails de la douille E17, voir feuille 7005-20.







Caps may be made with a flare* the diameter of which shall be not more than 1 mm greater than the maximum permissible diameter of the corresponding cap without a flare.

Les culots peuvent être munis d'un évasement* à condition que le diamètre de cet évasement n'excède pas de plus de 1 mm le diamètre maximal permis du culot correspondant sans évasement.

* These dimensions are solely for cap design and are not to be gauged on the finished lamp.
(1) This dimension is checked with a millimetre scale.
(2) "T" is the distance from the contact plate to the completion of the effective thread.
(3) "T1" is the distance from the soldered contact plate to the completion of the effective thread.

* Ces dimensions s'appliquent seulement à la conception du culot et n'ont pas à être vérifiées sur la lampe terminée.
(1) Cette dimension est vérifiée avec une règle millimétrée.
(2) «T» s'entend depuis la plaquette de contact jusqu'à l'endroit où le filetage cesse d'être effectif.
(3) «T1» s'entend depuis la plaquette de contact soudée jusqu'à l'endroit où le filetage cesse d'être effectif.

		Standard dimensions Dimensions normalisées			
		Unmounted caps* Culots non assemblés*		Caps on finished lamps Culots sur lampes terminées	
	Dimension	Min.	Max.	Min.	Max.
Cap Culot	C	2,36	–	2,36	–
	H (1)	4,0	5,2	4,0	5,2
	T (2)	14,5	–	–	–
	T1 (3)	–	–	15,24	–
	d	16,28	16,54	16,28	16,64
	d1	–	15,16	–	15,27
	r	0,897			

	Dimension	Min.	Max.
Holder Douille	D	16,69	16,87
	D1	15,32	15,49
	r	0,897	

Nearest equivalents in inches Equivalents arrondis en pouces			
Unmounted caps* Culots non assemblés*		Caps on finished lamps Culots sur lampes terminées	
Min.	Max.	Min.	Max.
0,093	–	0,093	–
0,157	0,205	0,157	0,205
0,570	–	-	–
–	–	0,600	–
0,641	0,651	0,641	0,655
–	0,597	–	0,601
0,0353			

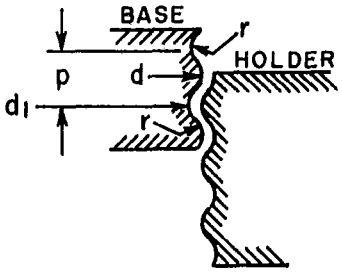
Min.	Max.
0,657	0,664
0,603	0,610
0,0353	

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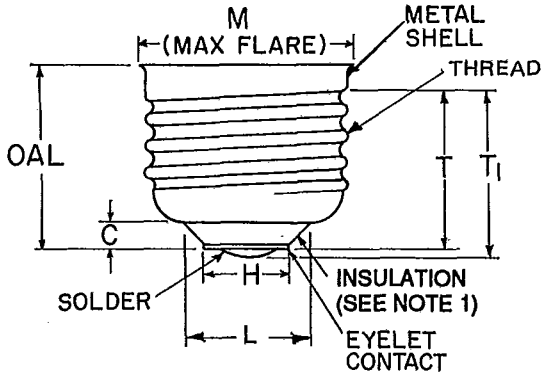
E26/24 Single-Contact Medium Screw Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is E26/24. This standard sheet is nearly equivalent to IEC Publication 61.

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



DETAIL OF THREAD



RIGHT-HAND THREAD SHOWN

	Standard Dimensions (inches)				Metric Equivalents of Standard Dimensions (millimeters)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished Lamps	
Reference	Min	Max	Min	Max	Min	Max	Min	Max
C	0.128	–	0.128	–	3.25	–	3.25	–
H	0.360	0.455	0.360	0.455	9.14	11.56	9.14	11.56
L	0.600	0.670	0.600	0.670	15.24	17.01	15.24	17.01
M (Note 2)	–	1.085	–	–	–	27.56	–	–
OAL (Note 2)	0.917	0.957	–	–	23.29	24.31	–	–
T	0.770	–	–	–	19.56	–	–	–
T_1	–	–	0.770	–	–	–	19.56	–
d	1.029	1.037	1.029	1.041	26.14	26.34	26.14	26.45
d_1	–	0.971	–	0.975	–	24.66	–	24.77

NOTES:
(1) Spacing over surface of insulator or through air shall not be less than 0.118 inch (3 mm).
(2) These dimensions are solely for base design and are not to be gauged on the finished lamp.

Form of E26 Medium Screw Threads

Threads per inch	7
Pitch of thread, *p*	0.14286 inch (3.629 mm)
Radius of thread, *r*	0.0469 inch (1.191 mm)
Direction of threads	right hand or left hand

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Gauging
When a lamp is fully screwed into Gauge 3-156, the center contact of the base shall be in contact with 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 3-158. Only the mass of the gauge itself shall be used in the test.

When a base is fully screwed into Gauge 3-159, the minimum depth (T) shall be attained.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-157.

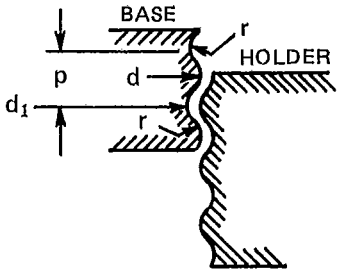
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E26d Double-Contact Medium Screw Base

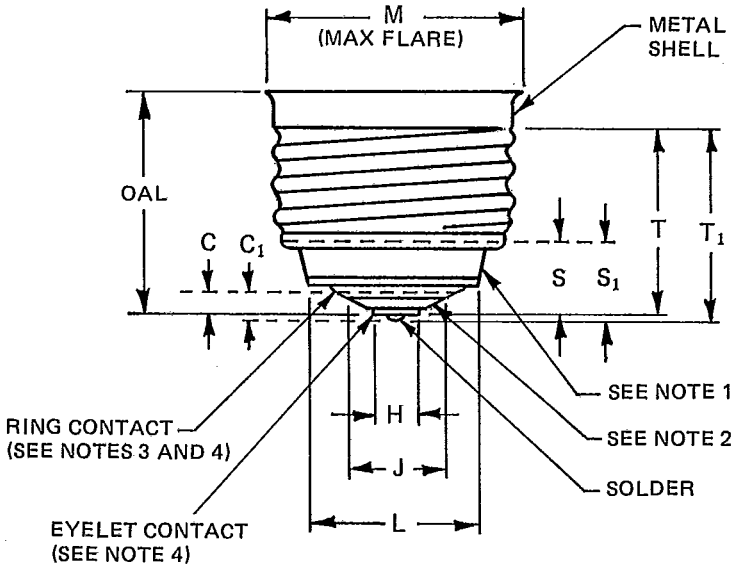
The designation assigned to this base by the International Electrotechnical Commission (IEC) is E26d.

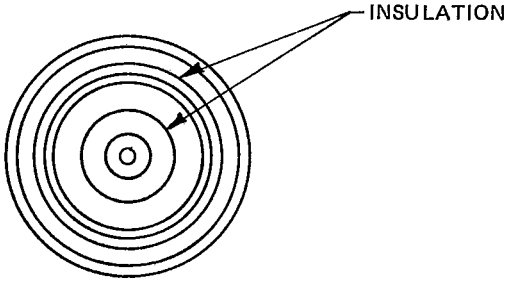
This standard sheet is nearly equivalent to IEC Publication 61.

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



DETAIL OF THREAD





C, S, T – WITHOUT EYELET SOLDER
C_1, S_1, T_1 – WITH EYELET SOLDER

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	Standard Dimensions (inches)				Metric Equivalents of Standard Dimensions (millimeters)			
	Unmounted (Note 7)		On Finished Lamps		Unmounted (Note 7)		On Finished Lamps	
Reference	Min	Max	Min	Max	Min	Max	Min	Max
C (Note 5)	0.009	0.105	–	–	0.23	2.67	–	–
C_1 (Note 5)	–	–	0.031	0.125	–	–	0.79	3.17
H	0.172	0.203	0.172	0.203	4.37	5.16	4.37	5.16
J	0.330	0.410	0.330	0.410	8.38	10.41	8.38	10.41
L	0.610	0.760	0.610	0.760	15.49	19.30	15.49	19.30
M (Note 7)	–	1.085	–	–	–	27.56	–	–
OAL	0.917	0.957	–	–	23.29	24.31	–	–
S (Note 6)	0.200	0.305	–	–	5.08	7.75	–	–
S_1 (Note 6)	–	–	0.200	0.325	–	–	5.08	8.25
T	0.759	–	-	–	19.27	–	–	–
T_1	–	–	0.770	–	–	–	19.56	–
d	1.029	1.037	1.029	1.042	26.14	26.34	26.14	26.47
d_1	–	0.971	–	0.976	–	24.66	–	24.79

NOTES:

(1) Spacing over surface of insulator or through air shall not be less than 0.118 inch (3 mm).

(2) Spacing over surface of insulator or through air shall not be less than 0.047 inch (1.19 mm).

(3) The ring contact may be either circular or noncircular, and may be either conical or flat (for purposes of illustration the contact in the drawing has been made circular and conical). Noncircular contacts shall have a maximum OD (outside diameter) at any point not exceeding L max and a minimum OD at any point not less than L min.

(4) The eyelet and ring contacts shall not be of opposite polarity.

(5) The limits shown for these dimensions are applicable at all points between reference diameters of 0.410 inch (10.4 mm) and 0.520 inch (13.2 mm). (See ANSI C81.63, Standard Sheets 3-163 and 3-164.)

(6) These dimensions shall be checked from a measuring circle having a diameter of 0.906 inch (23 mm). These dimensions are required for compliance with IEC Publication 61. They are not part of this American National Standard.

(7) These dimensions are solely for base design and are not to be gauged on the finished lamp.

Form of E26 Medium Screw Threads

Threads per inch	7
Pitch of thread, *p*	0.14286 inch (3.629 mm)
Radius of thread, *r*	0.0469 inch (1.191 mm)
Direction of threads	right hand

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Gauging
When a lamp is fully screwed into Gauge 3-156, the center contact of the base shall be in contact with 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 end of Gauge 3-158. Only the mass of the gauge itself shall be used in the test.

When an unmounted base is fully screwed into Gauge 3-159, the minimum depth (T) shall be attained. During removal, at least two full turns shall be required to disengage the threads. The base shall be screwed into the gauge with a torque not exceeding 7 in-lbs (0.785 Nm).

When the base of a lamp is pushed into Gauge 3-163 as far as possible, surface w shall not project beyond surface v. For an unmounted base, surface w shall not project beyond surface x.

When the base of a lamp is pushed into Gauge 3-164 as far as possible, surface w shall reach or project beyond surface v.

It shall be possible to insert a lamp into Gauge 3-165 until surface w reaches or projects beyond surface v. When surfaces v and w are coincident, the top of the base, including any solder or other conductive material, shall not extend above surface y.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-158.

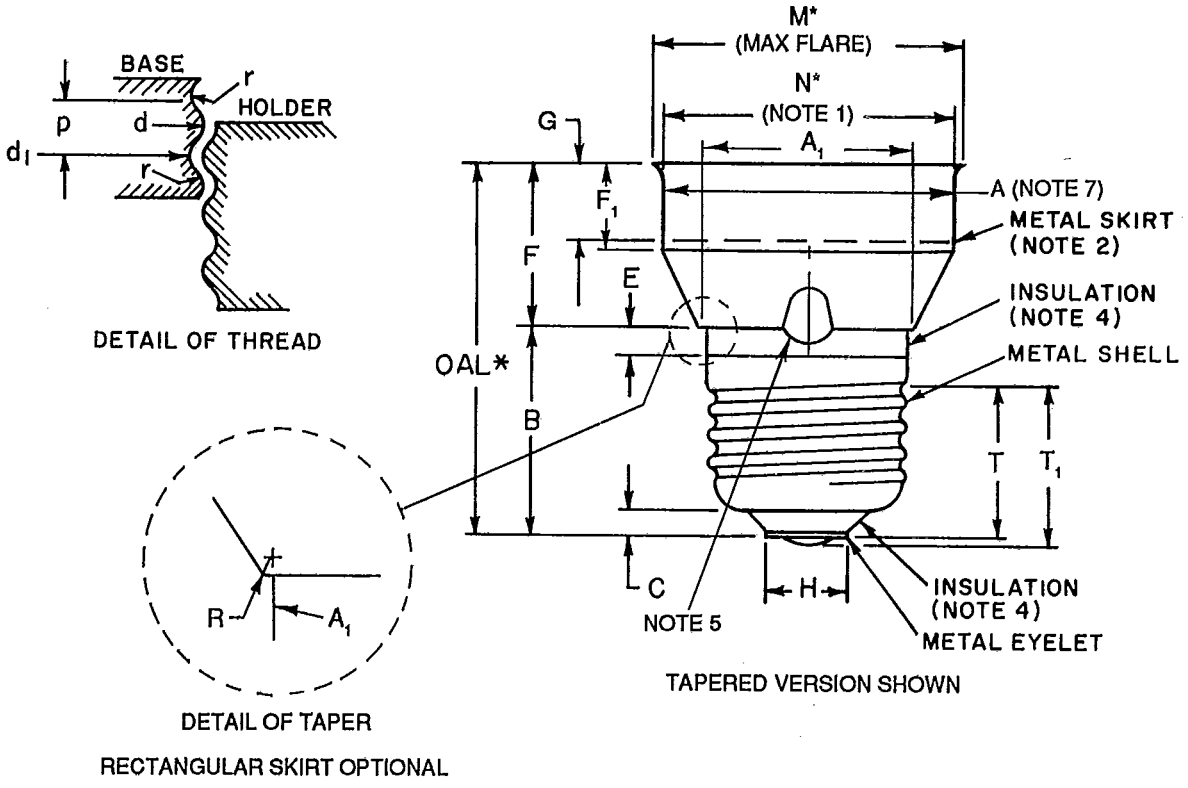
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E26/50 × 39 Skirted Medium Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is E26/50 × 39. 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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	Standard Dimensions (inches)				Metric Equivalents of Standard Dimensions (millimeters)			
	Unmounted (Note 7)		On Finished Lamps		Unmounted (Note 7)		On Finished Lamps	
Reference	Min	Max	Min	Max	Min	Max	Min	Max
A (Note 7)	1.535 Nom		–	–	39.0 Nom		–	–
A_1 (Note 6)	–	1.220	–	1.220	–	31.0	–	31.0
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_1 (Note 6)	0.512	0.551	0.512	0.551	13.0	14.0	13.0	14.0
F	0.859	0.890	0.859	0.890	21.82	22.61	21.82	22.61
G (Note 3)	0.394	–	0.394	–	10.00	–	10.00	–
H	0.360	0.455	0.360	0.455	9.14	11.56	9.14	11.56
M	–	1.585	–	–	–	40.26	–	–
N (Notes 1, 3)	1.485	1.515	–	–	37.72	38.48	–	–
OAL	1.922	1.984	–	–	48.82	50.39	–	–
R	0.040 Nom		0.040 Nom		1.0 Nom		1.0 Nom	
T	0.759	–	–	–	19.28	–	–	–
T_1	–	–	0.770	–	–	–	19.56	–
d	1.029	1.042	1.029	1.042	26.14	26.47	26.14	26.47
d_1	–	0.976	–	0.976	–	24.79	–	24.79

NOTES:
(1) Inside diameter.
(2) Variations in the skirt slots, if used, are not covered by this standard.
(3) Minimum length over which dimension A is applicable.
(4) Spacing over surface of insulation or through air shall not be less than 0.118 inch (3.0 mm).
(5) For finished lamps, the spacing over surface of insulator or through air between the insulated skirt and live parts shall not be less than 0.079 inch (2.0 mm). Future objective: 0.118 inch (3.0 mm).
(6) Dimension A_1 and F_1 apply only to the tapered skirt design option, as shown.
(7) Outside dimension.
* These dimensions are solely for base design and are not to be gauged on finished lamps.

Form of E26 Medium Screw Threads

Threads per inch	7
Pitch of thread, *p*	0.14286 inch (3.629 mm)
Radius of thread, *r*	0.0469 inch (1.191 mm)
Direction of threads	right hand

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Gauging
When a lamp is fully screwed into Gauge 3-156, the center of contact of the base shall be in contact with 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 end of Gauge 3-158. Only the mass of the gauge itself shall be used in the test.

When a mounted base on a finished lamp is fully screwed into Gauge 3-160, the center contact shall be in contact with surface x of the gauge. During removal, at least two full turns shall be necessary to disengage the threads.

It shall be possible to insert a lamp into Gauge 3-166 until surface w reaches surface v or projects beyond it. When surfaces v and w are coincident, the top of the base, including any solder or other conductive material, shall not extend above surface y.

See ANSI C81.63 for gauges.

Related Standard Sheet
Specifications for the E26 Base are shown on ANSI C81.61, Standard Sheet 1-157.

Lampholder
See ANSI C81.62, Standard Sheet 2-157.

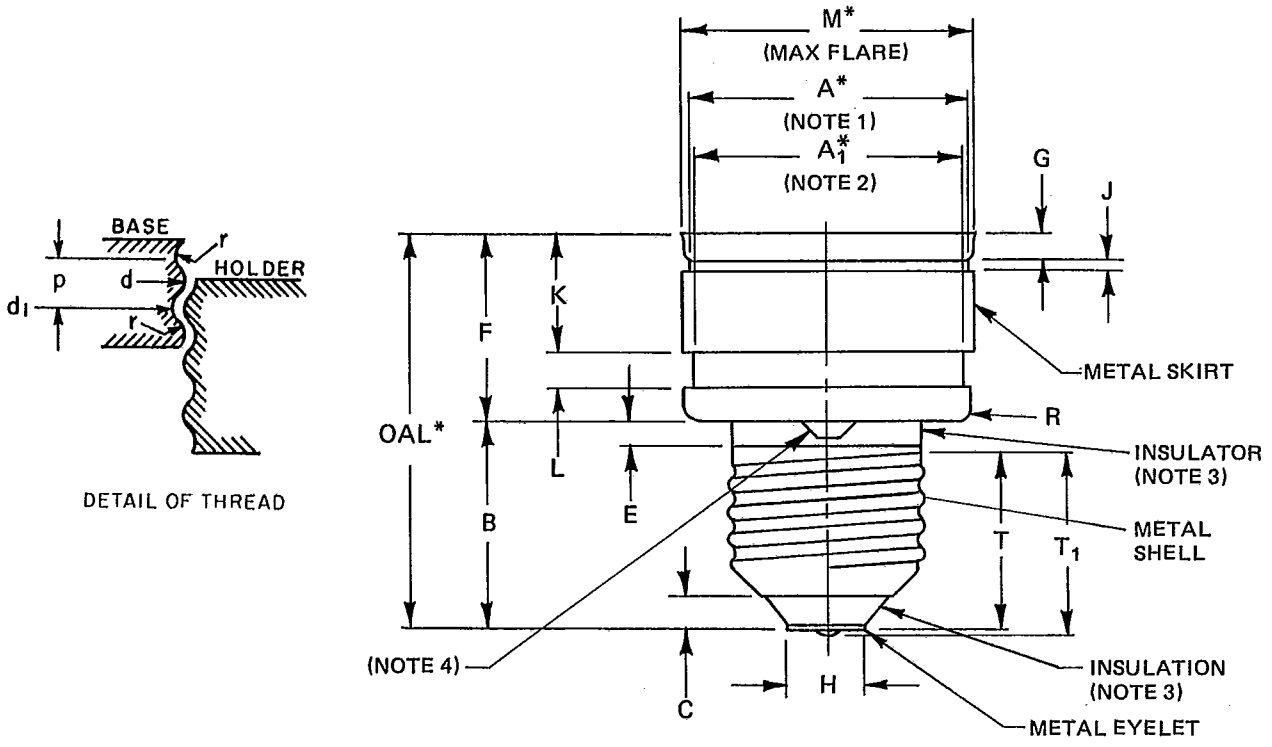
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E26/53 × 39 Skirted Medium Screw Base

The designation assigned to this base in accordance with the coding system of the International Electrotechnical Commission (IEC) is E26/53 × 39. 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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	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted*		On Finished Lamps		Unmounted*		On Finished Lamps	
Reference	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	1.029	1.042	1.029	1.042	26.14	26.47	26.14	26.47
d_1	–	0.976	–	0.976	–	24.79	–	24.79

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 (3.00 mm).
(4) For finished lamps, the spacing between the insulated skirt and live parts in the wireway shall not be less than 0.079 inch (2.00 mm). (Future objective: 0.118 inch [3.00 mm]).
(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 3-158 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 3-165, 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 y.

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 2-157.

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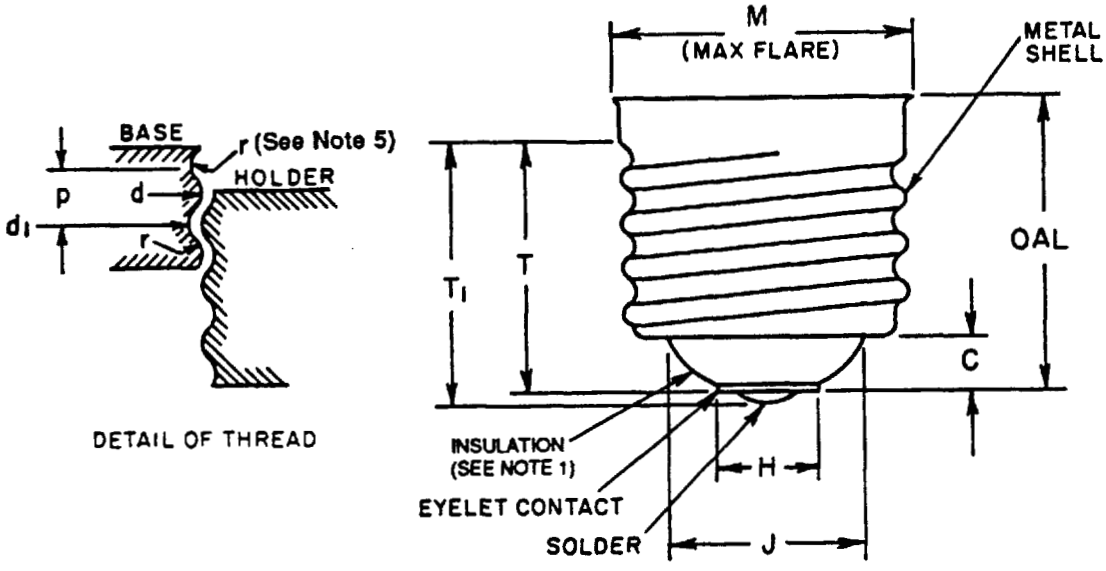
E39 Mogul Screw Base

ANSI C81.61a-1993
Std Sheet 1-185-2

The designation assigned to this base by the International Electrotechnical Commission (IEC) is E39.

This standard sheet is nearly equivalent to IEC Publication 61.

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



	Standard Dimensions (millimeters)				Nearest Metric Equivalent (inches)			
	Unmounted (Note 2)		On Finished Lamps		Unmounted (Note 2)		On Finished Lamps	
Reference	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	0.950	—	—	—	24.10	—	—	—
M (Note 2)	—	1.585	—	—	—	40.26	—	—
OAL (Note 3)	1.595	1.655	—	—	40.51	42.04	—	—
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 3)	—	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 min is established to assure displacement of ring-shaped intermediate contacts in E39d lampholders, thus avoiding contact with the base shell.

(3) These dimensions are solely for base design and are not to be gauged on the finished lamp.

(4) The metric equivalents for dimensions d_{max} and d_{1max} 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.

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Form of E39 Candelabra 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
Threaded "Go" Gauge 3-185: When a lamp is fully screwed into gauge 3-185, the center contact of the base shall be in contact with surface X of the gauge. During removal, at least two full turns shall be necessary to disengage the threads.

"Not-go" Ring Gauge 3-186: The center contact of a base shall not project beyond the opposite surface of gauge 3-186. Only the mass of the gauge itself shall be used in the test.

Gauge for Testing Contact-making, Gauge 3-187: It shall be possible to insert the lamp into gauge 3-187 until gauge 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 3-187 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 C81.63-1991 for gauges.

Related Standard Sheet
Specifications for the EP39 base are shown on Standard Sheet 1-202.

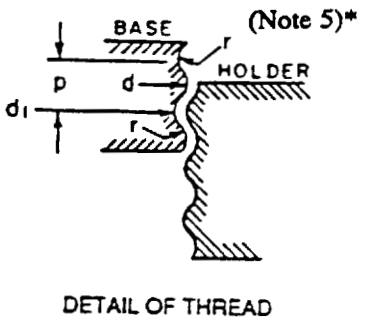
Lampholder
See ANSI C81.62-1991, Standard Sheet 2-185.

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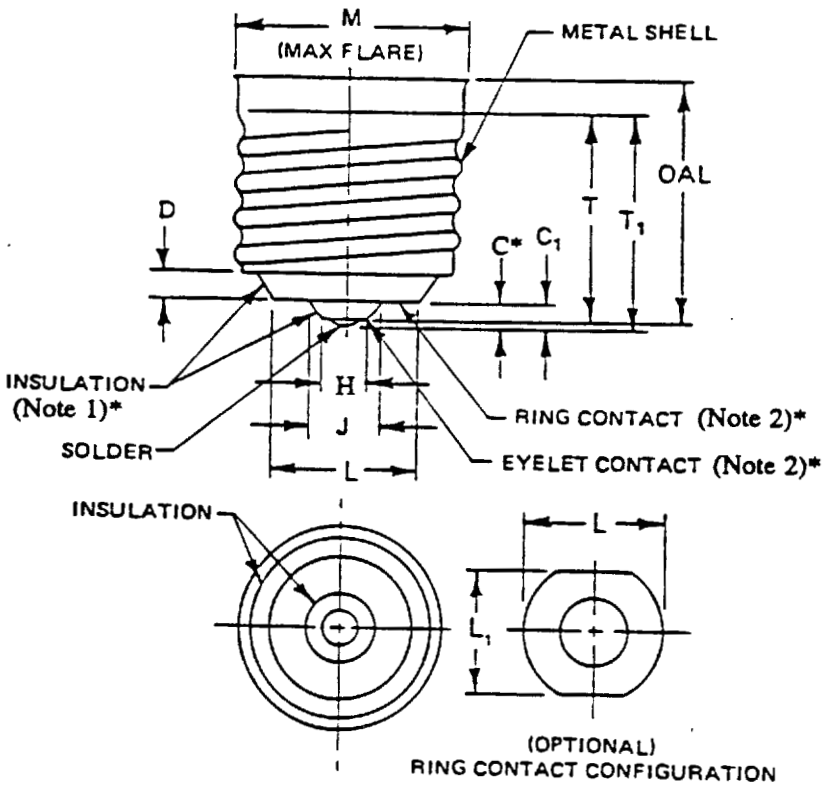
E39d DOUBLE-CONTACT MOGUL SCREW BASE

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.

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



DETAIL OF THREAD



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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.

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Form of E39 Mogul Screw Threads

Threads per inch	4
Pitch of thread, *p*	0.25000 inch (6.350 mm)
Radius of thread, *r*	0.09060 inch (2.301 mm)
Direction of threads	right hand

GAUGING

Threaded "go" gauge, 3-185: When the lamp is fully screwed into Gauge 3-185, 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, 3-186: When the chamfered end of Gauge 3-186 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, 3-187: It shall be possible to insert the lamp into Gauge 3-187 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 3-187 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.

LAMPHOLDER

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

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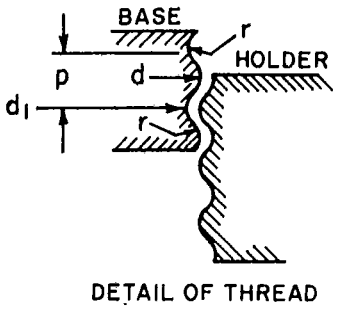
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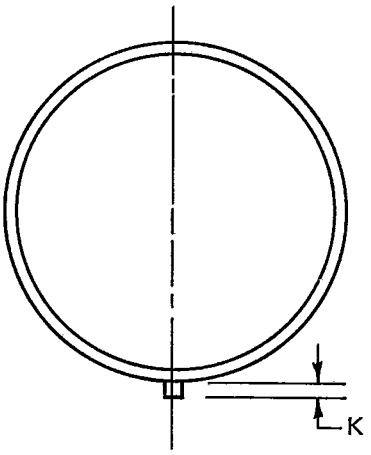
EP39 Position-Oriented Mogul Screw Base

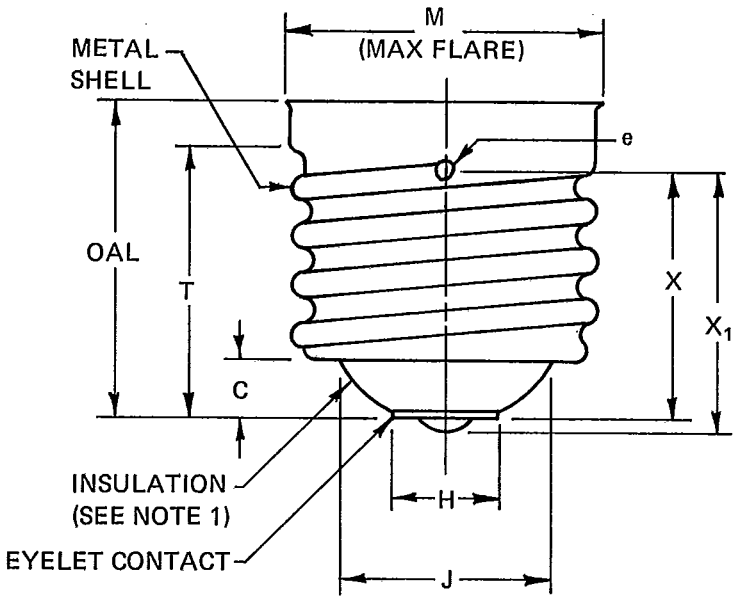
The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is EP39. At the time of publication there was no comparable IEC standard in existence.

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



DETAIL OF THREAD





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	Standard Dimensions (millimeters)				Nearest Metric Equivalent (inches)			
	Unmounted (Note 3)		On Finished Lamps		Unmounted (Note 3)		On Finished Lamps	
Reference	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	–	1.250	–	–	–	31.75	–	–
K	0.062	0.094	–	–	1.59	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 2)	1.000	1.031	–	–	25.40	26.19	–	–
X_1	–	–	1.000	1.047	–	–	25.93	26.59
d	1.542	1.555	1.542	1.560	39.17	39.50	39.17	39.62
d_1	–	1.455	–	1.460	–	36.96	–	37.08
e (dia)	0.090	0.095	–	–	2.36	2.41	–	–

NOTES:
(1) Spacing over surface of insulator or through air shall not be less than 0.200 inch (5.08 mm).
(2) Pin is located on major thread diameter d.
(3) These dimensions are solely for base design and are not to be gauged on finished lamps.

Form of EP39 Mogul Screw Threads

Threads per inch	4
Pitch of thread, *p*	0.25000 inch (6.350 mm)
Radius of thread, *r*	0.0905 inch (2.301 mm)
Direction of threads	right hand

Gauging
The center contact of a base shall not project beyond the opposite surface of Gauge 3-186. Only the mass of the gauge itself shall be used in the test.

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

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

When Gauge 3-187 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
Specifications for the E39 base are shown on Standard Sheet 1-185.

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

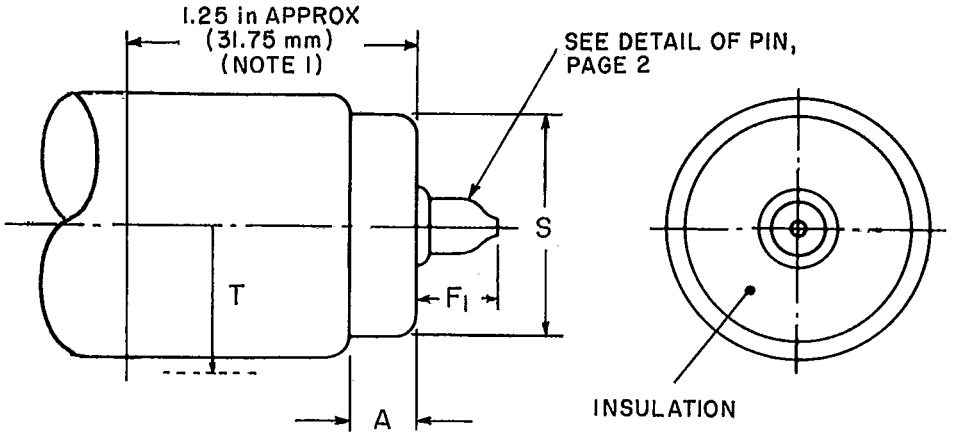
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Fa8 Single-Pin Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is Fa8. This standard sheet is equivalent to IEC Publication 61.

Single-pin bases are generally used on fluorescent lamps with T6, T8, or T12 bulbs.

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



	Standard Dimensions (inches)		Nearest Metric Equivalent (millimeters)	
Reference	Min	Max	Min	Max
A	0.343	–	8.71	–
F_1	–	0.380	–	9.65
S (Note 2)	–	0.750 (T6)	–	19.05 (T6)
	–	1.017 (T8)	–	25.83 (T8)
	–	1.438 (T12)	–	36.52 (T12)
T (Note 3)	–	0.430 (T6)	–	10.92 (T6)
	–	0.555 (T8)	–	14.10 (T8)
	–	0.800 (T12)	–	20.32 (T12)

NOTES:

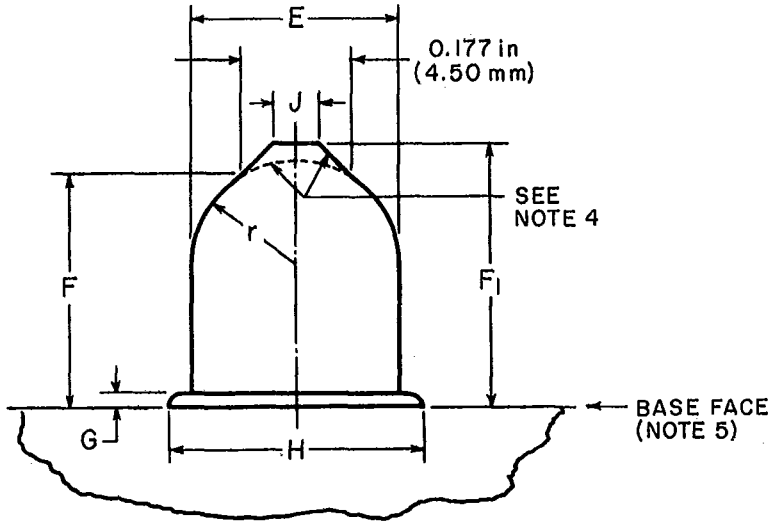
(1) Represents length of lamp over which dimension T is applicable.

(2) Maximum base shell diameter (S) is shown separately for T6, T8, and T12 bulb lamps.

(3) The T dimension includes allowance for possible offset of the bulb axis with respect to the base axis. This dimension is shown separately for T6, T8, and T12 bulb lamps.

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ANSI C81.61-1990
Std Sheet 1-250-1



DETAIL OF PIN

Reference	Standard Dimensions (inch) Min	Max	Nearest Metric Equivalent (millimeters) Min	Max
E	0.300	0.325	7.62	8.26
F	0.271	0.323	6.88	8.20
F_1	–	0.380	–	9.65
G	–	0.020	–	0.51
H	–	0.380	–	9.65
J	–	0.065	–	1.65
r	0.150	0.1625	3.81	4.13

NOTES:
(4) End of pin may either be hemispherical in shape or have a tip falling within the limits shown.
(5) The base face is that surface of the base that contacts the lampholder.

Gauging

It shall be possible for the pin of a base of a lamp to enter Gauge 3-250 until the base face is in full contact with surface x of the gauge. In this position, the gauge plunger shall reach surface y, but not project beyond surface z.

Attempt to insert the pin of a lamp into Gauge 3-251. It shall not enter far enough to permit the base face to come in contact with surface x of the gauge.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-250.

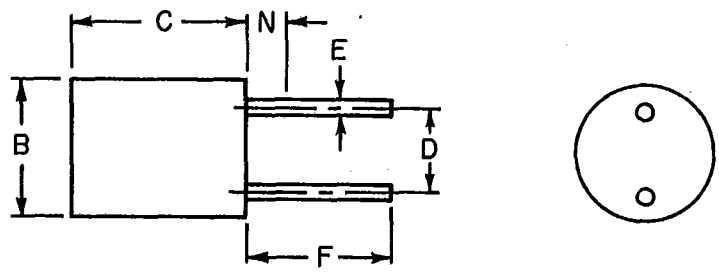
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G1.3–2.4 Subminiature Bipin Base for T3/4 Lamps

The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is G1.3–2.4. At the time of issuance of this standard sheet, 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.



	Standard Dimensions (inch)			Nearest Metric Equivalent (millimeters)		
Reference	Min	Nom	Max	Min	Nom	Max
B	0.090	–	0.100	2.29	–	2.54
C (Note 1)	0.120	–	0.130	3.05	–	3.30
D	0.045	–	0.055	1.14	–	1.40
E	0.018	–	0.022	0.46	–	0.56
F (Note 2)	–	0.190 approx	0.022	–	4.83 approx	–
N (Note 3)	0.062	–	–	1.57	–	–

NOTES:
(1) Some existing designs have dimensions of 0.095 inch–0.105 inch (2.41 mm–2.67 mm).
(2) Length of pin may vary in accordance with application.
(3) Dimension N denotes the minimum length over which dimension D applies.

Gauging

Gauges have not been developed for this base.

Lampholder

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

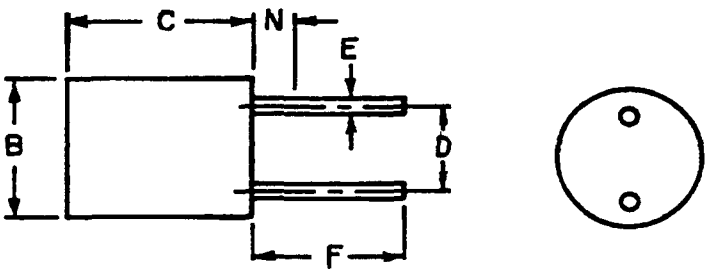
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GY1.3-3.2 Subminiature Bipin Base for T1 Lamps

The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is GY1.3-3.2. At the time of issuance of this standard sheet, 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.



	Standard Dimensions (inch)			Nearest Metric Equivalent (millimeters)		
Reference	Min	Nom	Max	Min	Nom	Max
B	0.120	–	0.130	3.05	–	3.30
C	0.120	–	0.130	3.05	–	3.30
D	0.045	–	0.055	1.14	–	1.40
E	0.018	–	0.022	0.46	–	0.56
F (Note 1)	–	0.250 approx	–	–	6.35 approx	–
N (Note 2)	0.062	–	–	1.57	–	–

NOTES:
(1) Length of pin may vary in accordance with application.
(2) Dimension N denotes the minimum length over which dimension D applies.

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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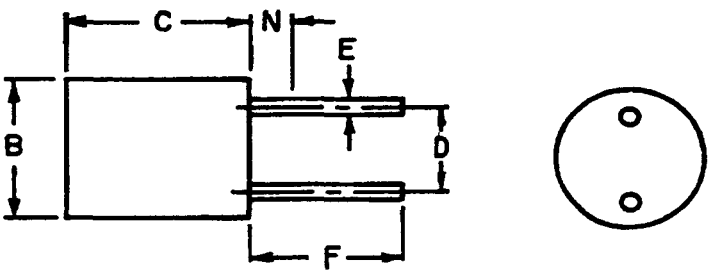
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GY2.5 Subminiature Bipin Base for T1-1/4 Lamps

The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is GY2.5. At the time of issuance of this standard sheet, 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.



	Standard Dimensions (inch)			Nearest Metric Equivalent (millimeters)		
Reference	Min	Nom	Max	Min	Nom	Max
B	0.168	–	0.178	4.28	–	4.52
C	0.265	–	0.300	6.73	–	7.62
D (Note 1)	0.095	–	0.105	2.41	–	2.67
E	0.018	–	0.022	0.46	–	0.56
F (Note 2)	–	0.250 approx	–	–	6.35 approx	–
N (Note 3)	0.062	–	–	1.57	–	–

NOTES:

(1) Certain manufacturers are currently using a D dimension of 0.120 inch-0.130 inch (3.05 mm-3.30 mm). This alternative dimension shall be considered acceptable until such time as it can be phased out and replaced by the recommended D dimension of 0.095 inch-0.105 inch (2.41 mm-2.67 mm).

(2) Length of pin may vary in accordance with application.

(3) Dimension N denotes the minimum length over which dimension D applies.

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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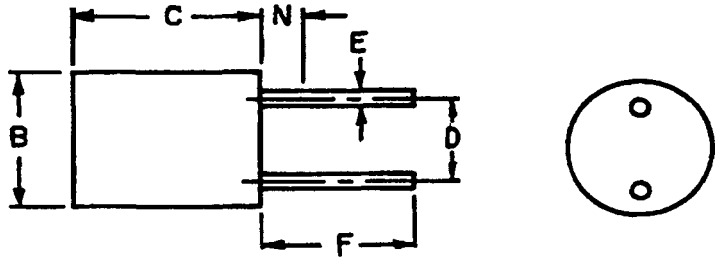
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GY3.2 Subminiature Bipin Base for T1-3/4 Lamps

The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is GY3.2. At the time of issuance of this standard sheet, 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.



	Standard Dimensions (inch)			Nearest Metric Equivalent (millimeters)		
Reference	Min	Nom	Max	Min	Nom	Max
B	0.220	–	0.230	5.59	–	5.84
C	0.295	–	–	7.49	–	–
D (Note 1)	0.120	–	0.130	3.05	–	3.30
E	0.018	–	0.022	0.46	–	0.56
F (Note 2)	–	0.250	–	–	6.35	–
N (Note 3)	0.062	–	–	1.57	–	–

NOTES:
(1) Some existing designs have lead spacing (D) of 0.120 inch (3.05 mm) nominal [0.115 inch (2.92 mm) min, 0.125 inch (3.18 mm) max].
(2) Length of pin may vary in accordance with application.
(3) Dimension N denotes the minimum length over which dimension D applies.

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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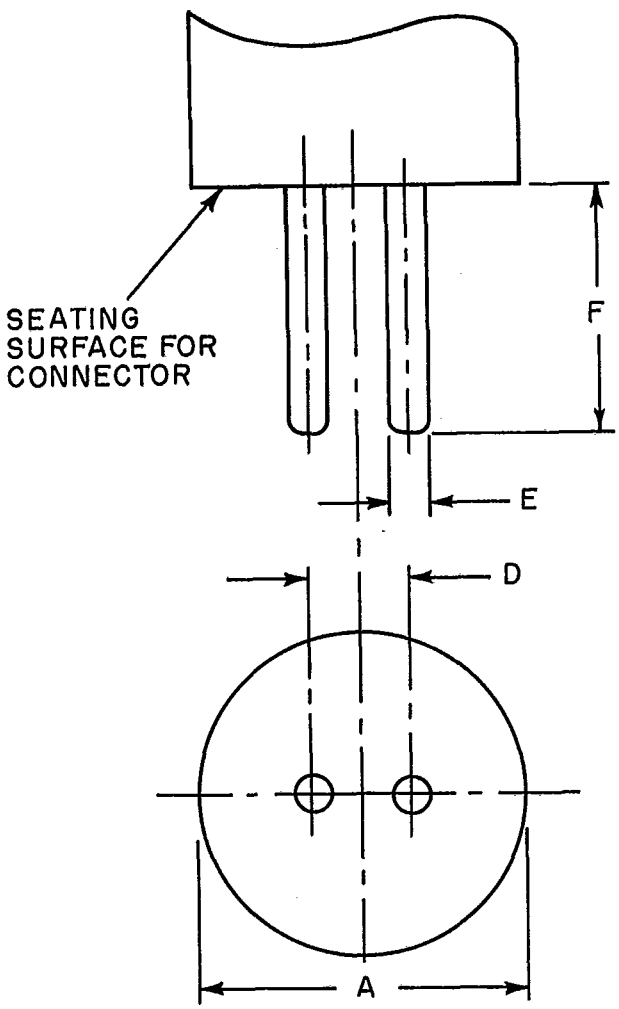
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G3.9 Base

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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 (millimeters)			Nearest Equivalent (inches)		
	Min	Nom	Max	Min	Nom	Max
A (Note 1)	12.50	–	–	0.492	–	–
D	–	3.97	–	–	0.156	–
E (Note 2)	1.54	–	1.60	0.061	–	0.063
F	7.00	–	12.00	0.276	–	0.472

NOTES:
(1) Area reserved for connector.
(2) Slight chamfering or radius is required for lead on end of pins.

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Gauging
When the base on a finished lamp is inserted into Gauge 3-300 until it meets with surface x of the gauge, both pin ends shall appear between surface y and surface z. In applying this gauge, the force used shall not exceed 5.0 newtons (1.1 lbf). Each pin of the base shall pass through gauge hole E2, but shall not enter hole E1.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-300.

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BI-PIN LAMP BASES

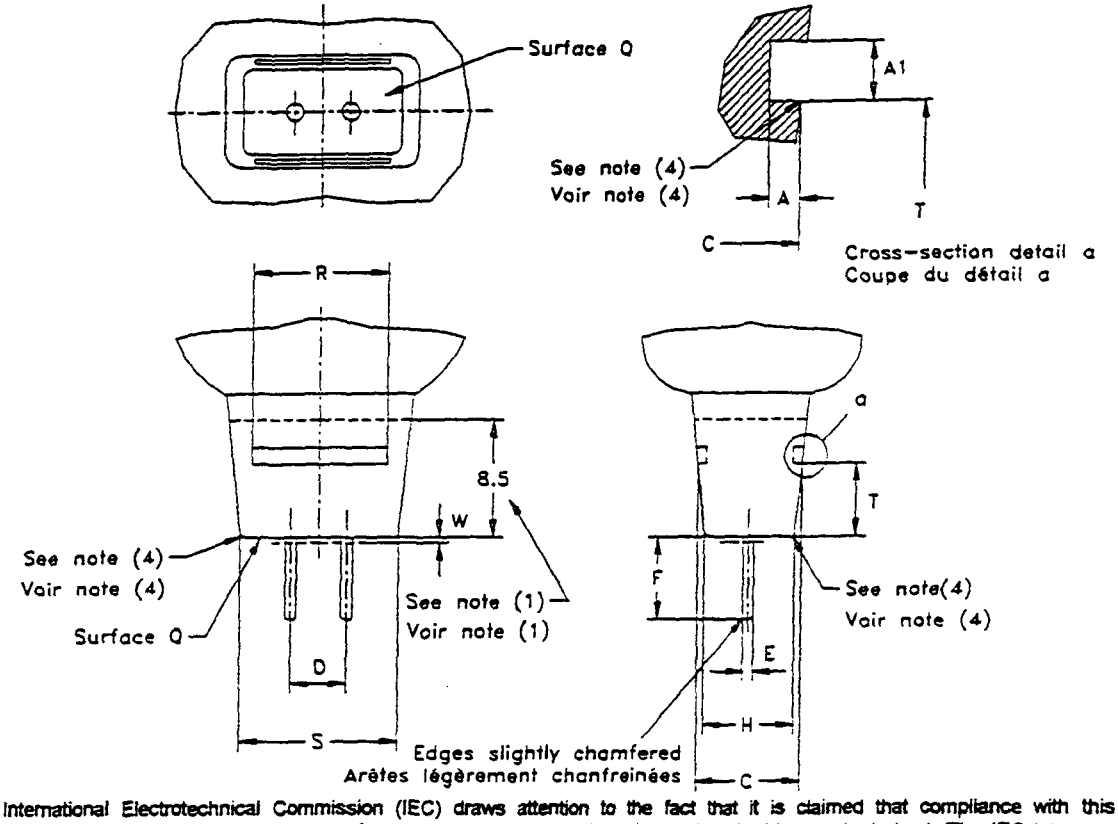
SOCLES DE LAMPE A DEUX BROCHES

GU4

Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holder GU4, see sheet 7005-108.
Pour les détails de la douille GU4, voir feuille 7005-108.



The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this International Standard may involve the use of a patent concerning the lamp base given in this standard sheet. The IEC takes no position concerning the evidence, validity and scope of this patent right. The holder of this patent has assured the IEC that he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with the IEC. Information may be obtained from:

GE LIGHTING Ltd - Technology Department
Melton Road
Leicester LE4 7PD
United Kingdom

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Melton Road
Leicester LE4 7PD
United Kingdom

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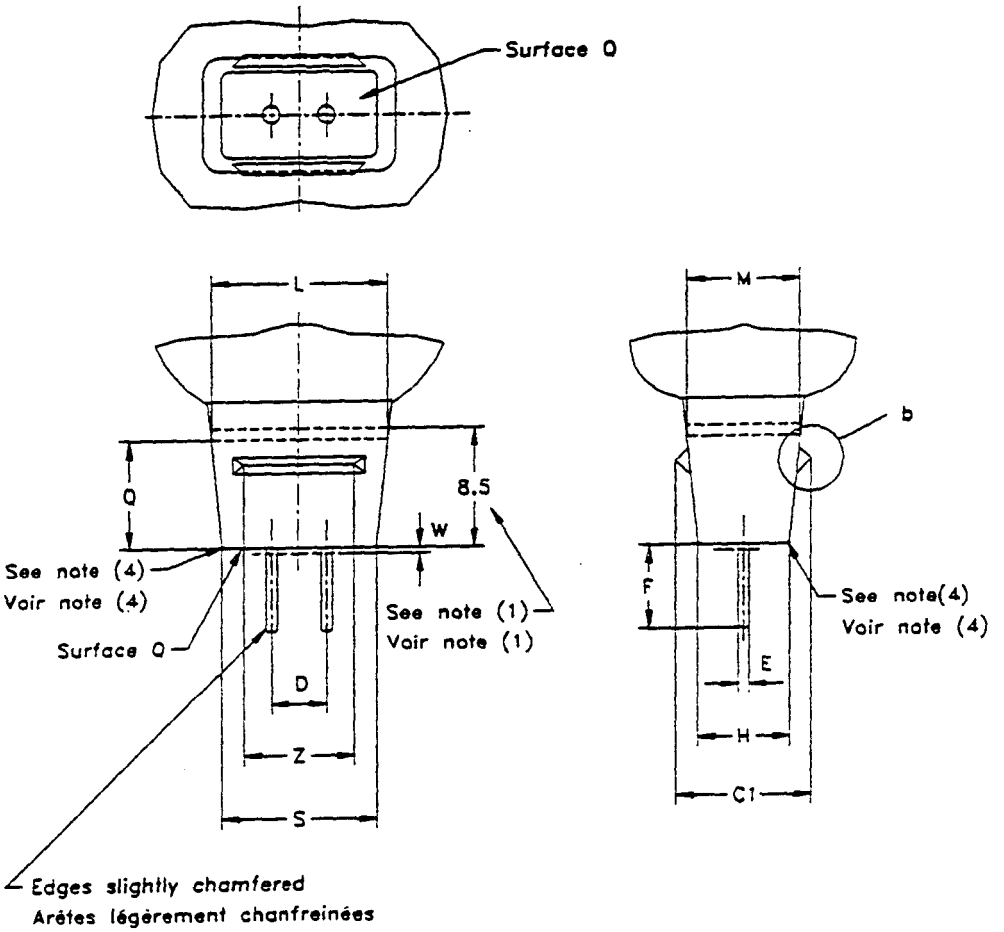
BI-PIN LAMP BASES

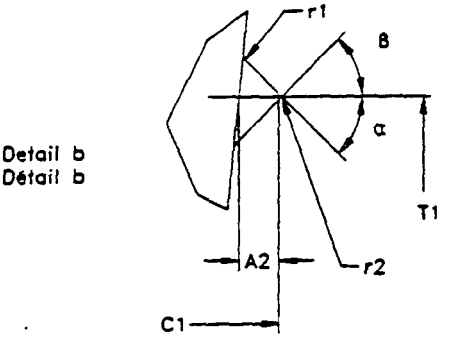
SOCLES DE LAMPE A DEUX BROCHES

GU4

Dimensions in millimetres - Dimensions en millimètres

Alternative base GU4 with retention bosses.
Socle de lampe GU4 alternatif avec des bossages de retenue.





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BI-PIN LAMP BASES

SOCLES DE LAMPE A DEUX BROCHES

GU4

Dimensions in millimetres - Dimensions en millimètres

Dimension	Min.	Max.
A	0,4	–
A1 (5)	1,5	–
A2	0,9	1,2
C (7)	9,0	11,0
C1	11,5	13,0
D	4	
E (2)	0,95	1,05
F	6,0	9,0
H (7)	8,5	10,5
L (3)	–	16,5
M (7)(3)	–	11,5
Q (3)	8	
R (6)	10,2	–
S	13,5	15,2
T	3,7	4,3
T1	3,3	3,6
W (2)	–	0,6
Z	5,5	–
r1	–	0,5
r2	–	0,8
I	43°	47°
9	43°	47°

(1) Up to 8,5 mm from surface Q, the body of the base shall lie within a cylinder having its longitudinal axis in the middle between the base pins and with a diameter of 23 mm.
(2) Within distance W, Emax does not apply. To be checked by means of gauge 7006-108.
(3) Dimensions L and M are measured at distance Q from surface Q.
(4) Edges may be chamfered or rounded.
(5) Dimension A1 shall be observed to a depth of 0,4 mm.
(6) Slot length(s).
(7) Dimensions C or M shall be equal to, or greater than H.

(1) Jusqu'à 8,5 mm de la surface Q, le corps du socle doit se trouver à l'intérieur d'un cylindre de diamètre 23 mm et ayant son axe longitudinal au milieu des broches du socle.
(2) A l'intérieur de la dimension W, Emax ne s'applique pas. A vérifier à l'aide du calibre 7006-108.
(3) Les dimensions L et M sont mesurées à la distance Q de la surface Q.
(4) Les arêtes peuvent être chanfreinées ou arrondies.
(5) La dimension A1 doit être observée à une profondeur de 0,4 mm.
(6) Longueur(s) d'(es) encoche(s).
(7) Les dimensions C ou M doivent être égales ou supérieures à H.

GAUGING: Bases GU4 shall fulfil the tests of the gauge shown on sheet 7006-108.
VERIFICATION: Les socles GU4 doivent satisfaire aux essais avec le calibre selon la feuille 7006-108.

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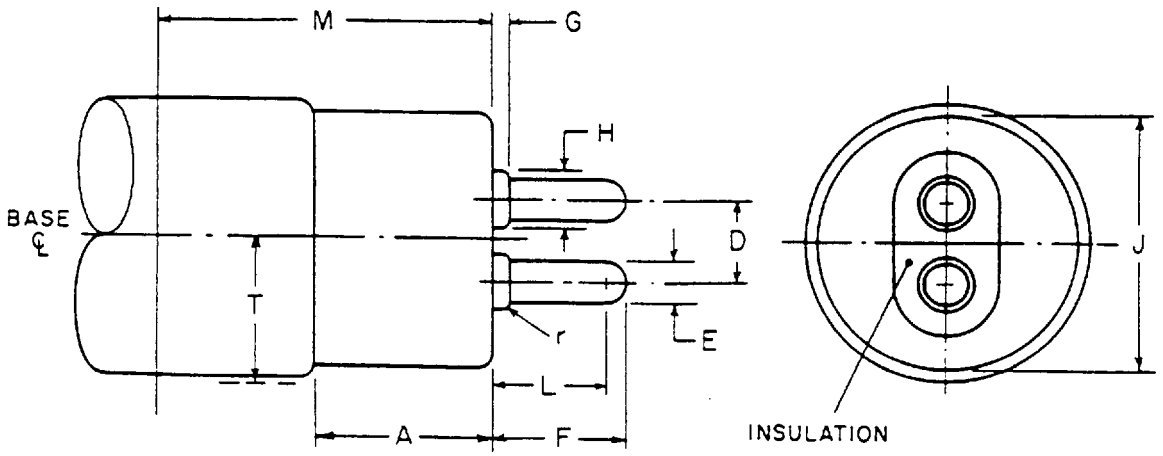
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G5 Miniature Bipin Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G5. This standard sheet is equivalent to IEC 61.

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 ± 0.076 mm).
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_5 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.

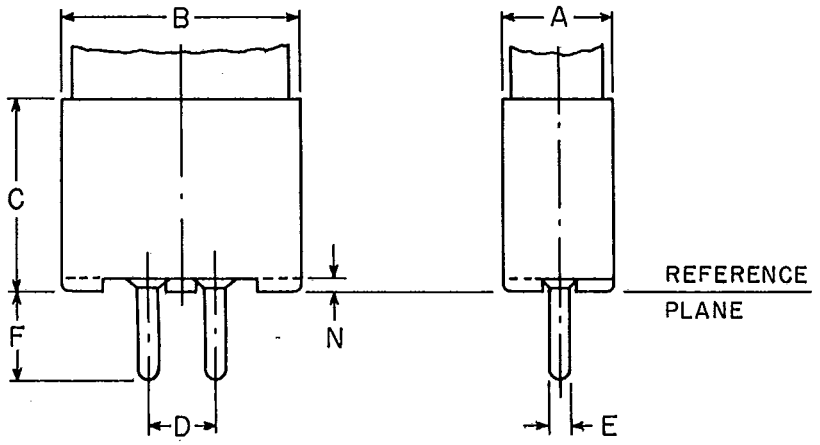
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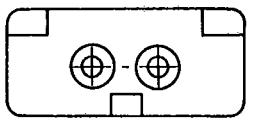
G5.3 Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G5.3. This standard sheet is equivalent to IEC Publication 61.

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 (inch)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.296	–	0.345	7.52	–	8.76
B	0.713	–	0.745	18.11	–	18.92
C	0.600	–	–	15.24	–	–
D	–	0.210	–	–	5.33	–
E	0.058	–	0.065	1.47	–	1.65
F	0.240	–	0.280	6.10	–	7.11
N	0.030	–	–	0.76	–	–

NOTE: For finished lamps, the electrical spacing between contact pins shall not be less than 0.098 inch (2.5 mm) over the insulator surface or through the air.

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Gauging
It shall be possible to insert the base of a finished lamp into Gauge 3-320 until the reference plane of the base meets with surface w of the gauge. In this position both pins shall project beyond surface z of the gauge, but shall not project beyond surface y. The top of the base shall reach at least to surface w.

Each individual pin shall enter hole E_2 of Gauge 3-320 until the reference plane of the base meets surface w of the gauge.

The pins shall not enter hole E_3 of Gauge 3-320.

In applying Gauge 3-320, the force used shall not exceed 1 lbf (4.45 newtons).

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-320.

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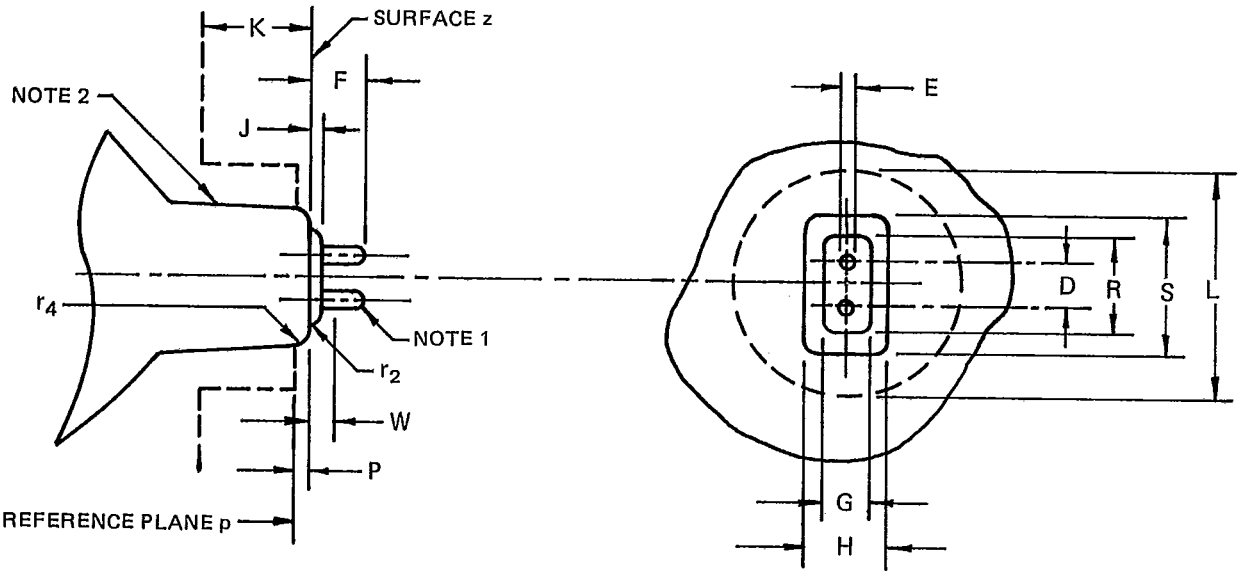
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GX5.3 Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is GX5.3. This standard sheet is equivalent to IEC Publication 61.

The sheet dimensions shown apply to the base portion of finished lamps.

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



Reference	Standard Dimensions (inch) Min	Nom	Max	Nearest Metric Equivalent (millimeters) Min	Nom	Max
D	–	0.210	–	–	5.33	–
E Diameter	0.057	–	0.063	1.45	–	1.60
F	0.205	–	0.265	5.21	–	6.73
G	–	–	0.295	–	–	7.49
H (Note 3)	0.355	–	0.415	9.02	–	10.54
J	–	–	0.030	–	–	0.76
K (Note 2)	–	0.394	–	–	10.0	–
L (Note 2)	–	0.984	–	–	25.0	–
P (Note 3)	–	0.030	–	–	0.76	–
R	–	–	0.515	–	–	13.08
S (Note 3)	0.600	–	0.660	15.24	–	16.76
W (Note 4)	–	–	0.050	–	–	1.27
r_2 (Note 5)	–	–	0.015	–	–	0.38
r_4 (Notes 5, 6)	–	–	0.025	–	–	0.64

NOTES:
(1) Slight chamfer or radius required for lead-in on the ends of the pins.
(2) Dimensions K and L show the theoretical demarcation between the space that the lamp may occupy on the one side and the space in which parts of the holder or equipment may be present on the other side.
(3) Dimensions H and S measured at reference plane p, distance P from surface z.
(4) E maximum does not apply within distance W.
(5) Dimensions r_2 and r_4 are toleranced in order to maintain sufficient area for surface z.
(6) For design purposes only, not to be gauged.

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Gauging
Individual pins shall enter hole E9 of Gauge 3-321 and the pair of pins shall enter the holes labeled E. Penetration into the holes E and E9 shall be a minimum distance of F3.

As the pins are inserted into the E3–E4 slot of Gauge 3-321, surface z of the lamp shall seat on surface z of the gauge.

When the base is completely seated in the 3-321 gauge, the pin ends shall be coplanar with or project beyond surface x, but not beyond surface y.

Individual pins shall not enter the E10 hole of the 3-323 gauge beyond their rounded ends.

As the pins are inserted from the viewing slot side of Gauge 3-323, the "H Not-go" Gauge, the base shall not completely enter and mate with surface z.

As the pins are inserted from the viewing slot side of Gauge 3-323, the "S Not-Go" Gauge, the base shall not completely enter and mate with surface z.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-321.

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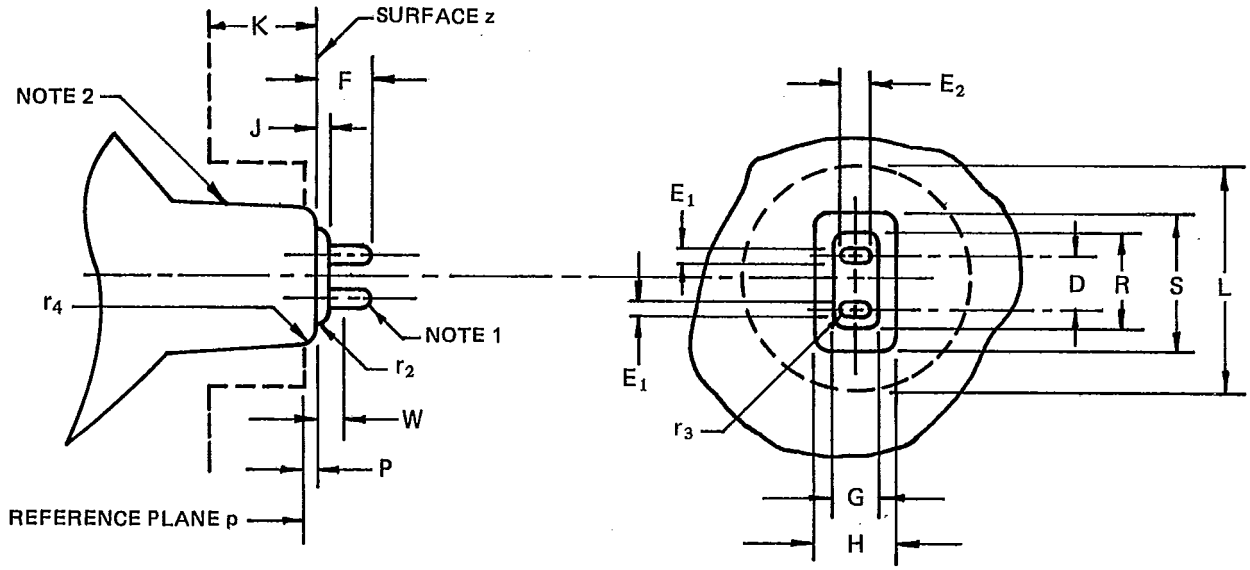
GY5.3 Base

ANSI C81.61-1990
Std Sheet 1-322-1

The designation assigned to this base by the International Electrotechnical Commission (IEC) is GY5.3. This standard sheet is equivalent to IEC Publication 61.

The sheet dimensions shown apply to the base portion of finished lamps.

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



Reference	Standard Dimensions (inch) Min	Nom	Max	Nearest Metric Equivalent (millimeters) Min	Nom	Max
D	–	0.210	–	–	5.33	–
E_1	0.023	–	0.031	0.58	–	0.79
E_2	0.070	–	0.090	1.78	–	2.29
F	0.205	–	0.265	5.21	–	6.73
G	–	–	0.295	–	–	7.49
H (Note 3)	0.355	–	0.415	9.02	–	10.54
J	–	–	0.030	–	–	0.76
K (Note 2)	–	0.394	–	–	10.0	–
L (Note 2)	–	0.984	–	–	25.0	–
P (Note 3)	–	0.030	–	–	0.76	–
R	–	–	0.515	–	–	13.08
S (Note 3)	0.600	–	0.660	15.24	–	16.76
W (Note 4)	–	–	0.050	–	–	1.27
r_2 (Note 5)	–	–	0.015	–	–	0.38
r_3	0.012	–	–	0.30	–	–
r_4 (Notes 5, 6)	–	–	0.025	–	–	0.64

NOTES:
(1) Slight chamfer or radius required for lead-in on the ends of the pins.
(2) Dimensions K and L show the theoretical demarcation between the space which the lamp may occupy on the one side and the space in which parts of the holder or equipment may be present on the other side.
(3) Dimensions H and S measured at reference plane p, distance P from surface z.
(4) E_1 maximum and E_2 maximum do not apply within distance W.
(5) Dimensions r_2 and r_4 are toleranced in order to maintain sufficient area for surface z.

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Gauging
Individual pins shall enter the E1–E2 hole of Gauge 3-322, and the pair of pins shall enter the holes labeled E11–E12. Penetration into the holes E1–E2 and E11–E12 shall be a minimum distance of f3.

As the pins are inserted into the E7–E8 slot of Gauge 3-322, surface z of the lamp shall seat on surface z of the gauge.

When the base is completely seated in Gauge 3-322, the pin ends shall be coplanar with or project beyond surface x, but not beyond surface y.

When the individual flat pins are tested in both the E1–E5 and the E2–E6 holes of Gauge 3-323, a pin shall not enter either hole beyond its rounded end.

As the pins enter from the viewing slot side of Gauge 3-323, the "H Not-go Gauge," the base shall not completely enter and mate with surface z.

As the pins enter from the viewing slot side of Gauge 3-323, the "S Not-go Gauge," the base shall not completely enter and mate with surface z.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-322.

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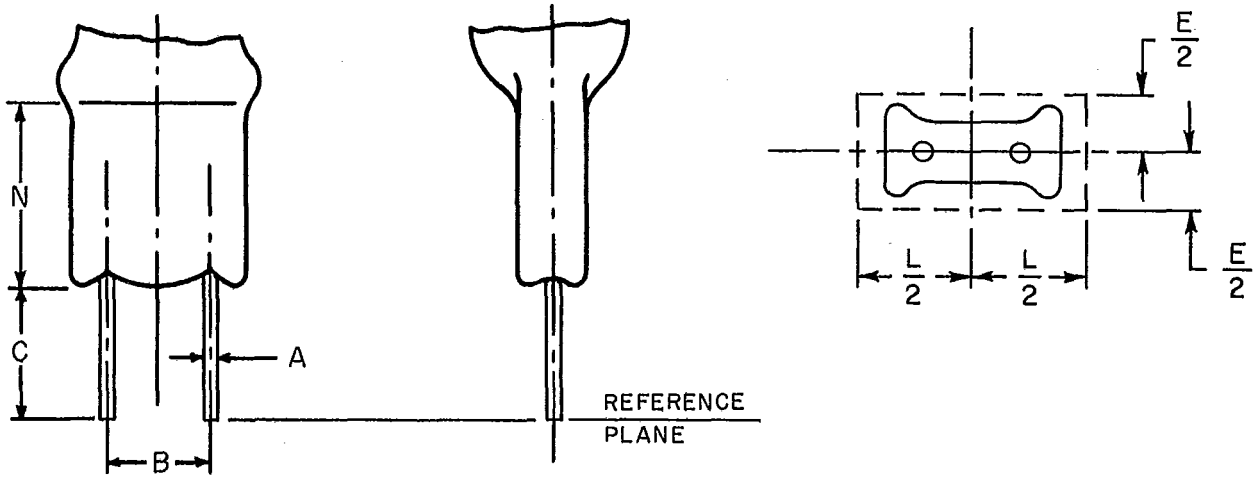
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G6.35 and GY6.35 Bases

ANSI C81.61-1990
Std Sheet 1-340-1

The designations assigned to these bases by the International Electrotechnical Commission (IEC) are G6.35 and GY6.35, plus a suffix as indicate in the table below. This standard sheet is equivalent to IEC Publication 61.

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



Standard Dimensions
(inches)

	G6.35-15			G6.35-20			G6.35-25			G6.35-30		
Reference	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
A (Note 1)	0.037	–	0.041	0.037	–	0.041	0.037	–	0.041	0.037	–	0.041
B	–	0.250	–	–	0.250	–	–	0.250	–	–	0.250	–
C	0.295	–	–	0.295	–	–	0.295	–	–	0.295	–	–
E (Note 2)	–	–	0.295	–	–	0.295	–	–	0.354	–	–	0.354
L (Note 2)	–	–	0.591	–	–	0.787	–	–	0.984	–	–	1.181
N (Note 2)	0.374	–	–	0.374	–	–	0.512	–	–	0.591	–	–

Metric Equivalent
(millimeters) (Note 3)

	G6.35-15			G6.35-20			G6.35-25			G6.35-30		
Reference	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
A (Note 1)	0.95	–	1.05	0.95	–	1.05	0.95	–	1.05	0.95	–	1.05
B	–	6.35	–	–	6.35	–	–	6.35	–	–	6.35	–
C	7.5	–	–	7.5	–	–	7.5	–	–	7.5	–	–
E (Note 2)	–	–	7.5	–	–	7.5	–	–	9.0	–	–	9.0
L (Note 2)	–	–	15.0	–	–	20.0	–	–	25.0	–	–	30.0
N (Note 2)	9.5	–	–	9.5	–	–	13.0	–	–	15.0	–	–

NOTES:

(1) For base GY6.35, pin diameter A has values of 0.047 inch–0.051 inch (1.2 mm–1.3 mm). The designation is then GY6.35-____ (as appropriate). This version is not recommended for new designs of lamps.

(2) Dimensions E and L define the maximum limits of the cross section of the base over length N.

(3) The inch units of measurement were derived from the metric values. This accounts for the fact that converting from inches to metric equivalent does not necessarily round off as shown.

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Gauging
When the base is completely inserted in the appropriate 3-340 gauge, the pins shall be coplanar with or project beyond surface y.

The individual pins shall enter hole A_2, but shall not enter hole A_1 of Gauge 3-341.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.61, Standard Sheet 2-340.

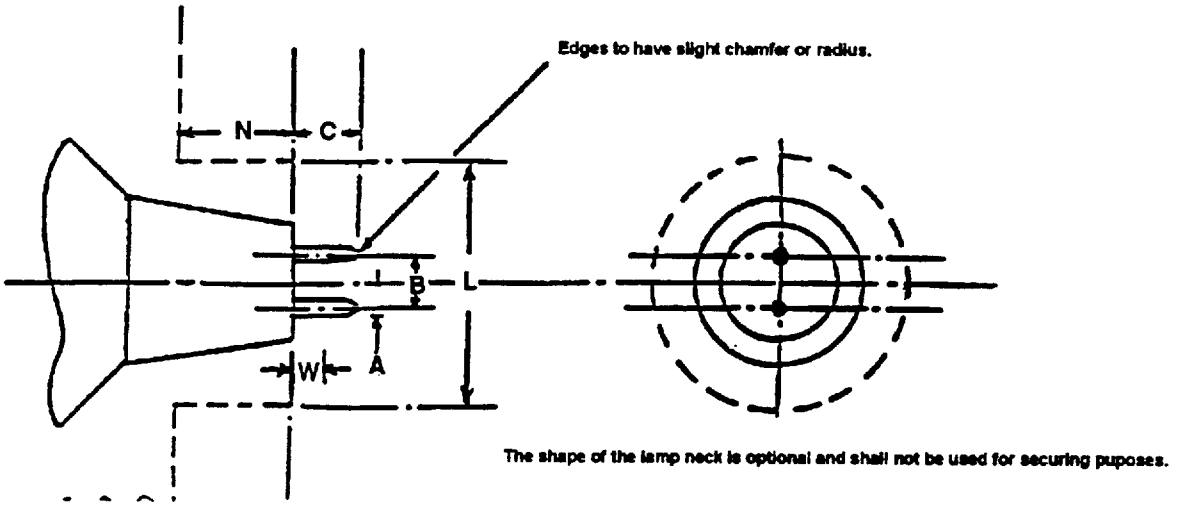
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GZ6.35 Base

ANSI C81.61a-1993
Std Sheet 1-342-1
Page 1

The designation assigned to this base by the International Electrotechnical Commission (IEC) is GZ6.35. This standard sheet is equivalent to IEC 61. This standard sheet is equivalent to IEC 61.

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



STANDARD DIMENSIONS (MILLIMETERS)			
Reference	Min	Nom	Max.
A (Note 1)	0.95	—	1.05
B	—	6.35	—
C	6.0	—	8.50
L (Note 2)	—	25.0	—
N (Note 2)	—	10.0	—
W (Note 1)	—	—	0.50

NOTES:

(1) Dimension A maximum does not apply over length W.

(2) Dimensions L and N delineate the demarcation between the space which may be occupied by parts of the lamp base and the space which may be occupied by rigid parts of the connector, lanpholder or luminaire.

(3) No reference plane is defined for this base. None is needed, due to the intended use with a push-on connector.

Gauging

"Go" and "Not-Go" Gauge 3-341: Each individual pin shall enter the hole a_1, but not hole a_2.

"Go" Gauge 3-342: When the lamp base is inserted in the gauge so that the base is fully seated against gauge surface X, the ends of both pins shall be coplanar with or project beyond surface Y, but they shall not project beyond surface Z.

Connector

See ANSI C81.62-1991, Standard Sheet 2-342.

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BI-PIN LAMP BASE

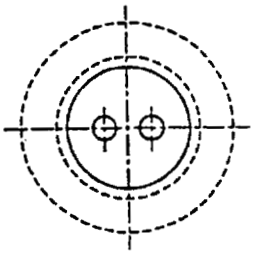
SOCLE DE LAMPE A DEUX BROCHES

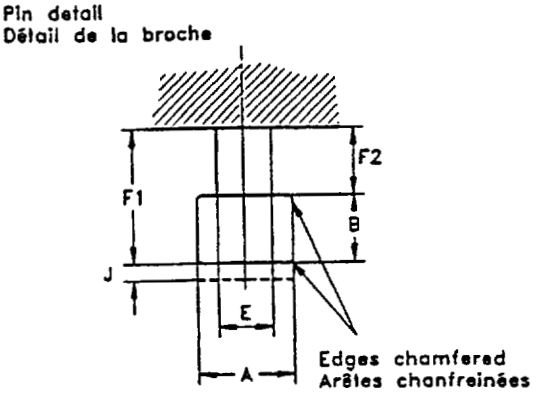
GU7

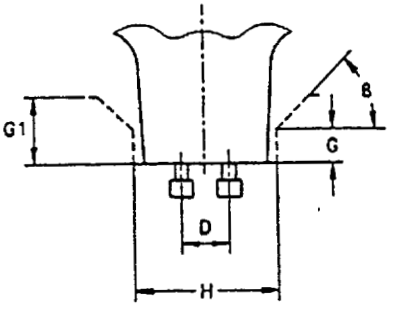
Dimensions in millimetres - Dimensions en millimètres

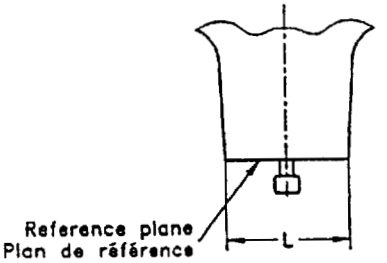
The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holder GU7, see sheet 7005-113.
Pour les détails de la douille GU7, voir feuille 7005-113.









Dimension	Min.	Max.
A	3,4	3,6
B	2,4	2,7
D (1)	7,0	
E	1,6	2,1
F1	--	5,4
F2	2,4	--
G (2)	6	
G1 (2)	12	
H (2)	20	
J (3)	–	0,9
L	17,5	19,0
ß	45°	

(1) To be checked by means of the gauge shown on sheet 7006-113.
(2) Dimensions G, G1 and H delineate the demarcation between the space which may be occupied by parts of the lamp and the space which may be occupied by parts of the lampholder and/or luminaire.
(3) Allowance for soldering or welding.

(1) A vérifier au moyen du calibre représenté sur la feuille 7006-113.
(2) Les dimensions G, G1 et H définissent la délimitation entre l'espace qui peut être occupé par des parties de la lampe et l'espace susceptible d'être occupé par des parties de la douille et/ou du luminaire.
(3) Espace prévu pour soudure au chalumeau ou électrique.

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BI-PIN LAMP BASE

SOCLE DE LAMPE A DEUX BROCHES

GU7

Dimensions in millimetres - Dimensions en millimètres

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this International Standard may involve the use of a patent concerning the lamp base given in this standard sheet.

The IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent has assured the IEC that he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with the IEC.

Information may be obtained from:

GE LIGHTING Ltd
Technology Department
Melton Road
Leicester LE4 7PD
United Kingdom

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

La Commission Electrotechnique Internationale (CEI) attire l'attention sur le fait qu'il est déclaré que la conformité aux dispositions de la présente Norme internationale peut impliquer l'utilisation d'un brevet concernant le socle de lampe traité dans la présente feuille de norme.

La CEI ne prend pas position quant à la preuve, la validité et la portée de ces droits de propriété.

Le détenteur de ces droits de propriété a donné l'assurance à la CEI qu'il consent à négocier des licences avec des demandeurs du monde entier, en des termes et à des conditions raisonnables et non discriminatoires. A ce propos, la déclaration du détenteur des droits de propriété est enregistrée à la CEI.

Des informations peuvent être obtenues auprès de:

GE LIGHTING Ltd
Technology Department
Melton Road
Leicester LE4 7PD
United Kingdom

L'attention est par ailleurs attirée sur le fait que certains des éléments de la présente Norme internationale peuvent faire l'objet de droits de propriété autres que ceux mentionnés ci-dessus. La CEI ne saurait être tenue pour responsable de ne pas avoir dûment signalé tout ou partie de ces droits de propriété.

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G7.9 and GX7.9 Bases

ANSI C81.61-1990
Std Sheet 1-356-1

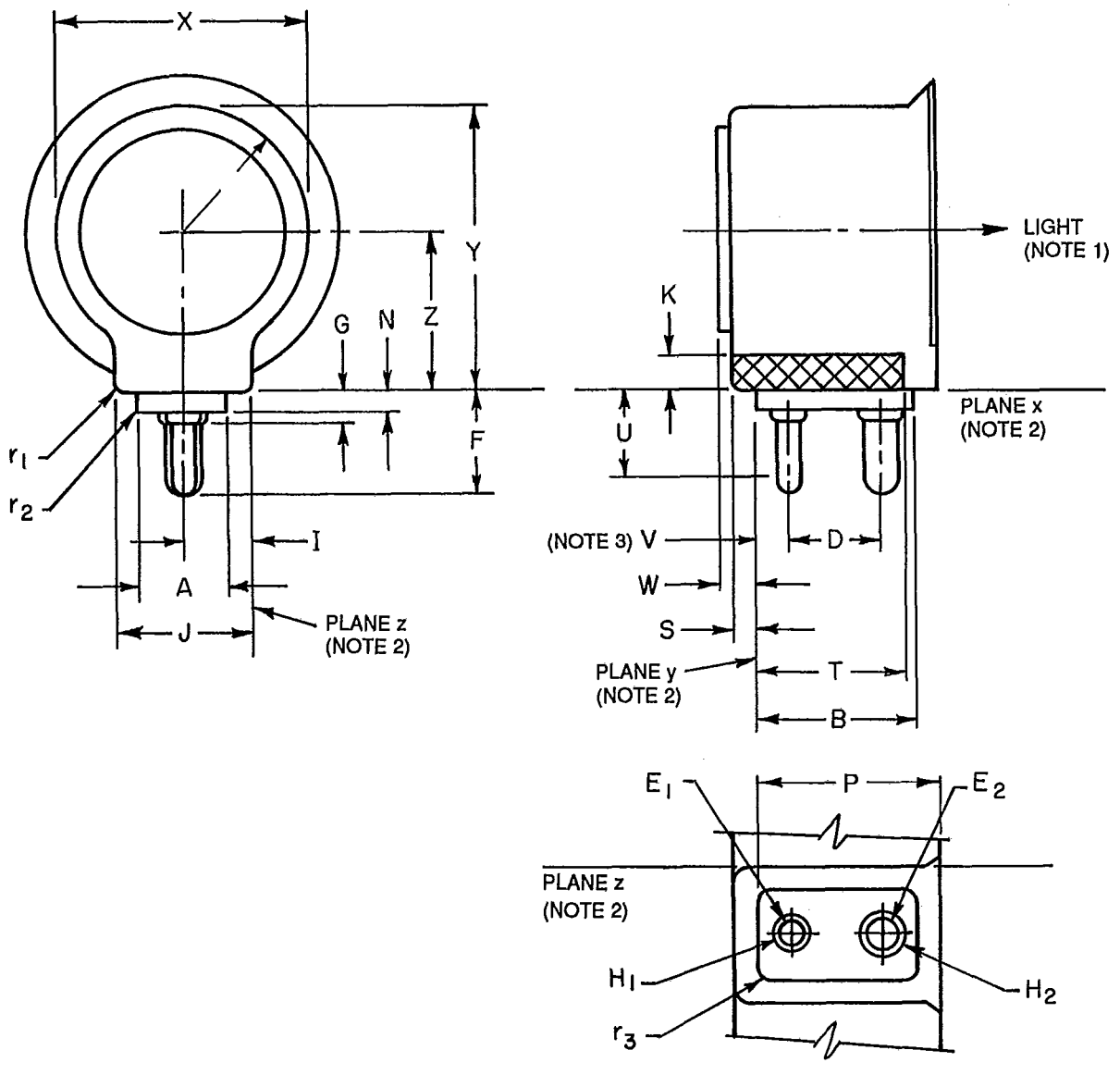
The designations assigned to these bases in accordance with the system of the International Electrotechnical Commission (IEC) are G7.9 and GX7.9. At the time of issuance of this standard sheet, there was no comparable IEC standard in existence.

The G7.9 and GX7.9 bases differ in respect to their pin arrangements. The drawing shows the G7.9 version. For the GX7.9, low-voltage arrangement, the large and small pins are interchanged.

These bases are intended for application where precise aiming and positioning requirements exist for side-prong based lamps.

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

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



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Reference	Standard Dimensions (inch)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.180	–	0.278	4.57	–	7.06
B	0.618	–	0.622	15.70	–	15.80
C (Notes 5, 6)	–	0.625	–	–	15.87	–
D (Note 7)	–	0.312	–	–	7.92	–
E_1 Dia (Note 8)	0.091	–	0.098	2.31	–	2.49
E_2 Dia (Note 8)	0.123	–	0.130	3.12	–	3.30
F	0.526	–	0.575	13.36	–	14.61
G	–	–	0.167	–	–	4.24
H_1 Dia	–	–	0.135	–	–	3.43
H_2 Dia	–	–	0.180	–	–	4.57
I (Notes 5, 7)	–	0.281	–	–	7.14	–
J	0.560	–	0.563	14.22	–	14.30
K	0.152	–	–	3.86	–	–
N	0.098	–	0.123	2.49	–	3.12
P (Note 4)	0.706	–	–	17.93	–	–
R (Note 5)	–	0.437	–	–	11.10	–
S	0.088	–	0.107	2.24	–	2.72
T	0.600	–	–	15.24	–	–
U (Note 8)	0.461	–	–	11.71	–	–
V (Note 7)	0.149	–	0.157	3.78	–	3.99
W	–	–	0.194	–	–	4.93
r_1	0.046	–	0.093	1.17	–	2.36
r_2	0.012	–	0.050	0.53	–	1.27
r_3	0.057	–	0.090	1.45	–	2.29

NOTES:

(1) The arrow shows direction of light beam when the base is used in side-prong applications.

(2) Planes x, y, and z are theoretical; they establish an orthogonal framework for positioing the three mounting surfaces x, y, and z of the base. At least three points of surface x shall be in plane x to provide mechanically stable contact. Simultaneously, at least two points of surface z shall be in plane z, and at least one point of surface y shall be in plane y to provide mechanically stable contact. Points on surfaces x, y, and z shall not penetrate their corresponding planes.

(3) Radius r_2 applies at the four edges of the volume defined by dimensions A and B.

(4) Dimension P provides a boundary for surface x only. No parts of the base or the holder shall interfere with surface x, distance P.

(5) Dimension C and I locate the optical axis relative to planes x and z, respectively.

(6) Dimensions R and C define a location for the application of lamp retention and positioning forces provided by appropriate devices.

(7) Dimensions D, I, and V are checked by the base gauge. Dimension I positions the pin centerlines relative to plane z.

(8) The distance given by dimension U minus dimension G defines the minimum length over which dimension E_1 and E_2 apply.

(9) Surface x shall be flat within 0.003 inch (0.08 mm). Dimensions J, S, and T define the minimum surface area of surface x.

(10) Bases shall be able to withstand a temperature of 200°C (392°F) in normal operation.

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Gauging
The base shall enter Gauge 3-356. When the base is fully seated, the reference plane x of the base shall be in contact with surface x of the gauge. In this position, the ends of both pins shall be coplanar with or project beyond surface u, but they shall not project beyond surface w.

See ANXI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-356.

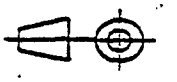
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CAP

CULOT

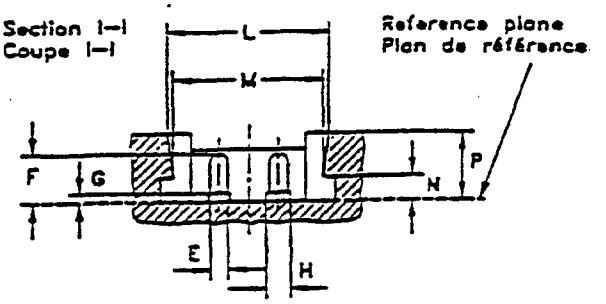
GR8

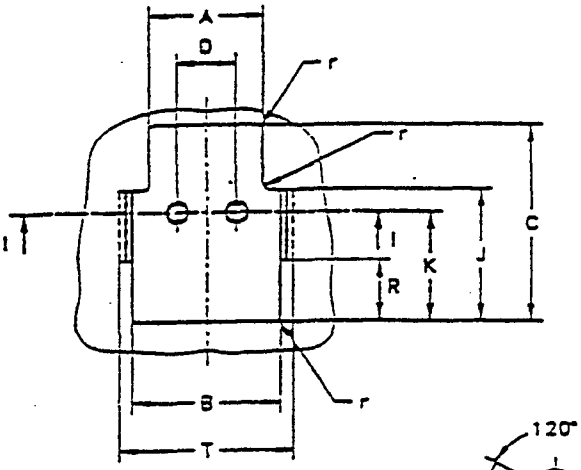


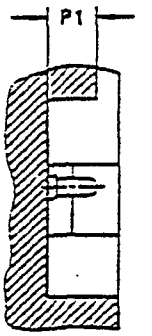
Dimensions in millimetres - Dimensions en millimètres

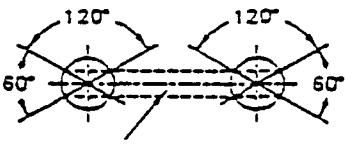
The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holder GR8, see sheet 7005-68.
Pour les détails de la douille GR8, voir feuille 7005-68.









No crimp zone. See note (1)
Zone sans indentations. Voir note (1)

Dimension	Min.	Max.
A	15.5	15.8
B	20.3	20.6
C	29.0	31.0
D	8.0	
E	2.29	2.67
F	6.60	7.77
G	–	1.27
H	–	3.30
J	19.3	–
K	16.1	16.3
L	22.0	–
M	20.3	20.5
N	3.4	3.6
P	–	9.9
P1	6.5	7.0
R	–	9.0
T	21.9	–
r	–	0.8

(1) Indentations or grooves in the surface of the pins are allowed provided that they do not extend into that part of the pin radius bounded by the 60° arc shown above.

(1) Les indentations ou empreintes à la surface des broches sont permises, à condition qu'elles ne s'étendent pas à la partie délimitée par l'angle de 60° indiquée ci-dessus.

GAUGING: Caps GR8 on finished lamps shall fulfil the tests of the gauges shown on sheets 7006-68, 7006-68A, 7006-68E and 7006-68F.

VERIFICATION: Les culots GR8 sur lampes terminées doivent satisfaire aux essais avec les calibres selon les feuilles 7006-68, 7006-68A, 7006-68E et 7006-68F.

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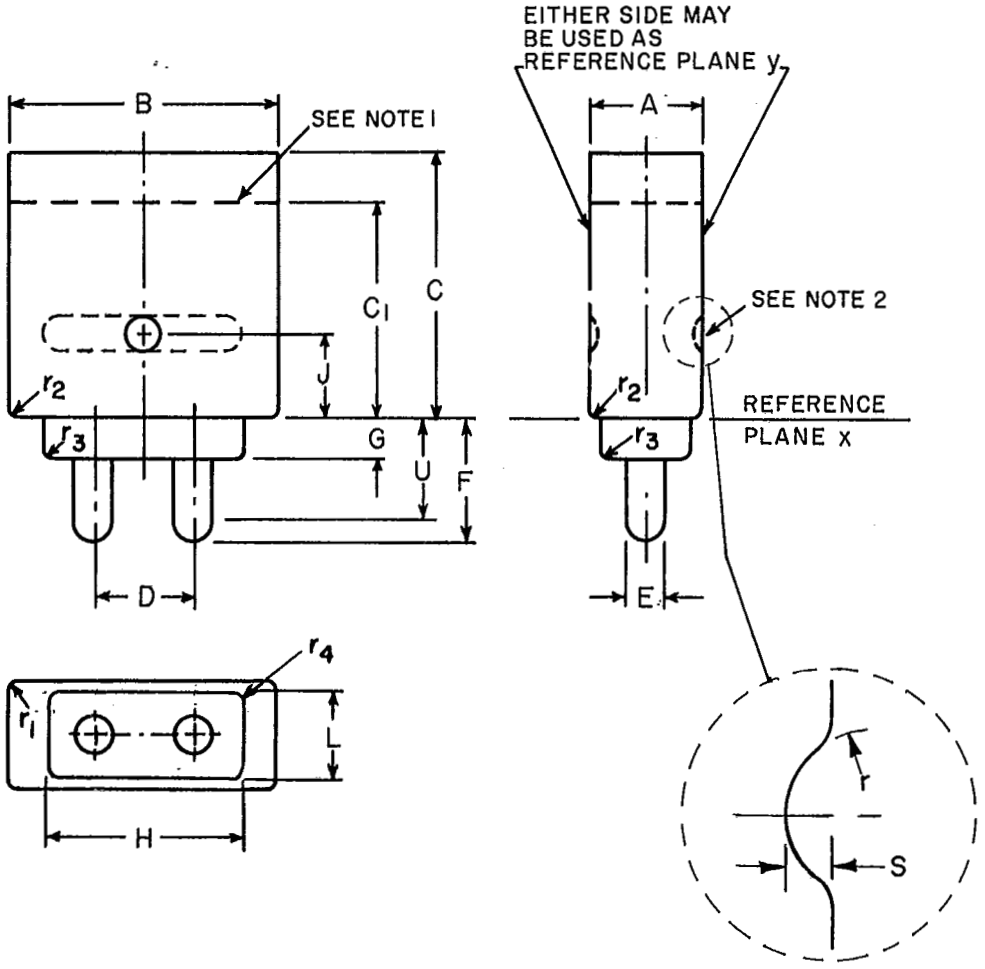
G9.5 Base

ANSI C81.61-1990
Std Sheet 1-368-1

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G9.5. This standard sheet is equivalent to IEC Publication 61.

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.



NOTES:
(1) Dimension C_1 indicates the minimum base height over which the limits for dimensions A and B apply.
(2) Dimple or elongated recess.

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	Standard Dimensions (inch)			Nearest Metric Equivalent (millimeters)		
Reference	Min	Nom	Max	Min	Nom	Max
A	0.365	–	0.385	9.27	–	9.78
B	0.923	–	0.943	23.44	–	23.95
C	0.920	–	–	23.37	–	–
C_1 (Note 3)	0.750	–	–	19.05	–	–
D	–	0.375	–	–	9.53	–
E	0.122	–	0.128	3.10	–	3.25
F	0.375	–	0.450	9.53	–	11.43
G	–	–	0.119	–	–	3.02
H	0.650	–	0.700	16.51	–	17.78
J	0.280	–	0.290	7.11	–	7.37
L	–	–	0.300	–	–	7.62
S	0.031	–	–	0.79	–	–
U (Note 4)	0.312	–	–	7.92	–	–
r	–	0.114	–	–	2.90	–
r_1	0.125	–	0.182	3.18	–	4.62
r_2	0.030	–	0.067	0.76	–	1.70
r_3	0.011	–	–	0.28	–	–
r_4	0.050	–	–	1.27	–	–

NOTES:
(3) Dimension C_1 indicates the minimum base height over which the limits for dimensions A and B apply.
(4) Dimension U is the minimum length of the cylindrical portion of the pin.

Gauging

The pins on the base of a finished lamp shall enter Gauge 3-368 and, when fully inserted, the reference plane of the base shall contact surface x of the gauge. In this position, the ends of both pins shall reach at least to surface z and shall not project beyond surface y.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-368.

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GY9.5 and GZ9.5 Bases

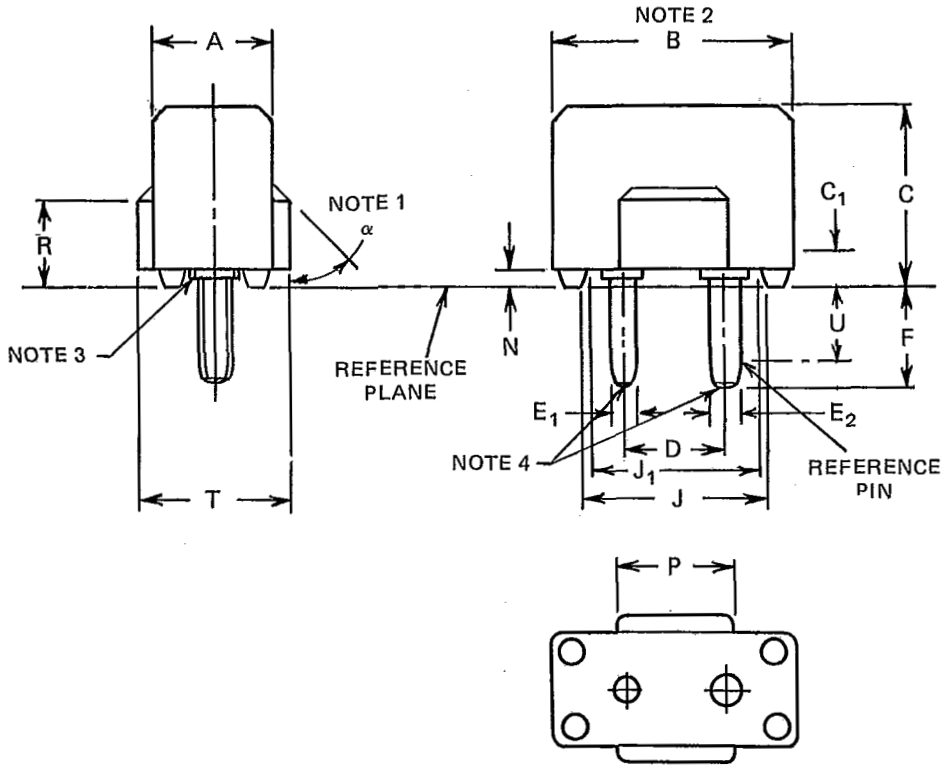
ANSI C81.61-1990
Std Sheet 1-369-1

The designations assigned to these bases by the International Electrotechnical Commission (IEC) are GY9.5 and GZ9.5. This standard sheet is equivalent to IEC Publication 61.

Bases GY9.5 and GZ9.5 differ only in respect to dimensions B and J. The GY9.5 is intended for lamp application over 700 watts, and the GZ9.5 is intended for application up to 700 watts.

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	0.420	–	0.440	10.67	–	11.18
B (GY9.5)	1.075	–	1.180	27.31	–	29.97
B (GZ9.5)	0.807	–	0.950	20.5	–	24.13
C (Note 5)	0.620	–	–	15.75	–	–
C_1 (Note 6)	0.118	–	–	3.0	–	–
D (Note 7)	–	0.375	–	–	9.53	–
E_1	0.090	–	0.096	2.29	–	2.44
E_2	0.122	–	0.128	3.10	–	3.25
F	0.280	–	0.340	7.11	–	8.64
J (GY9.5)	0.550	–	–	14.0	–	–
J (GZ9.5)	0.550	–	0.750	14.0	–	19.05
J_1	0.500	–	–	12.7	–	–
N	0.039	–	–	1.0	–	–
P	0.360	–	0.394	9.14	–	10.0
R	0.305	–	0.325	7.75	–	8.26
T	0.540	–	0.565	13.72	–	14.35
U (Note 8)	0.200	–	–	5.08	–	–
α (Note 1)	40°	–	90°	40°	–	90°

NOTES:

(1) In cases where angle α approaches 90°, the upper edges of the retaining lugs shall be rounded off to approximately 0.016 inch (0.4 mm).

(2) The insulation may be open at the narrow sides. Under these circumstances, the width of the base and the seal on the finished lamp shall not exceed, within the distance defined by dimension C, dimension B maximum. When this form of construction is used, care should be taken to ensure that no live parts are accessible.

(3) The bosses of the pins shall not project beyond the reference plane.

(4) The ends of the pins shall be rounded or tapered to provide easy entry into and removal from lampholders.

(5) Dimension C defines the minimum distance over which the maximum limits of dimensions A and B shall apply.

(6) Dimension C_1 defines the minimum distance over which both the minimum and maximum limits for dimensions A and B shall apply.

(7) Dimension D is for design purposes. Practical tolerances, in combination with pin diameters, are incorporated in the gaging system.

(8) Dimension U defines the minimum length over which both the minimum and maximum limits of dimensions E_1 and E_2 shall be observed; below this only the limits for E_1 maximum and E_2 maximum are applicable.

(9) The clearance and creepage distances between parts of opposite polarity shall be not less than 0.098 inch (2.5 mm).

Gauging

It shall be possible to insert the base into Gauge 3-369 until the supporting bosses are in contact with surface z.

In this position, the ends of the pins shall be coplanar with or project beyond surface x, but shall not project beyond surface w. In addition, the top edge of the shell shall project beyond or be coplanar with surface y, and the edges of the retainer projections shall lie between surfaces r and r_1 or be coplanar with them.

It shall be possible to insert the appropriate individual pins into hole E_5 or E_3 as far as the supporting bosses. It shall not be possible to insert the appropriate individual pins into hole E_4 or E_2 for a distance greater than that which allows a clearance of at least 5.08 mm between the surface of the gauge and the supporting bosses.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-369.

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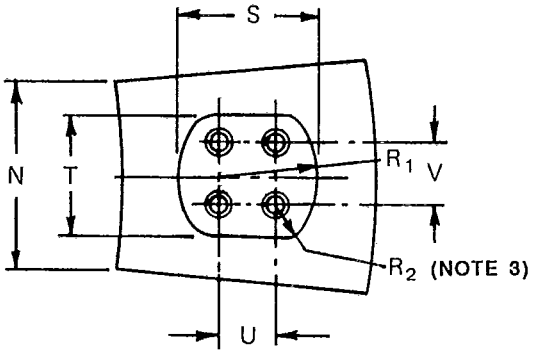
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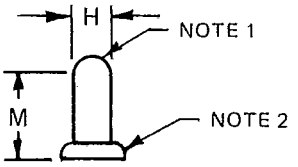
G10q Four-Pin Circular Fluorescent Lamp Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G10q. This standard is equivalent to IEC Publication 61.

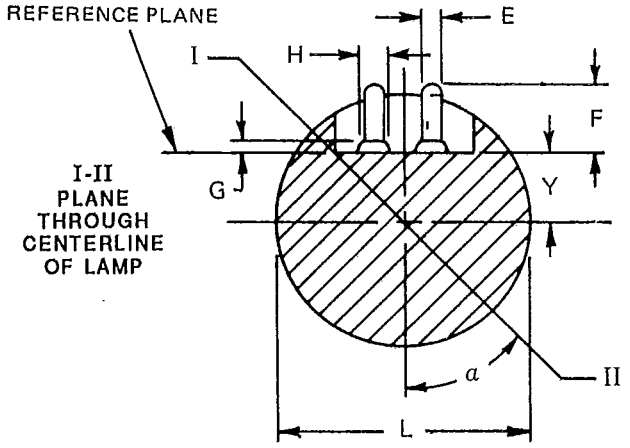
The dimensions shown on this sheet apply to finished bases after assembly on lamps.

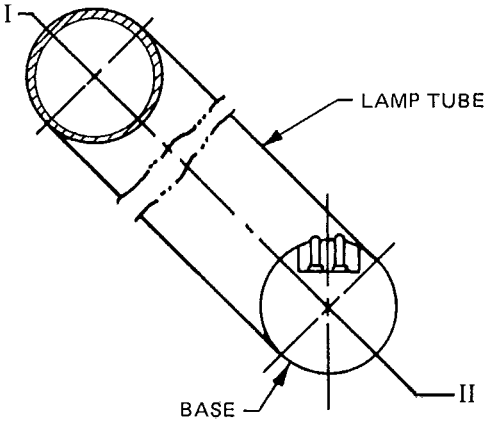
The drawing is intended only to indicate the dimensions to be controlled.





ENLARGED VIEW
OF PIN





BASE POSITION
SECTION VIEW

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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
E (dia) (Note 12)	0.090	–	0.100	–	–	–
F	0.250	–	0.300	6.35	–	7.62
G (Note 2)	–	–	0.050	–	–	1.27
H (dia)	–	–	0.130	–	–	3.30
L (dia) (Notes 6, 7)	–	–	1.220	–	–	31.00
M (Notes 8, 9, 10)	0.220	–	–	5.59	–	–
N (Note 6)	0.937	–	–	23.80	–	–
R_1 (Note 5)	0.457	–	–	11.61	–	–
R_2 (Notes 3, 4, 5)	–	–	0.165	–	–	4.20
S	0.657	–	–	16.69	–	–
T	0.626	–	–	15.90	–	–
U (Notes 11, 12)	–	0.250	–	–	6.35	–
V (Notes 11, 12)	–	0.312	–	–	7.92	–
Y (Note 13)	0.374	–	0.492	9.5	–	12.5
α (degrees) (Note 14)	–	45° approx	–	–	45° approx	–

NOTES:

(1) The ends of the pins shall be rounded or chamfered.

(2) The contour of the boss is controlled by the gauge on Standard Sheet 3-383.

(3) Dimension R_2, if present, is the radius of the arc of the rounded corners, located to be tangent to the sides.

(4) Dimension R_2, future objective = 0.150 inch (3.8 mm), maximum.

(5) In the case where the design option is exercised that allows unrestricted expansion of dimension S or dimension T, or both, the features defined by dimensions R_1 and R_2 may not be present.

(6) Dimension N denotes the distance over which diameter L applies.

(7) Irregularities are permitted on the surface of the base, provided that dimension L is maintained from the centerline to the reference plane (dimension Y) and along dimension N for proper mating to full-size lampholders (providing both holder and connector functions).

(8) Dimension M defines the minimum distance from the reference plane within which the pin shall be cylindrical, with the exception of the boss height dimension G.

(9) Indentations or grooves in the surface of the pins are allowed providing . . . . . (to be determined).

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

(11) The diameter of the circle on which the four pins are located is approximately 0.394 in (10 mm).

(12) Dimensions E, U, and V are checked in combination with other dimensions by the gauge shown on ANSI C81.63, Standard Sheet 3-383.

(13) Dimension Y is for base design purposes.

(14) Amount of rotation required by insertion into lampholder is shown in American National Standard for Dimension and Electrical Characteristics of Fluorescent Lamps – Rapid-Start Types, ANSI C78.1-1978 (R1984) and its supplements.

Gauging

The pins on bases of finished lamps shall enter Gauge 1-383 at surface o. Surface o shall contact the bottom of the base cavity. In this position, the end of the pins shall reach at least to surface x and shall not project beyond surface y.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-383.

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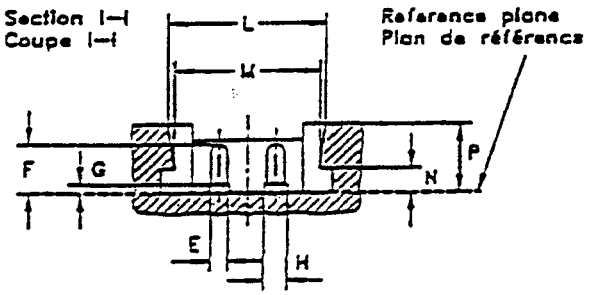
CULOT

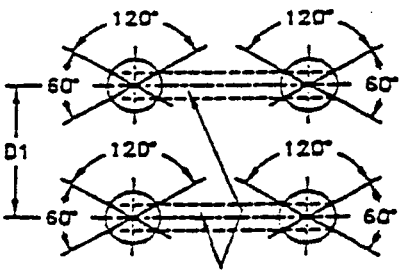
GR10q

Dimensions in millimetres - Dimensions en millimètres

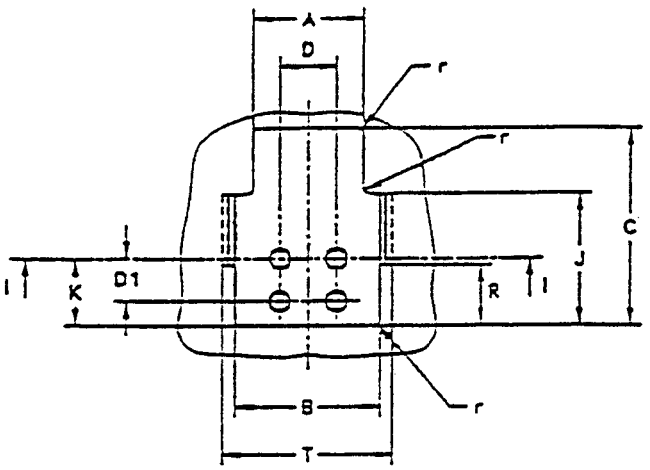
The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

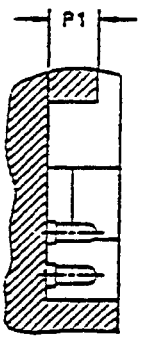
For details of holder GR10q, see sheet 7005-77.
Pour les détails de la douille GR10q, voir feuille 7005-77.





No crimp zone. See note (1)
Zone sans indentations. Voir note (1)





Dimension	Min.	Max.
A	15,5	15,8
B	20,3	20,6
C	29,0	31,0
D	8,0	
D1	6,35	
E	2,29	2,57
F	5,60	7,77
G	–	1,27
H	–	3,30
J	19,3	–
K	9,9	10,1
L	22,0	–
M	20,3	20,5
N	3,4	3,6
P	–	9,9
P1	6,5	7,0
R	–	9,0
T	21,9	–
r	–	0,8

(1) Indentations or grooves in the surface of the pins are allowed provided that they do not extend into that part of the pin radius bounded by the 60° arc shown above.

(1) Les indentations ou empreintes à la surface des broches sont permises, à condition qu'elles ne s'étendent pas à la partie délimitée par l'angle de 60° indiquée ci-dessus.

GAUGING: Caps GR8 on finished lamps shall fulfil the tests of the gauges shown on sheets 7006-77, 7006-77A, 7006-68E and 7006-68F.

VERIFICATION: Les culots GR8 sur lampes terminées doivent satisfaire aux essais avec les calibres selon les feuilles 7006-77, 7006-77A, 7006-68E et 7006-68F.

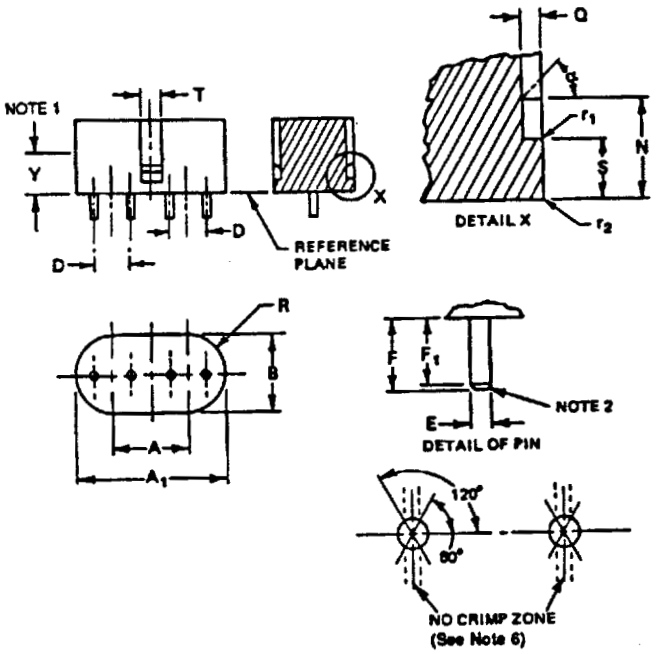
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2G11 Base

The designation assigned to this base by International Electrotechnical Commission (IEC), is 2G11.

The dimensions shown apply to bases after assembly on lamps.

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



Reference	Dimensions (millimeters) Min	Nom	Max.
A (Note 3)	—	22	—
A_1	43.3*	—	43.9*
B	23.2*	—	23.6*
D	—	11	—
E (Note 4)	2.29	—	2.67
F	6.0	—	6.8
F_1	5.5	—	—
N (Note 5)	6.5*	—	—
Q (Notes 5, 6)	1.5*	B/2*	—
R (Note 3)	—	—	—
S (Notes 5, 6)	3.5*	—	3.9
T	7.0*	—	—
Y	12.7*	—	—
r_1 (Note 6)	0.3*	—	0.5*
r_2 (Note 6)	0.2*	—	0.5*
α (Notes 5, 6)	—	45°	—

*These dimensions are solely for base design and are not to be gauged on the finished lamp.

NOTES

(1) Dimension Y denotes the minimum length over which the maximum limits of dimensions A_1, B and R shall be observed.

(2) The shape of the end of the pin is either chamfered rounded to aid insertion.

(3) Dimension A denotes center line spacing of two sets of pins, not necessarily the center for dimension R.

(4) For unmounted bases, E Max. = 2.44.

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(5) Dimensions N, S, and α define the minimum length of the notch over which dimensions Q and T apply. The maximum length of the notch is not specified and the notch could run up to the top of the base.

(6) Dimensions Q, S, r_1, r_2 minimum and α shall apply within the width of the notch, Dimension T, Outside Dimension T, only the limit for Dimension r_2 maximum applies.

(7) Indentations or grooves in the surface of the pins are allowed provided they do not extend into that part of the pin radius which is bounded by angles of 30° to the plane through the centerlines of the pins. The diameter of the pins, measured in the plane through the centerlines of the pins, shall not be less than 2.29 mm in every plane parallel to the base face.

Gauging

It shall be possible to insert a lamp base into Gauge 3-393 until the reference plane of the base is in contact with surface X of the gauge. In this position, all pins shall be coplanar with, or project beyond gauge surface Y, but shall not project beyond gauge surface Z.

See ANSI C81.63-1991 for gauges.

Lampholders

See ANSI C81.62-1991, Standard Sheet 2-393.

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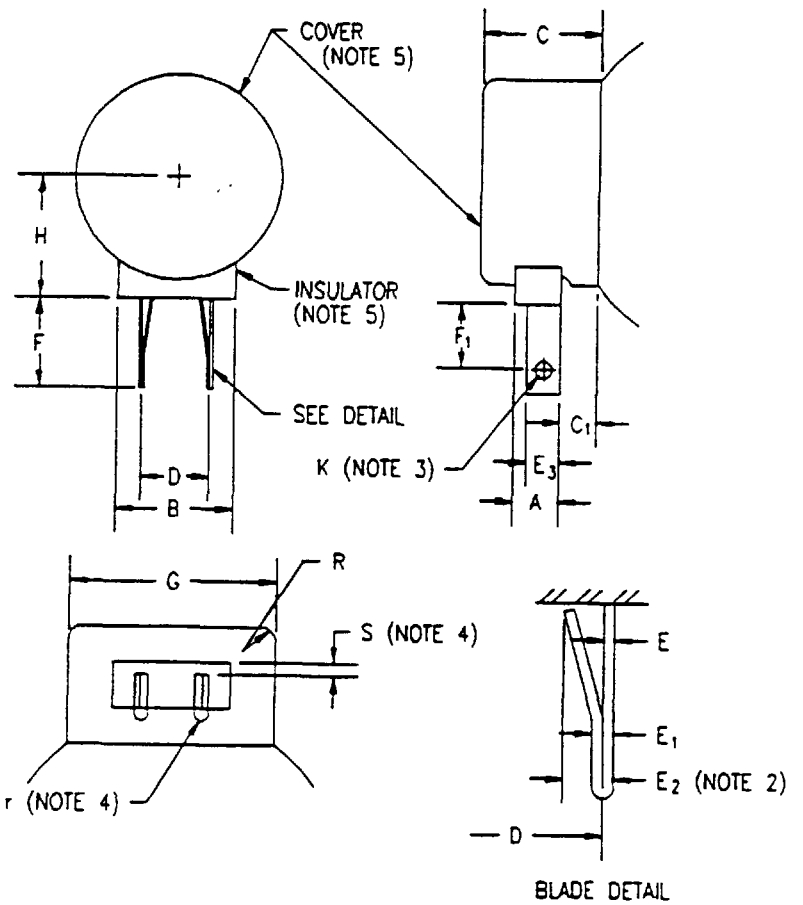
G12.7 SIDE PRONG BASE

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	
C1 (Note 1)		0.270			6.85	
D (Note 2)		0.50			12.70	
E (Note 2)	0.020			0.51		
E1 (Note 2)	0.055		0.065	1.40		1.65
E2 (Note 2)	0.055		0.125	1.40		3.17
E3	0.240		0.260	6.09		6.60
F	0.610		0.718	15.49		18.23
F1	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 UL817 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 Publication 61.

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.

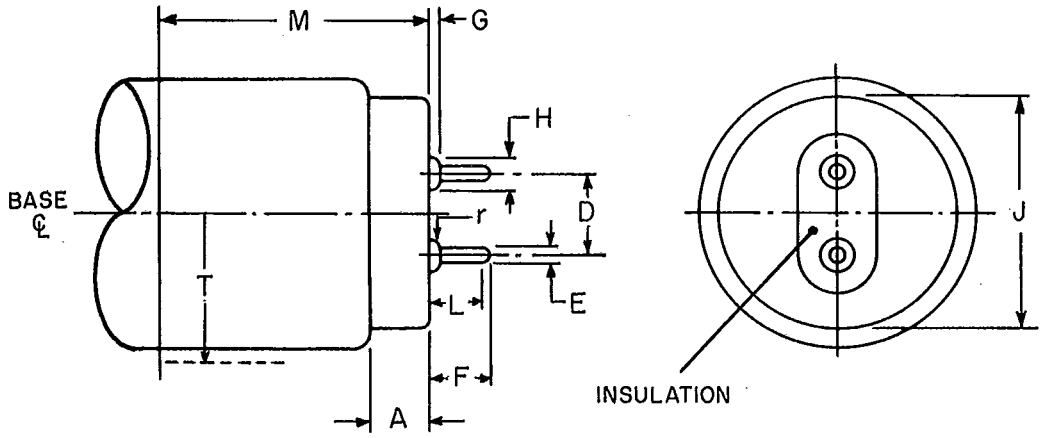


Figure 1
Base on Lamp

	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
Reference	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	0.250*	–	0.300	6.35	–	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)
	–	–	0.800 (T12)	–	–	20.32 (T12)
r	0.015	–	–	0.38	–	–

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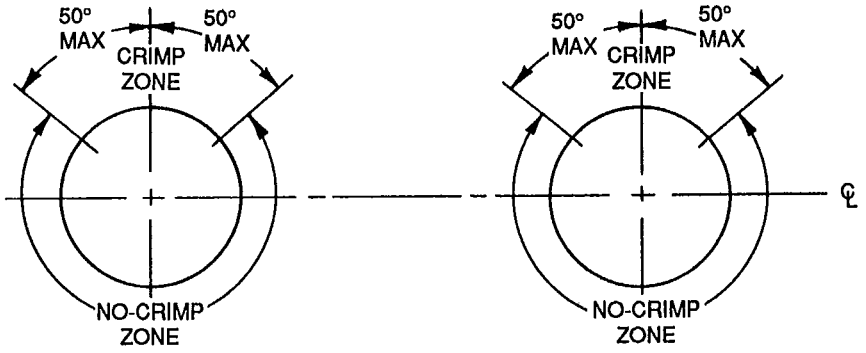


Figure 2
Enlarged Cross-Sectional View of Pins in a Plane Parallel to Base Face. (See Note 9(a))

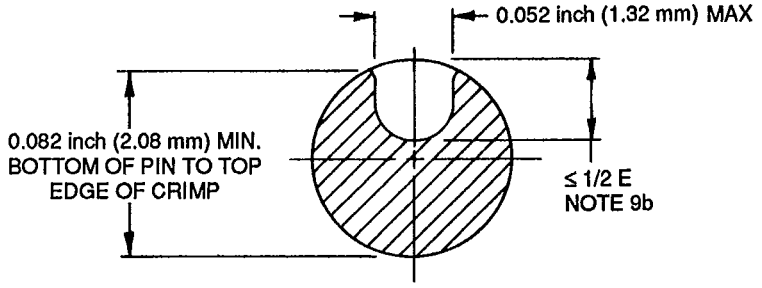


Figure 3
Enlarged Cross-Sectional View of An Indented or Grooved Pin in a Plane Parallel to the Base Face at the Point of the Largest Crimp Diameter. (See Note 9)

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 (2.36 mm ± 0.08 mm). This dimension is not to be gauged on the finished lamp.

(3) An allowance of 0.105 inch (2.67 mm) 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) Dimensinon 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 extend into a zone of 0.016 inch (0.4 mm) 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 (1.32 mm). 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 0.090 inch (2.29 mm) 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 (4.57 mm) from the base face.

Use a force gage 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.

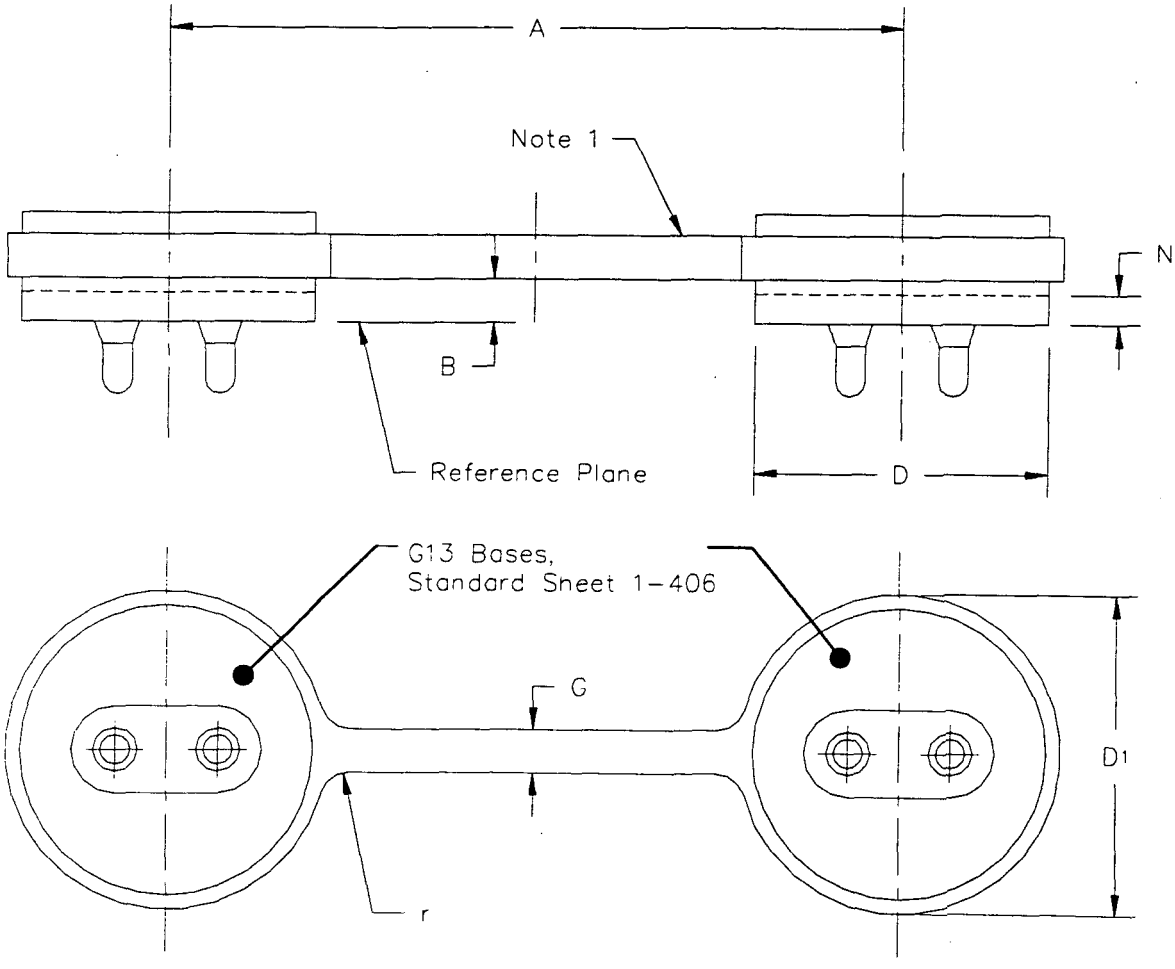
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2G13 U-SHAPED FLUORESCENT BASE

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

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 5/8 in. spacing)

Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	–	1.625	–	–	41	–
B	0.098	–	–	2.5	–	–
D	–	–	1.015(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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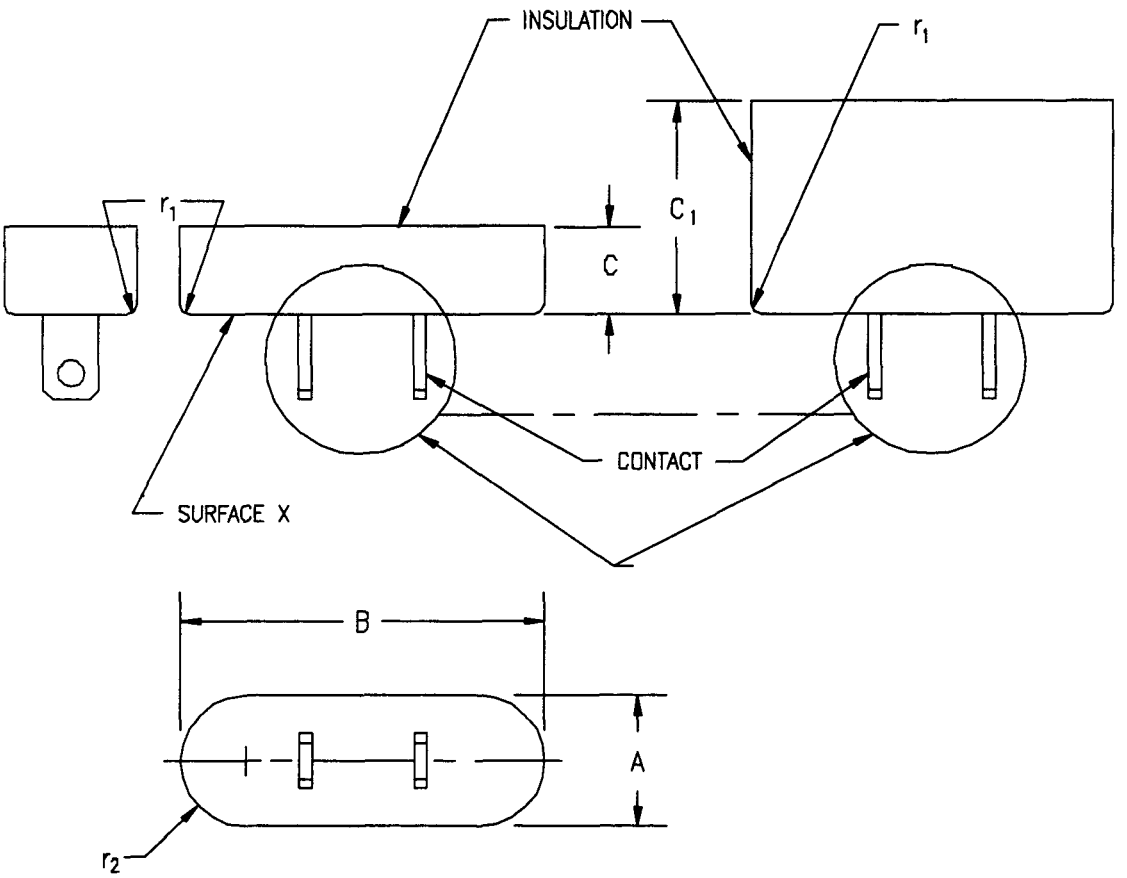
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G16d Mogul And Extended Mogul End-Prong Bases

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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	Standard Dimensions (in)			Nearest Metric Equivalent (mm)		
Reference	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.

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.

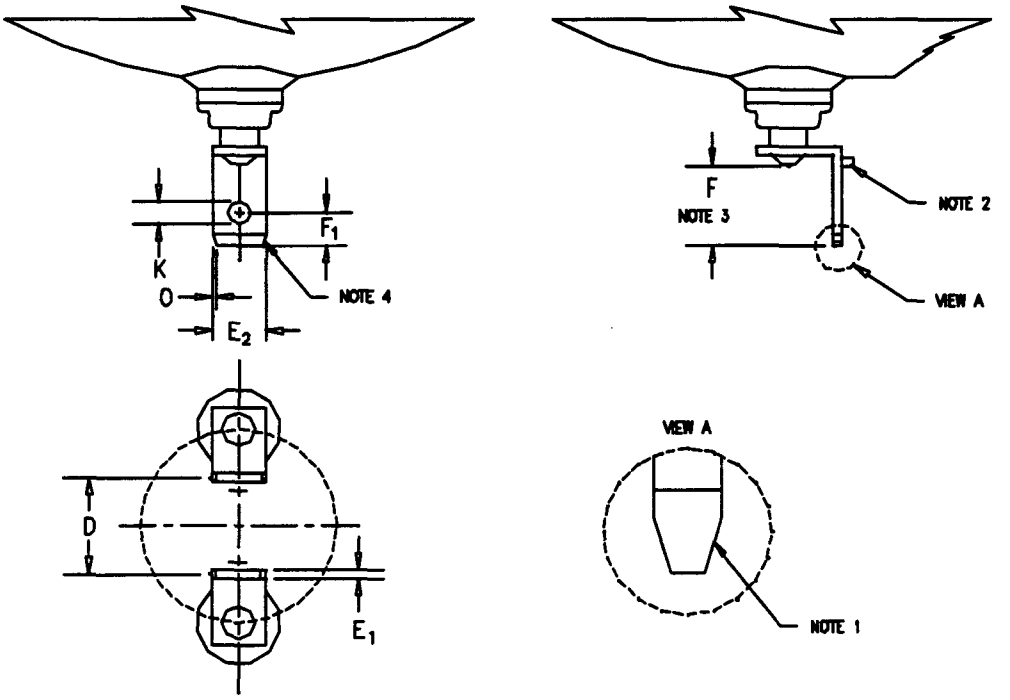


Figure 1
As Employed on a Pressed Glass Lamp

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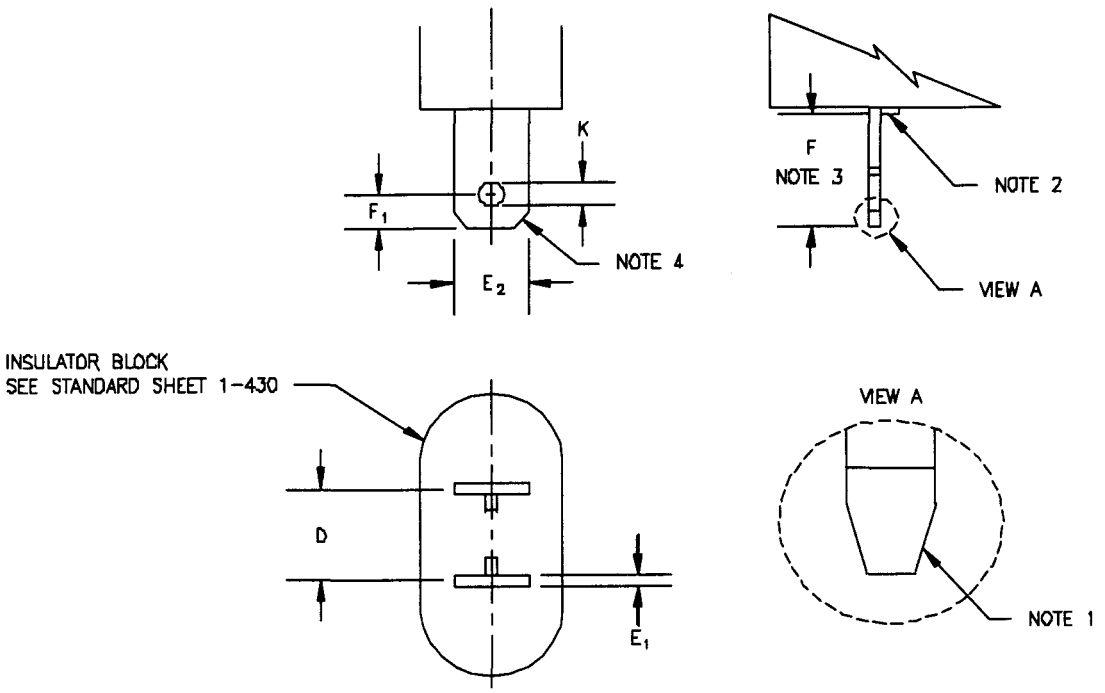


Figure 2
As Employed on a GX16d Base

	Standard Dimensions (in)			Nearest Metric Equivalent (mm)		
Reference	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

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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.

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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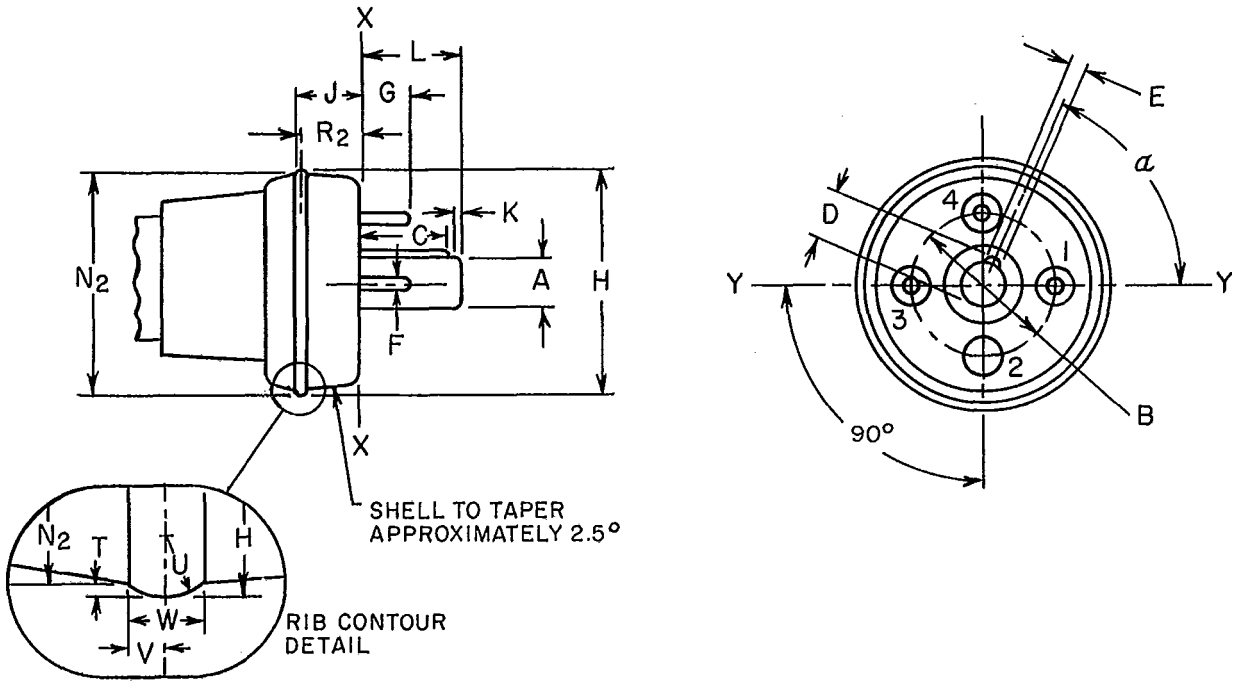
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G17t Tri-Pin Prefocus Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G17t. This standard sheet is nearly equivalent to IEC Publication 61.

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 G17q (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.

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 G17q base are shown on Standard Sheet 1-440.

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

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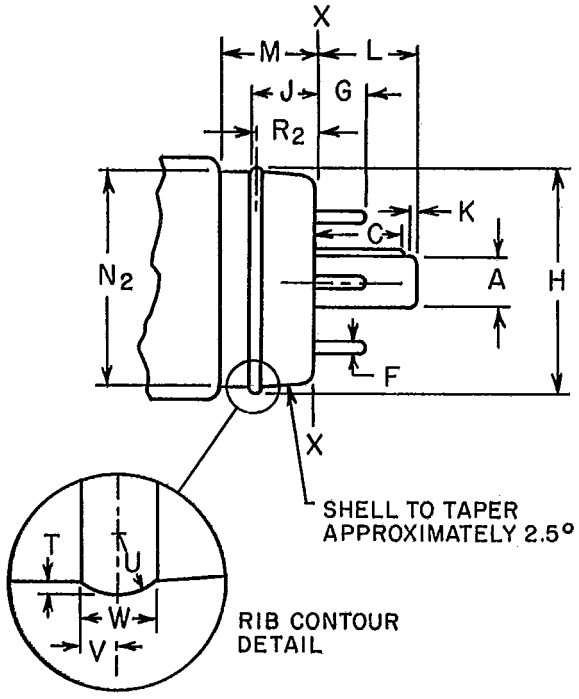
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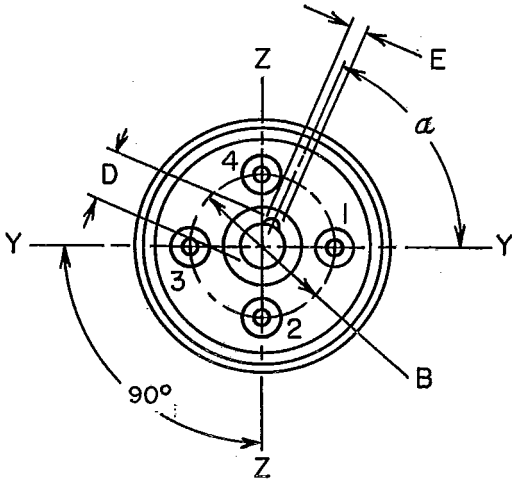
G17q and GX17q
Four-Pin Prefocus Bases

The designations assigned to these bases by the International Electrotechnical Commission (IEC) are G17q and GX17q. This standard sheet is nearly equivalent to IEC Publication 61.

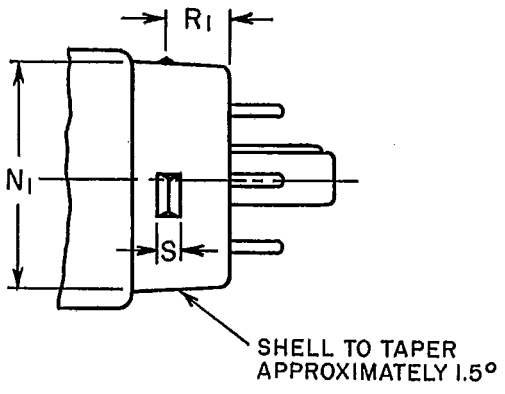
The dimensions shown on this sheet apply to finished bases after assembly on lamps.

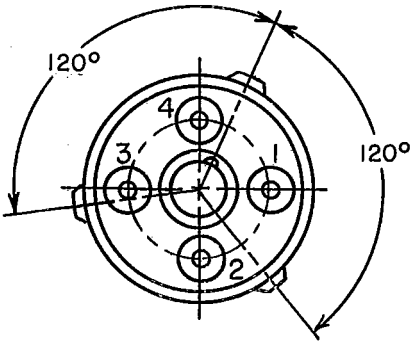
The drawings are intended only to indicate the dimensions to be controlled.

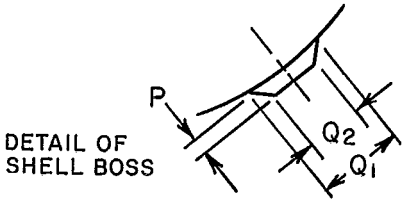




The three shell bosses shown below are an alternative to the rib contour shown above. All other dimensions of the base remain the same.







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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	–	0.510	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°30'	–	–	–	–

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.

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.

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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
It shall be possible to insert a lamp in Gauge 3-349 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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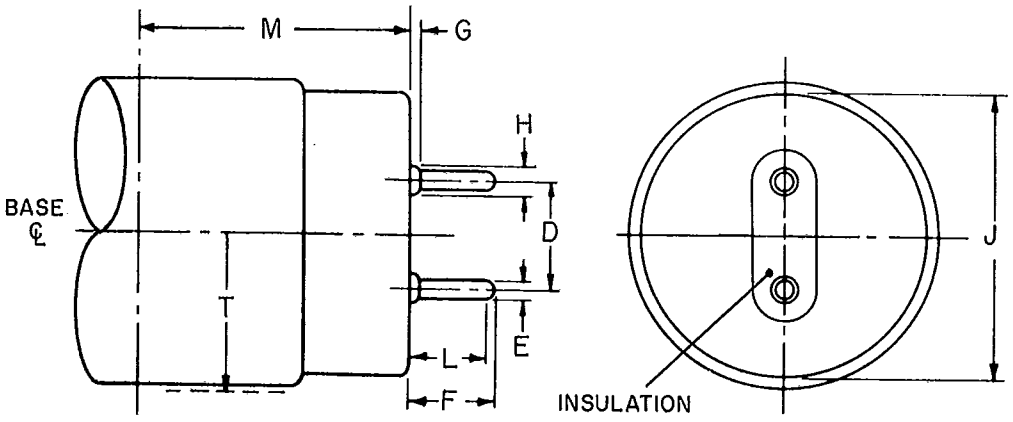
G20 Mogul Bipin Base

ANSI C81.61-1990
Std Sheet 1-452-1

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G20. This standard sheet is nearly equivalent to IEC Publication 61.

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) Min	Nom	Max	Nearest Metric Equivalent (millimeters) 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 dimension 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.

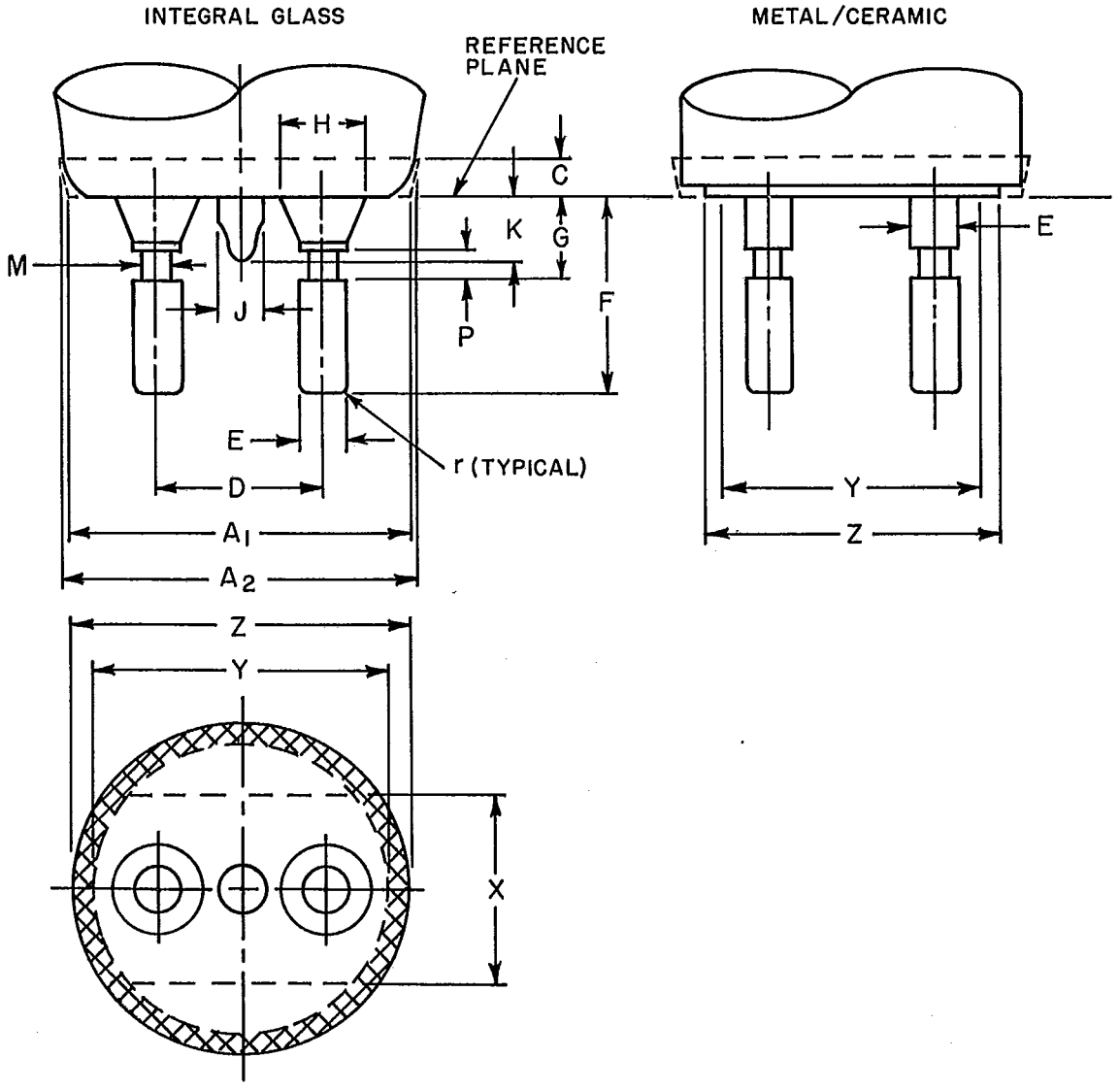
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G22 Medium Bipost Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G22. This standard sheet is equivalent to IEC Publication 61.

The dimensions shown apply to bases after assembly on lamps.

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



NOTE: All other dimensions are the same as those on the glass base.

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Reference	Dimensions (inches)			Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A_1 (Note 1)	–	–	1.791	–	–	45.49
A_2 (Note 1)	–	–	1.857	–	–	47.17
C (Note 1)	0.197	–	–	5.00	–	–
D	–	0.875	–	–	22.22	–
E	0.248	–	0.252	6.30	–	6.40
F	0.980	–	1.045	24.89	–	26.54
G	0.394	–	0.429	10.00	–	10.90
H	–	–	0.465	–	–	11.81
J (Note 2)	–	–	0.236	–	–	5.99
K (Note 3)	–	–	0.350	–	–	8.89
M	0.153	–	0.159	3.89	–	4.04
P	0.154	–	–	3.90	–	–
X (Note 4)	–	–	1.000	–	–	25.40
Y (Notes 4, 5)	–	–	1.550	–	–	39.37
Z (Note 5)	1.620	–	1.791	41.15	–	45.49
r	0.040	–	0.124	1.02	–	3.15

NOTES:
(1) The part of the base above the reference plane shall lie within the space defined by dimensions A_1, A_2, and C.
(2) Dimension J includes the eccentricity of location in addition to the diameter of the exhaust tip.
(3) To ensure a fit in European holders, a K maximum value of 0.295 inches (7.5 mm) must be observed.
(4) Dimensions Y and X define the area reserved for installation of the posts and the exhaust tip within which surface irregularities are allowed. Outside this area, there shall be no surface irregularities projecting below the reference plane.
(5) Dimensions Y and Z (shaded area) define the limits of the seating area.

Gauging

When the lamp base is fully inserted into the recess of Gauge 3-466, the reference plane of the base shall seat on surface x. Dimensions F, G, and K are checked by sighting across the reference surfaces representing the maximums or minimums of these dimensions. The post diameters are checked singly by insertion into the gauge holes designated E_1 and E_2. Each post must enter the "Go" Gauge over its entire cylindrical length. The posts must enter the "Not-Go" gauge beyond the radiused ends.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 1-466.

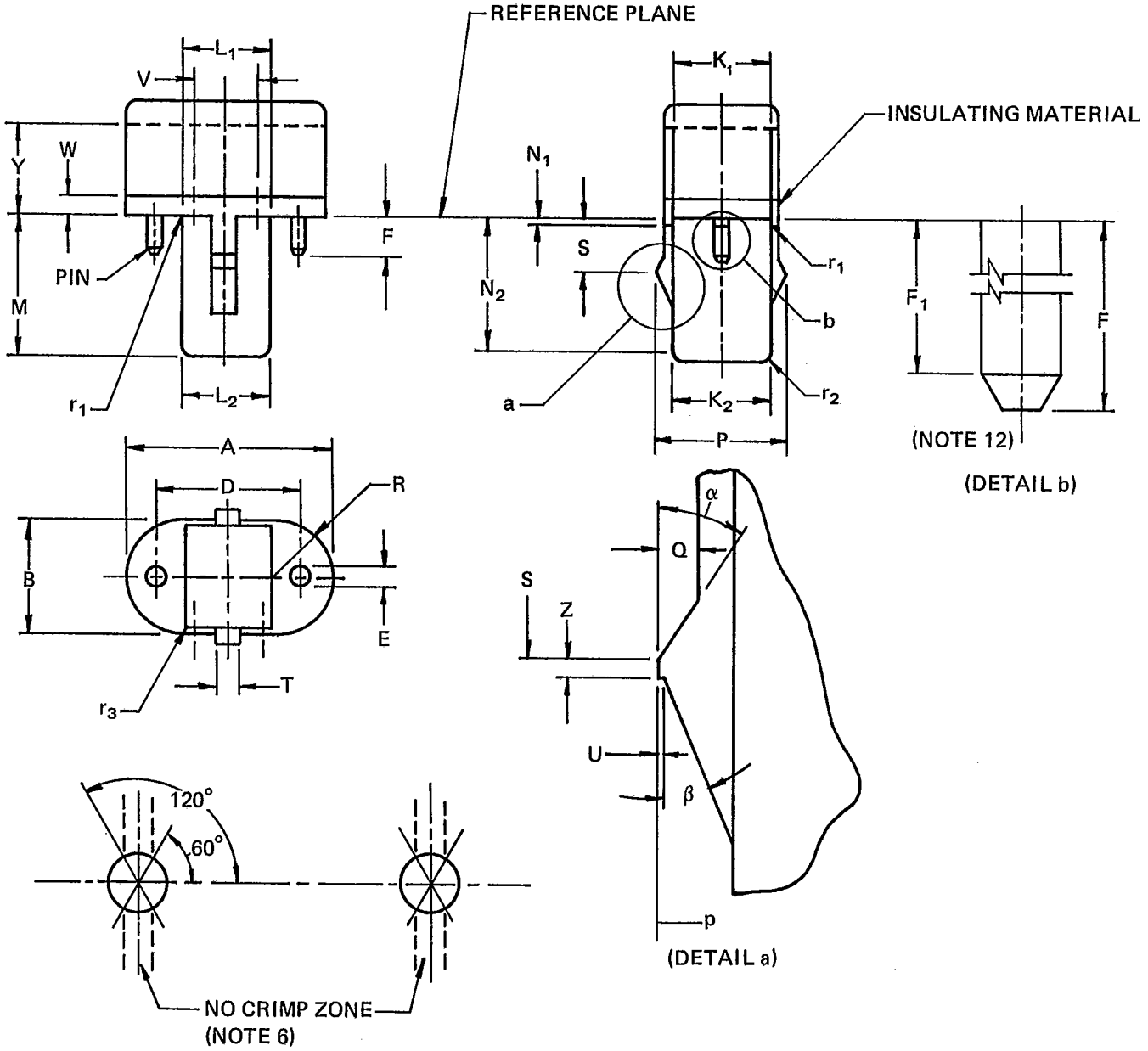
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G23 Base

ANSI C81.61-1990
Std Sheet 1-475-1

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G23. This standard sheet is equivalent to IEC Publication 61.

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



NOTE: The G23 fit is developed for single-ended fluorescent lamps with a preheating current not exceeding 240 mA. For lamps with a preheating current exceeding 240 mA, see GX23 fit (ANSI C81.61, Standard Sheet 1-476).

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Reference	Standard Dimensions (millimeters) Min	Nom	Max	Reference	Standard Dimensions (millimeters) Min	Nom	Max
A (Note 2)	31.5	–	32.5	Q	1.2	–	–
B (Notes 1, 2)	17.7	–	18.1	R (Note 2)	–	–	9.05
D (Note 11)	–	23.0	–	S	8.85	–	9.15
E (Notes 6, 3, 11)	2.29	–	2.67	T (Notes 1, 11)	3.5	–	4.5
F (Note 11)	6.0	–	6.8	U (Note 9)	–	–	0.2
F_1 (Notes 9, 10)	5.5	–	–	V (Note 1)	–	11	–
K_1 (Notes 4, 11)	16.15	–	16.3	W (Notes 1, 8)	3.0	–	–
K_2 (Note 5)	15.6	–	15.75	Y (Note 2)	10.2	–	–
L_1 (Notes 4, 11)	13.75	–	13.9	Z (Note 9)	0.5	–	–
L_2 (Note 5)	13.2	–	13.35	r_1	–	–	0.4
M	–	–	23.0	r_2 (Notes 7, 9)	0.8 approx	–	–
N_1 (Note 4)	–	0.5	–	r_3 (Note 9)	0.5	–	1.0
N_2 (Note 5)	–	21.0	–	α (Note 9)	–	35°	–
P (Note 11)	20.6	–	21.0	β	20°	–	30°

NOTES:

(1) Dimension B minimum shall apply outside dimension T up to at least dimension V and up to dimension W minimum. Dimension B maximum shall apply outside dimension T.

(2) Dimension Y denotes the minimum length over which the maximum limits of dimensions A, B, and R shall be observed.

(3) On unmounted bases E maximum = 2.44 mm.

(4) Dimensions K_1 and L_1 are measured at distance N_1 below the reference plane.

(5) Dimensions K_2 and L_2 are measured at distance N_2 below the reference plane.

(6) Indentations or grooves in the surface of the pins are allowed, provided that they do not extend into that part of the pin-radius that is bounded by the angles of 60° and 120° of the plane through the centerlines of the pins (see drawing). The diameter of the pins measured in the direction perpendicular to the plane through the centerlines of the pins shall be not less than 2.29 mm in every plane parallel to the base face.

(7) A chamfer of approximately 0.8 mm is also allowed.

(8) Dimension W denotes the height of the insulating part.

(9) These dimensions are solely for base design and are not gauged on the finished lamp.

(10) Dimension F_1 is the minimum length of the cylindrical portion of the pin.

(11) The combined displacement and the diameter of the pins, the minimum and the maximum diameter of the individual pins, the minimum and the maximum pin lengths, and the maximum values of dimensions K_1, L_1, P and T are checked by the base gauge.

(12) The shape of the end of the pin may be either chamfered or rounded.

Gauging

When the lamp base center post is fully inserted in Gauge 3-475 at surface o, the reference plane of the base and the surface of the gauge shall be in contact. In this position the ends of the pins shall be coplanar with or project beyond surface f_1 but they shall not project beyond surface f_2. It shall be possible to insert each pin in turn into hole E_1 until the reference plane of the base and the surface of the gauge are in contact. It shall not be possible to insert the pins, other than the extreme tips, into hole E_2.

See ANSI C81.63 for gauges.

Lampholder

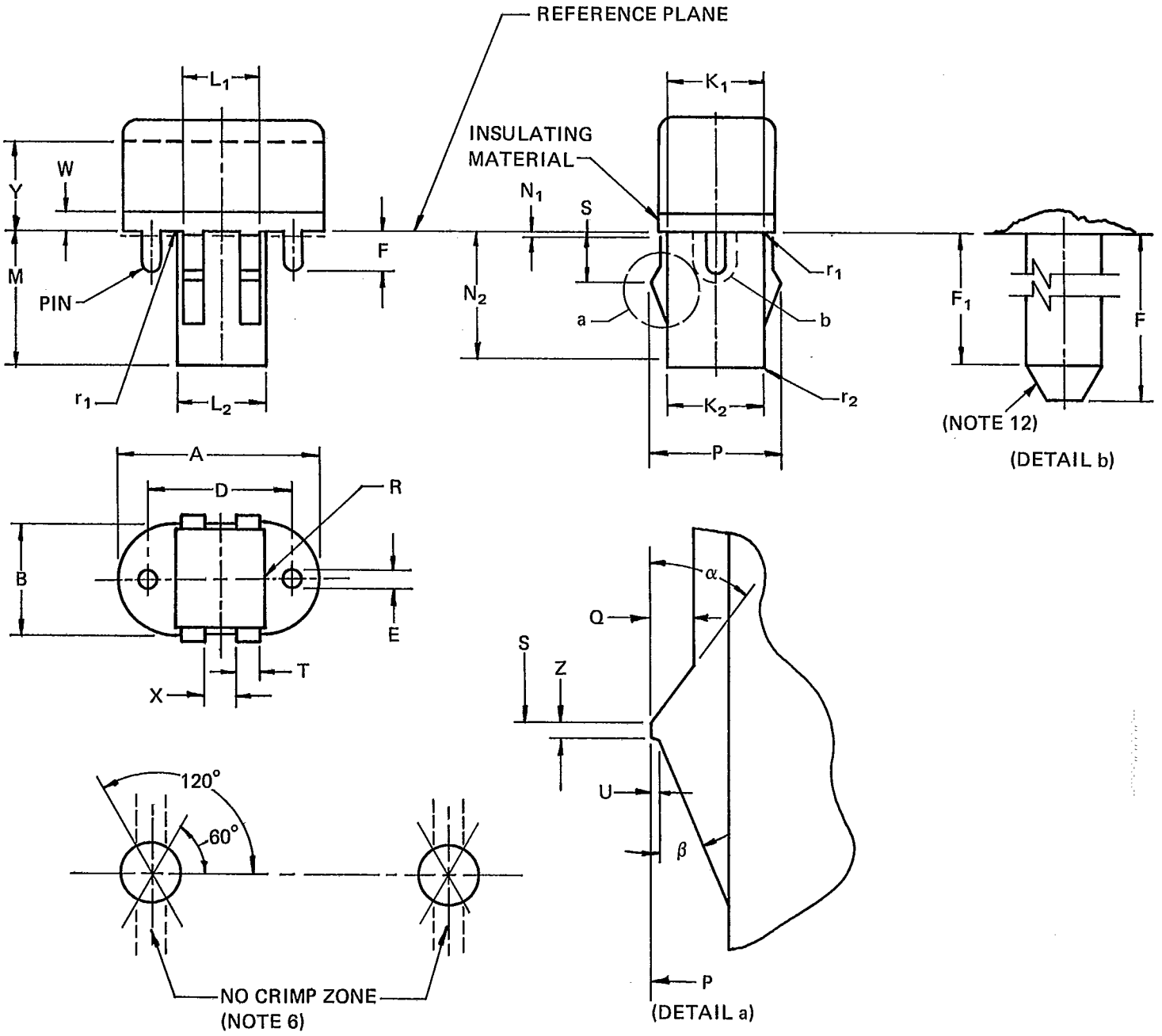
See ANSI C81.62, Standard Sheet 2-475.

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GX23 Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is GX23. This standard sheet is equivalent to IEC Publication 61.

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



NOTE: If this fit is used for single-ended fluorescent lamps, the maximum preheating current should be in the range of $240 < Ip \leq 525$ mA. For lamps with a preheating current not exceeding 240 mA, see G23 fit (ANSI C81.61, Std Sheet 1-475).

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Reference	Standard Dimensions (millimeters) Min	Nom	Max	Reference	Standard Dimensions (millimeters) Min	Nom	Max
A (Note 2)	31.5	–	32.5	Q	1.2	–	–
B (Notes 1, 2)	17.7	–	18.1	R (Note 2)	–	–	9.05
D (Note 11)	–	23.0	–	S	8.85	–	9.15
E (Notes 6, 3, 11)	2.29	–	2.67 (Note 3)	T (Notes 1, 11)	3.5	–	4.5
F (Note 11)	6.0	–	6.8	U (Note 9)	–	–	0.2
F_1 (Notes 9, 10)	5.5	–	–	W (Notes 1, 8)	3.0	–	–
K_1 (Notes 4, 11)	16.15	–	16.3	X	3.5	–	–
K_2 (Note 5)	15.6	–	15.75	Y (Note 2)	10.2	–	–
L_1 (Notes 4, 11)	13.75	–	13.9	Z (Note 9)	0.5	–	–
L_2 (Note 5)	13.2	–	13.35	r_1	–	–	0.4
M	–	–	23.0	r_2 (Notes 7, 9)	0.8 approx	–	–
N_1 (Note 4)	–	0.5	–	α (Note 9)		35°	–
N_2 (Note 5)	–	21.0	–	β	20°	–	30°
P (Note 11)	20.6	–	21.0				

NOTES:

(1) Dimension B minimum shall apply within the width X and up to dimension W minimum. Dimension B maximum shall apply outside dimension T.

(2) Dimension Y denotes the minimum length over which the maximum limits of dimensions A, B, and R shall be observed.

(3) On unmounted bases $E_{max} = 2.44$ mm.

(4) Dimensions K_1 and L_1 are measured at distance N_1 below the reference plane.

(5) Dimensions K_2 and L_2 are measured at distance N_2 below the reference plane.

(6) Indentations or grooves in the surface of the pins are allowed, provided that they do not extend into that part of the pin-radius that is bounded by the angles of 60° and 120° of the plane through the centerlines of the pins (see drawing). The diameter of the pins measured in the direction perpendicular to the plane through the centerlines of the pins shall be not less than 2.29 mm in every plane parallel to the base face.

(7) A chamfer of approximately 0.8 mm is also allowed.

(8) Dimension W denotes the height of the insulating part.

(9) These dimensions are solely for base design and are not to be gauged on the finished lamp.

(10) Dimension F_1 is the minimum length of the cylindrical portion of the pin.

(11) The combined displacement and the diameter of the pins, the minimum and the maximum diameter of the individual pins, the minimum and the maximum pin lengths, and the maximum values of dimensions K_1, L_1, and T are checked by the base gauge.

(12) The shape of the end of the pin may be either chamfered or rounded.

Gauging

When the lamp base is fully inserted into Gauge 3-476 at surface o, the reference plane of the base and the surface of the gauge shall be in contact. In this position, the ends of the pins shall be coplanar with or project beyond surface f_1 but they shall not project beyond surface f_2.

It shall be possible to insert each pin in turn into hole E_1 until the reference plane of the cap and the surface of the gauge are in contact. It shall not be possible to insert the pins, other than the extreme tips, into hole E_2.

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-476.

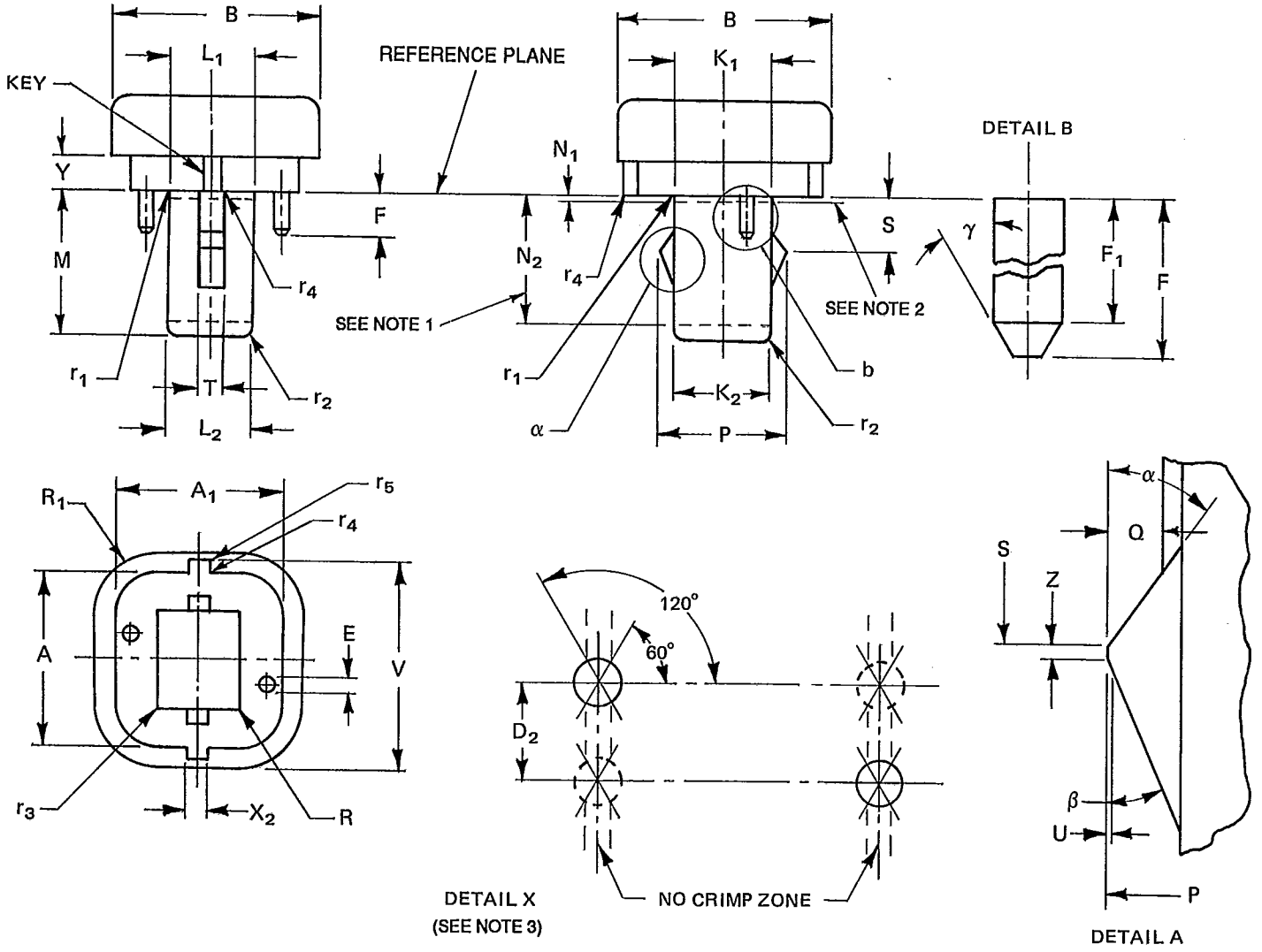
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G24d and G24q Bases

ANSI C81.61-1990
Std Sheet 1-493-1

The designations assigned to these bases by the International Electrotechnical Commission (IEC) are G24d-1, G24d-2, and G24d-3, G24q-1, G24q-2, and G24q-3. This standard sheet is fully compatible with that pending for IEC Publication 61.

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



NOTE: Only the G24d-1 base is shown. For bases with different designations, see page 2.

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G24d-1, G24d-2, G24d-3, G24q-1, G24q-2, G24q-3 Bases

Pin Location

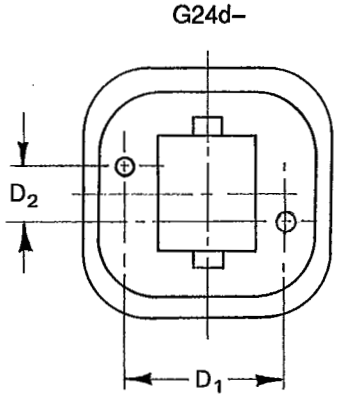


Figure 1

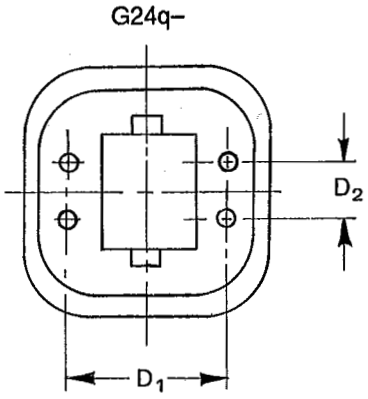


Figure 2

Keying System

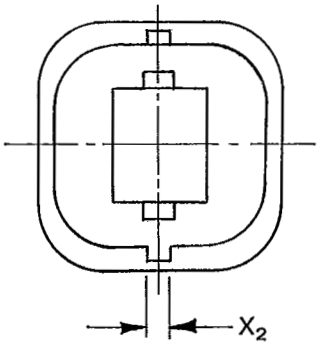


Figure 3

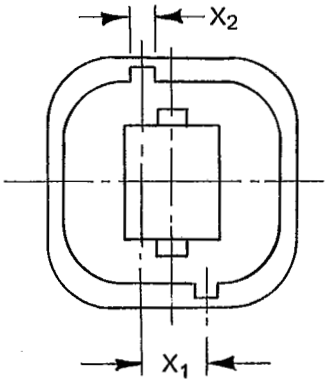


Figure 4

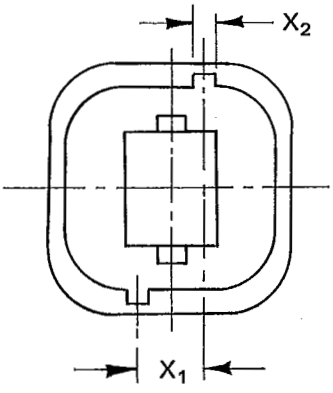


Figure 5

Designation	Pin Location Figure	Keying System	Dimension X_1 nom
G24d-1 G24q-1	1 2	3	Note 4
G24d-2 G24q-2	1 2	4	9.3
G24d-3 G24q-3	1 2	5	9.3

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Reference	Standard Dimensions (millimeters) Min	Nom	Max
A (Note 5)	27.5	–	28.5
A_1	27.5	–	31.0
B	–	–	35.0
D_1	–	23.0	–
D_2	–	8.0	–
E (Note 3)	2.29	–	2.67 (Note 6)
F	6.0	–	6.8
F_1	5.5	–	–
K_1 (Note 2)	16.15	–	16.3
K_2 (Note 1)	15.6	–	15.75
L_1 (Note 2)	13.75	–	13.9
L_2 (Note 1)	13.2	–	13.35
M	–	–	23.0
N_1 (Note 2)	–	0.5	–
N_2 (Note 1)	–	21.0	–
P	20.6	–	21.0
Q	1.2	–	–
R (Note 5)	8.4	–	9.5
R_1	9.0	–	–
S	8.85	–	9.15
T	3.5	–	4.5
U*	–	–	0.2
V	32.0	–	33.0
X_1	–	See Table, Page 2	–
X_2	2.5	–	–
Y (Note 5)	5.7	–	–
Z*	0.5	–	–
r_1	–	–	0.4
r_2* (Note 7)	–	0.8 approx	–
r_3	0.5	–	1.5
r_4	–	–	0.2
r_5	0.2	–	0.5
α*	–	Nom 35°	–
β	20°	–	30°
γ	–	30° approx	–

* These dimensions are solely for base design and are not to be gauged on the finished lamp.

NOTES:

(1) Dimensions K_2 and L_2 are measured at distance N_2 from the reference plane.

(2) Dimensions K_1 and L_1 are measured at distance N_1 from the reference plane.

(3) 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 two parallel planes separated by dimension D_2 (see detail X). The diameter of the pins measured in the direction perpendicular to these planes through the centerlines shall be not less than 2.29 mm in every plane parallel to the base face.

(4) In this design, the keys are located on the centerline.

(5) With the exception of the keys, the circumference of the base, within dimension Y, shall lie between the limits determined by dimensions A_{max}, $A_{1\,max}$, and R_{min} on the one side and A_{max}, $A_{1\,max}$, and R_{max} on the other.

(6) On unmounted bases, $E_{max} = 2.44$.

(7) A chamfer of approximately 0.8 mm is also allowed.

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Gauging
When the center post and pins of the base are fully inserted into Gauge 3-493, the reference plane of the base and the surface o of the gauge shall be in contact. In this position, the ends of the pins shall be coplanar with or project beyond f_1, but they shall not project beyond surface f_2.

It shall be possible to insert each pin in turn into hole E_1 until the reference plane of the base and the surface x of Gauge 3-493 shall be in contact.

It shall not be possible to insert the pins, other than the extreme tips, into hole E_2 of Gauge 3-493.

See ANSI C81.63 for gauges.

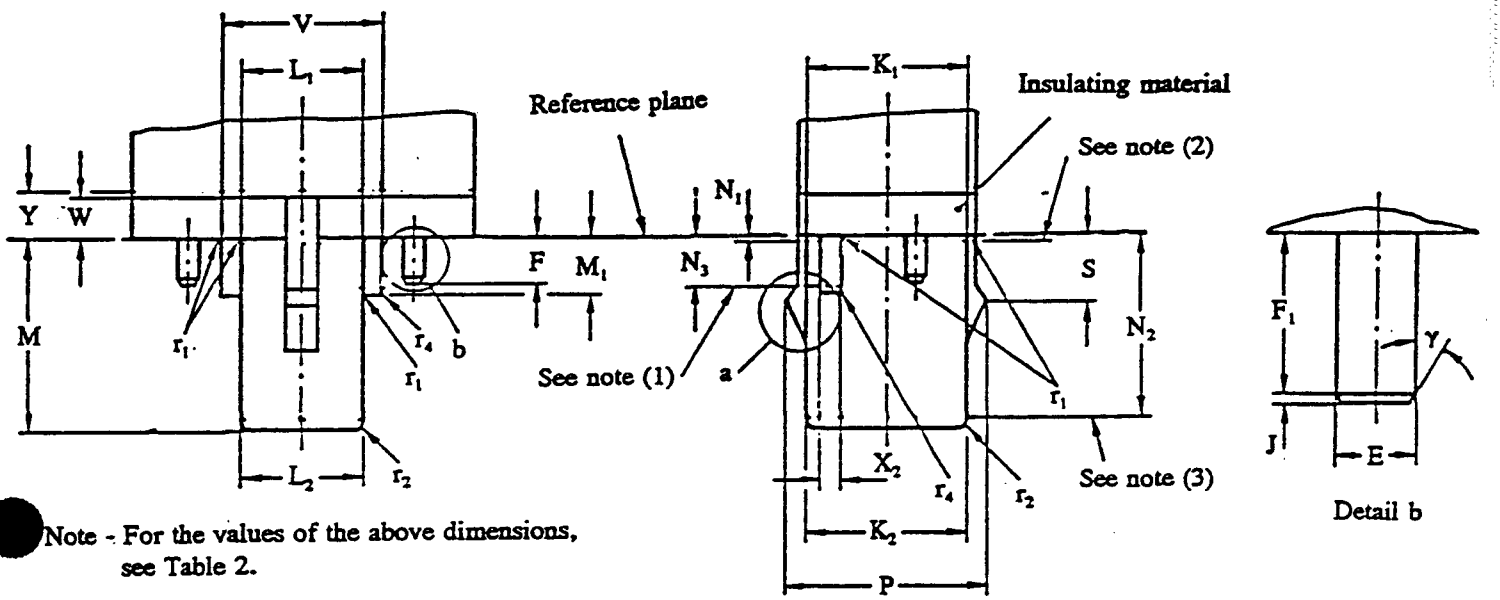
Lampholder
See ANSI C81.62, Standard Sheet 2-493.

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G32 and GX32 Bases

The designation assigned to these bases by International Electrotechnical Commission (IEC), are G32d-1, 2, 3, 4, 5; G32q-1, 2, 3, 4, 5; GX32d-1, 2, 3, 4, 5; and GX32q-1, 2, 3, 4, 5. This standard sheet is fully compatible with that pending for IEC 61.

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



Note - For the values of the above dimensions, see Table 2.

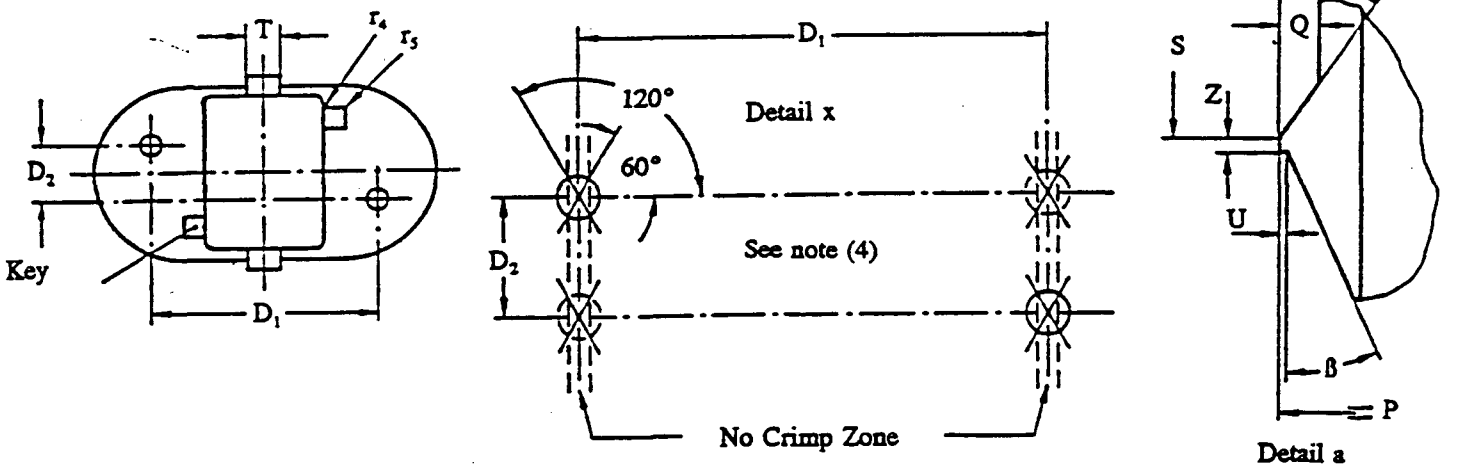


Figure 1

NOTE – Only the G32d-4 base is shown. For other variations of G32 and GX32 bases, see Page 2.

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Pin Location (Bottom Views)

G32d-..

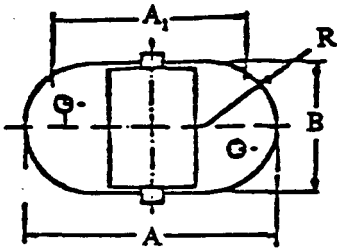


Figure 2

G32q-..

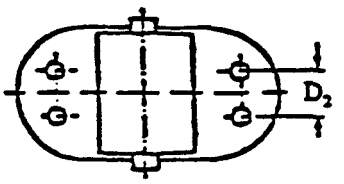


Figure 3

GX32d-..

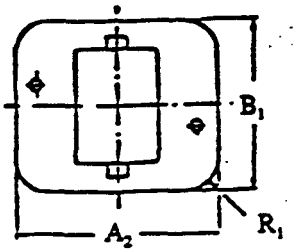


Figure 4

GX32q-..

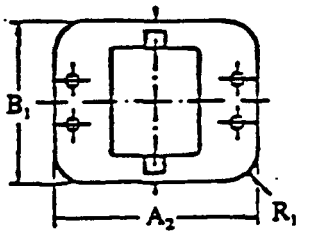


Figure 5

Keying Location (Bottom Views)

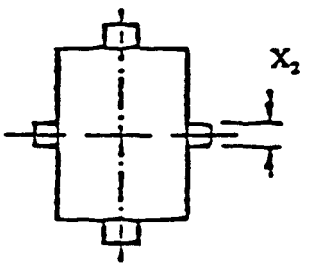


Figure 6

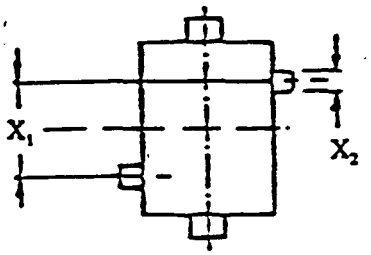


Figure 7

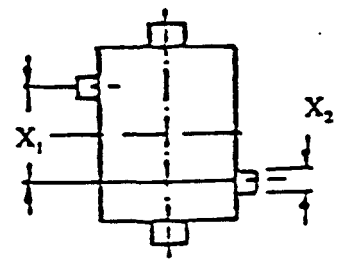


Figure 8

Table 1 – Pin and key variations

Designation	Pin Location Figure	Keying System Figure	Standard Dimension X_1 Nom. (mm)
G32d-1 G32q-1 GX32d-1 GX32q-1*	2 3 4 5*	6*	Note 5
G32d-2 G32q-2 GX32d-2 GX32q-2*	2 3 4 5*	7*	7.5
G32d-3 G32q-3 GX32d-3 GX32q-3*	2 3 4 5*	8*	7.5
G32d-4 G32q-4 GX32d-4 GX32q-4*	2 3 4 5*	7*	15.0
G32d-5 G32q-5 GX32d-5 GX32q-5*	2 3 4 5*	8*	15.0

* These dimensions are solely for base design and are not to be gauged on the finished lamp.

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Table 2 – Dimensions

Reference	Standard Dimensions (millimeters)			Reference	Standard Dimensions (millimeters)		
	Min.	Nom.	Max.		Min.	Nom.	Max.
A (Note 6)	43.3		43.9	Q	1.2		
A_1 (Note 7)		32		R (Note 6)		B/2	
A_2			39.0	R_1	6.0		
B (Note 6,7,8)	23.2		23.6	S	8.85		9.15
B_1			32.0	T (Note 8)	3.5		4.5
D_1		31.0		U			0.2
D_2		8.0		V (Note 1)	20.7		21.2
E (Note 4,9)	2.29		2.67	W (Note 10)	5.25		
F	6.0		6.8	X_1		See Table 1	
F_1	5.5			X_2 (Note 1)	2.8		
J	0.4			Y (Note 6)	5.7		
K_1 (Note 2)	21.80		21.95	Z *	0.5		
K_2 (Note 3)	21.05		21.20	r1			0.4
L_1 (Note 2)	16.20		16.35	r_2* (Note 11)		Approx. 0.8	
L_2 (Note 3)	21.05		15.60	r_3	0.5		1.0
M	15.45		26.5	r_4			0.2
M_1			8.0	r_5	0.2		0.5
N_1 (Note 2)		0.5		α *		Nom. 35°	
N_3 (Note 3)		24.5		β	20°		30°
N_3 (Note 1)		7.0		γ		Approx. 30°	
P	26.3		26.7				

* These dimensions are solely for base design and are not to be gauged on the finished lamp.

NOTES –

1 Dimensions V_{min} and X_{2min} are measured at distance N_3 from the reference plane.

2 Dimension K_1 and L_1 are measured at distance N_1 from the reference plane.

3 Dimension K_2 and L_2 are measured at distance N_2 from the reference plane.

4 Indentations or grooves in the surfaces 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 two parallel planes, separated by dimensions D_2 (see detail x). The diameter of the pins measured in the direction perpendicular to these 4 planes through the center lines shall be not less than 2.29mm in every plane parallel to the base face.

5 In this design the keys are located on the center line.

6 Dimension Y denotes the minimum length over which the maximum limits of dimensions A, B, and R or A_2, B_1 and R_1 shall be observed.

7 Within the area defined by dimension A_1, depressions in the circumference of the base are admissible.

8 Dimension B_{max} shall apply outside dimension T.

9 Or unmounted base E_{max} = 2.44.

10 Dimension W denotes the height of the insulating part.

11 A chafer of approximately 0.5mm is also allowed.

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Gauging
3-506 Gauge: The base shall enter the gauge at surface o and, when fully inserted, the reference plane of the base and the surface of the gauge shall contact. In this position the ends of the pins shall be co-planar with or project beyond surface f1 but they shall not project beyond surface f2. It shall be possible to insert each pin, in turn, into hole E1 until the reference plane of the base and the surface of the gauge contact. It shall not be possible to insert the pins, other than the extreme tips, into hole E2.

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.61.62, Standard Sheet 2-506.

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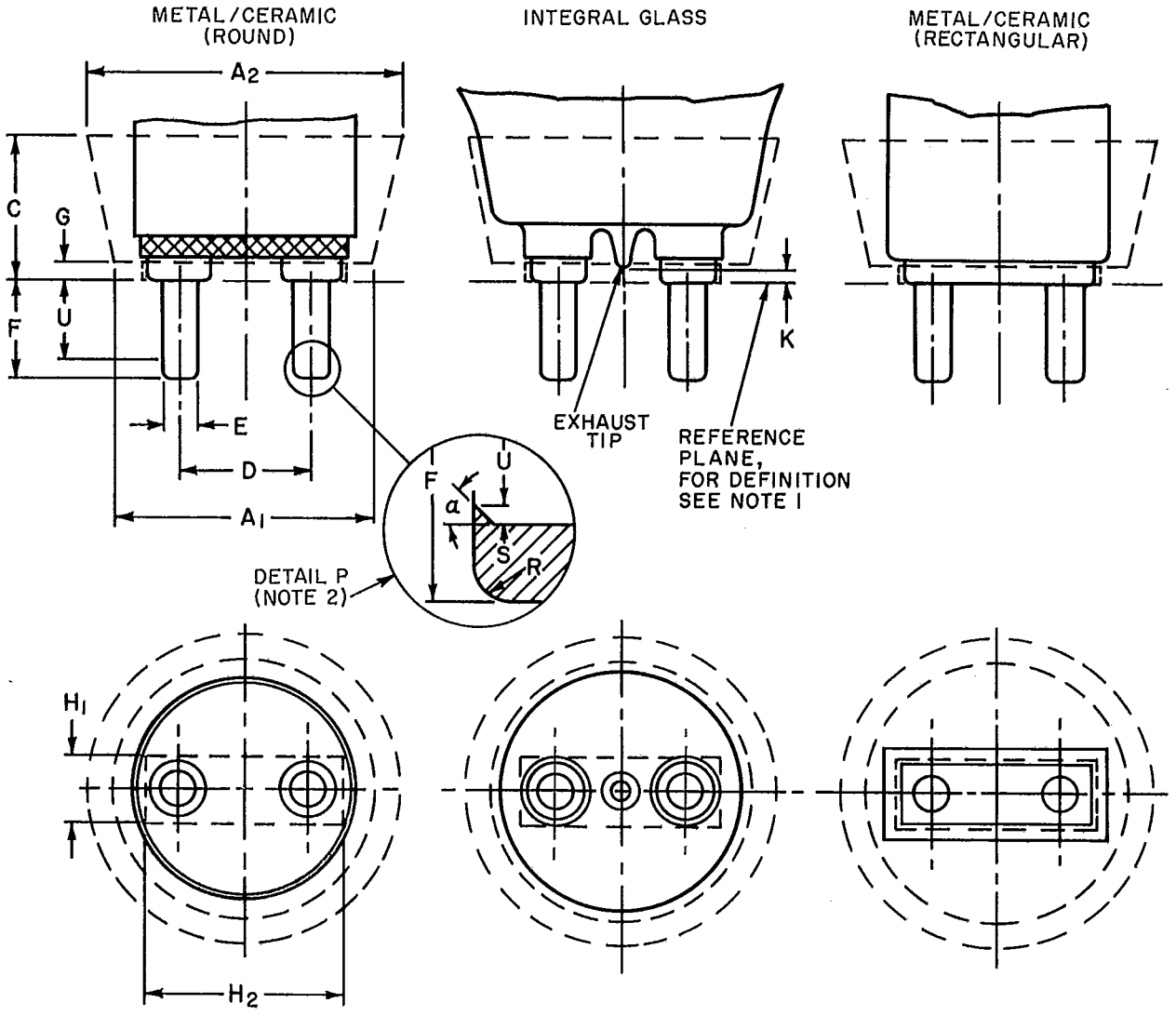
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G38 Mogul Bipost Base

ANSI C81.61-1990
Std Sheet 1-519-1

The designation assigned to this base by the International Electrotechnical Commission (IEC) is G38. This standard sheet is equivalent to IEC Publication 61.

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



NOTES:

(1) The reference plane of the base is defined as the position of surface x of the "go" gauge shown on Standard Sheet 3-519 when that surface is in contact either with one or both bosses of the posts or with the surface of the insulator, depending upon the design of the base.

(2) The contour of the end of each post shall lie within the shaded area shown in detail P. In every case the ends of the posts shall be provided with a radius or chamfer sufficient to enable easy entry into the lampholder contacts.

(3) The broken lines in the above drawings correspond with the recesses in the "go" gauge shown on Standard Sheet 3-519.

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Reference	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A_1 (Notes 4, 5)	–	–	3.012	–	–	76.5
A_2 (Notes 4, 5)	–	–	3.504	–	–	89.0
C (Notes 4, 5)	1.614	–	–	41.0	–	–
D (Note 5)	–	1.500	–	–	38.1	–
E (Notes 5, 6)	0.432	–	0.442	10.97	–	11.23
F	–	–	1.156	–	–	29.36
G (Notes 4, 5)	0.256	–	–	6.5	–	–
H_1 (Notes 4, 5)	–	–	0.795	–	–	20.2
H_2 (Notes 4, 5)	–	–	2.287	–	–	58.1
K	0.138	–	–	3.5	–	–
R	–	0.118	–	–	3.0	–
S	–	0.039	–	–	1.0	–
U (Note 7)	0.873	–	–	22.17	–	–
α (degrees)	–	45°	–	–	–	–

NOTES:

(4) The portion of the base above the reference plane shall lie within the space defined by dimensions A_1, A_2, C, G, H_1, and H_2.

(5) The contour of the base above the reference plane, the combined displacement and diameter of the posts and the maximum post lengths are checked by the gauge shown on Standard Sheet 3-519.

(6) The diameter of each of the individual posts is checked by the gauge shown on Standard Sheet 3-520.

(7) Dimension U denotes the minimum length over which dimension E shall be maintained.

(8) For finished lamps, the creepage distance over insulation between live parts and the metal shell, when provided, shall be not less than 0.118 inch (3.0 mm).

Gauging

When the lamp base has been fully inserted into gauge 3-519 with the posts entering at surface x, one or both of the bosses of the posts or the surface of the base shall be in contact with surface x or shall seat at diameter E_2. The cylindrical portion of the posts shall extend to or beyond surface v, and the ends of the posts shall not project beyond surface w.

When lamp base posts are inserted into Gauge 3-520 hole E_2, the boss of post or surface of the base shall be in contact with surface x.

It shall not be possible to insert the individual posts into hole E_1 at surface x. (This does not apply to the contoured end of the post.)

See ANSI C81.63 for gauges.

Lampholder

See ANSI C81.62, Standard Sheet 2-519.

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CAPS ON FINISHED LAMPS

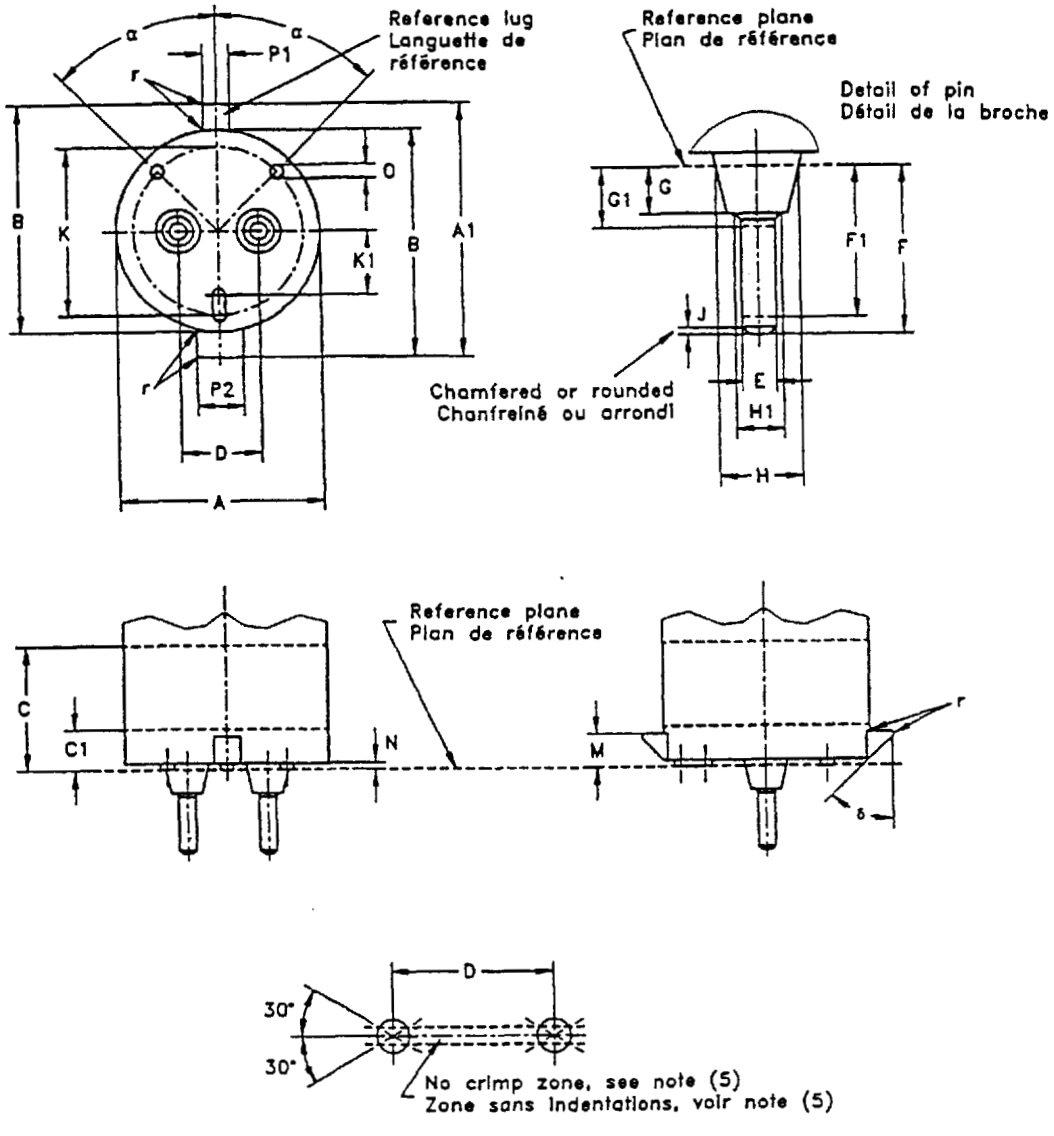
CULOTS SUR LAMPES TERMINÉES

PG12-. & PGX12-.

Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holders PG12 and PGX12, see sheet 7005-64.
Pour les détails de la douille PG12 et PGX12, voir feuille 7005-64.



Only the PG12-1 cap is shown.
See page 2/4 for the arrangement of pins and supporting bosses of PGX12 caps and caps with other suffix designations. PGX12-1 and PGX12-2 caps are intended for high-temperature applications (above 150 °C, under consideration).

Seul le culot PG12-1 est représenté.
Voir page 2/4 pour la disposition des broches et des bossages support des culots PGX12 et des autres culots avec des désignations à suffixe différent. Les culots PGX12-1 et PGX12-2 sont prévus pour des applications à températures élevées (les températures supérieures à 150 °C, à l'étude).

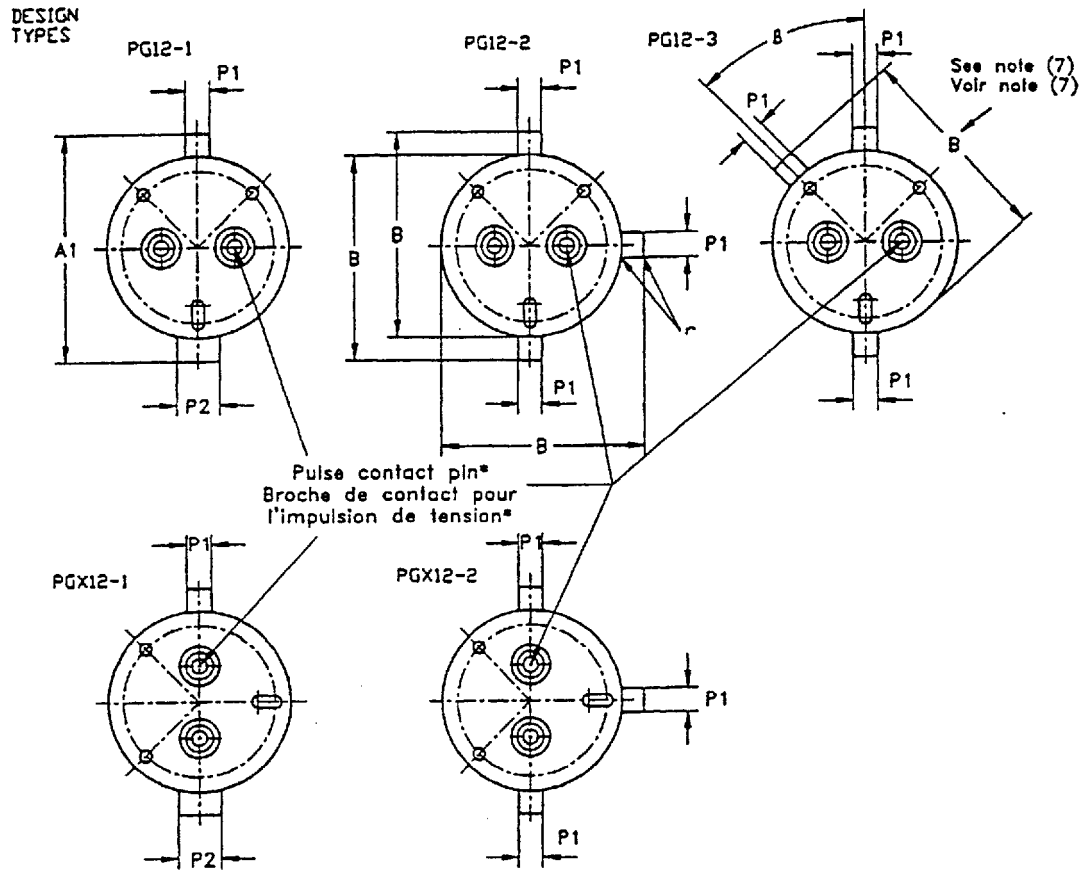
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CAPS ON FINISHED LAMPS

CULOTS SUR LAMPES TERMINÉES

PG12-. & PGX12-.

Dimensions in millimetres - Dimensions en millimètres



* If these caps are used for lamps requiring a high voltage starting pulse, the pulse shall be applied to this contact pin.

PG12-1 cap dimensions are shown on page 1/3.
PG12-2 cap dimensions are the same as for the PG12-1 cap except for the number of lugs and the related dimensions. There are three similar lugs having dimensions P1, B, A1, *r*, *δ* and M.
PG12-3 cap dimensions are the same as for the PG12-2 cap except for the position of the lugs.
PGX12-1 cap dimensions are the same as for the PG12-1 cap except for the position of the pins and the supporting bosses, which have been turned in a counter-clockwise direction over an angle of 90°.
PGX12-2 cap dimensions are the same as for the PGX12-1 cap except for the number of lugs and the related dimensions. There are three similar lugs having dimensions P1, B, A1, *r*, *δ* and M.

* Si ces culots sont utilisés pour des lampes nécessitant une impulsion de tension d'amorçage élevée, la surtension doit être appliquée à cette broche de contact.

Les dimensions du culot PG12-1 sont représentées en page 1/3.
Le culot PG12-2 a les mêmes dimensions que le culot PG12-1, mais le nombre de ses languettes et les dimensions correspondantes de celles-ci sont différentes de celles du culot PG12-1. Il y a trois languettes similaires ayant les dimensions P1, B, A1, *r*, *δ* et M.
Les dimensions du culot PG12-3 sont les mêmes que pour le culot PG12-2, sauf pour la position des languettes.
Le culot PGX12-1 a les mêmes dimensions que le culot PG12-1, mais la position des broches et des bossages supports est tournée de plus de 90° dans la direction anti-horaire.
Le culot PGX12-2 a les mêmes dimensions que le culot PGX12-1, mais le nombre de ses languettes et les dimensions correspondantes de celles-ci sont différentes de celles du culot PGX12-1. Il y a trois languettes similaires ayant les dimensions P1, B, A1, *r*, *δ* et M.

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CAPS ON FINISHED LAMPS

CULOTS SUR LAMPES TERMINÉES

PG12-. & PGX12-.

Dimensions in millimetres - Dimensions en millimètres

Dimension	Min.	Max.
A (1)(2)	29,4	30,6
A1	--	37,6
B	32,9	34,1 (7)
C (1)	18,5	--
C1 (1)	6,0	--
D	12,0	
E (5)	2,29	2,67 (3)
F	11,4	12,5
F1 (5)	11,0	--
G*	3,0	4,5
G1 (5)	--	4,5
H (6)	--	6,7
H1*	--	3,3

Dimension	Min.	Max.
J	0,4	--
K	Approx. 25,0	
K1	Approx. 8,8	
M	4,6	5,0
N	0,5	1,0
O (4)(6)	1,5	2,5
P1	3,7	4,0
P2	7,0	7,5
r	--	0,5
α	Approx. 45°	
ß	Nom. 45°	
δ	Approx. 45°	

* These dimensions are solely for cap design and are not to be gauged on the finished lamp.
* Ces dimensions s'appliquent seulement au culot et n'ont pas à être vérifiées sur la lampe terminée.

(1) Dimension C1 denotes the minimum length over which both the minimum and maximum values of dimension A shall be observed. Outside dimension C1, up to dimension C, only the maximum value of dimension A shall be observed.
(2) The circumference of dimension A need not be continuous, nevertheless there shall be at least three directions at the circumference which fulfil the requirements for dimension A.
(3) On unmounted caps Emax = 2,44 mm.
(4) Supporting bosses of the cap.
(5) 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 angles of 30° to the plane through the centre lines of the pins (see detail b).
The diameter of the pins measured in the no-crimp zone along the length of the pin bounded by the dimensions G1 and F1 shall be not less that 2,29 mm.
(6) Measured at the reference place.
(7) Only valid for the lugs referred to by this note. In all other cases the maximum length of the lugs is defined by dimension A1.

(1) La dimension C1 indique la distance minimale le long de laquelle doivent être observées les valeurs minimale et maximale de la dimension A. A l'extérieur de la dimension C1, jusqu'à la dimension C, la valeur maximale de la dimension A seulement doit être observée.
(2) Il n'est pas nécessaire que la circonférence de la dimension A soit continue; il doit y avoir, néanmoins, au moins trois directions selon lesquelles la circonférence répond aux prescriptions relatives à la dimension A.
(3) Sur culots non montés Emax = 2,44 mm.
(4) Bossages d'appui du culot.
(5) Les indentations ou rainures à la surface des broches sont permises, pourvu qu'elles ne s'étendent pas à la partie délimitée par les angles de 30° par rapport au plan contenant les axes des broches (voir détail b).
Le diamètre des broches mesuré dans la zone sans indentations sur la longueur de la broche délimitée par les dimensions G1 et F1 ne doit pas être inférieur à 2,29 mm.
(6) Mesuré dans le plan de référence.
(7) Seulement valable pour les languettes dont cette note fait référence. Dans tous les autres cas, la longueur maximale des languettes est définie par la dimension A1.

GAUGING

The combined displacement and diameter of the pins, the combined displacement and diameter of the notches, the maximum values of dimensions A, P1, P2, G, the minimum and maximum diameter of the individual pins and the minimum and maximum pinlength are checked by the appropriate gauge, shown on sheet 7006-81.
Dimension Amin is checked with a suitable caliper-measuring device having flat anvils 3 mm wide and a measuring accuracy of + 0,0; - 0,01 mm.

VERIFICATION

La combinaison déplacement et diamètre des broches, la combinaison déplacement et diamètre des encoches, les valeurs maximales des dimensions A, P1, P2, G, les diamètres individuels minimal et maximal des broches, les longueurs individuelles minimale et maximale des broches sont vérifiés au moyen du calibre correspondant selon la feuille 7006-81.
La dimension Amin est vérifiée au moyen d'un dispositif de mesure à mâchoire convenable ayant une semelle de 3 mm de large et une exactitude de mesure de + 0,0; - 0,01 mm.

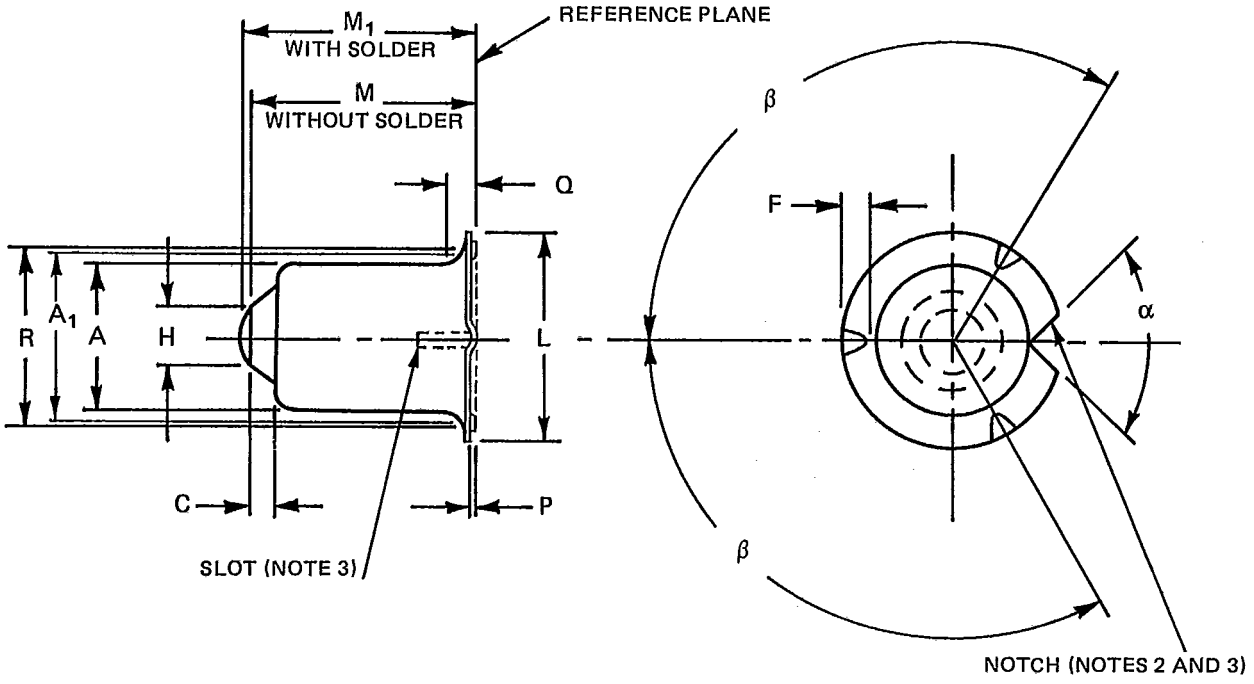
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P13.5s Single-Contact Miniature Flanged Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is P13.5s. This standard sheet is equivalent to the version approved for publication in IEC Publication 61.

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 (inch)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.358	–	0.364	9.09	–	9.25
A_1 (Note 1)	–	0.441	–	–	11.2	–
C	0.051 (Note 5)	–	–	1.3 (Note 5)	–	–
F	0.031	–	–	0.79	–	–
H	0.138	–	0.161	3.51	–	4.08
L (Note 2)	0.525	–	0.533	13.34	–	13.54
M	0.547	–	0.567 (Note 5)	13.90	–	14.40 (Note 5)
M_1	0.547	–	0.606	13.90	–	15.40
P	0.003	–	0.015 (Note 5)	0.08	–	0.38 (Note 5)
Q (Note 4)	–	0.079	–	–	2.0	–
R (Note 4)	–	0.441 (Note 5)	–	–	11.2 (Note 5)	–
α (degrees)	–	90° (Note 5)	–	–	90° (Note 5)	–
β (degrees)	–	120° (Note 5)	–	–	120° (Note 5)	–

NOTES:

(1) The theoretical cylinder with dimension A_1 delineates the demarcation between the space that may be occupied by parts of the base (for example, side-solder) and the space that may be occupied by rigid parts of the lampholder.

(2) The value L min does not apply in the area of the three supporting bosses and the optional notch.

(3) The slot in the barrel and the notch in the flange are optional.

(4) Dimensions Q and R are reference dimensions. The shape of the barrel-to-flange transition is optional, provided the contour does not exceed a line connecting the traces of the circles delineated by the actual dimension A at distance Q from the reference plane and dimension R on the flange.

(5) These values are solely for base design and are not to be gauged on the finished lamp.

Gauging

Gauges have not been developed for this base.

Lampholder

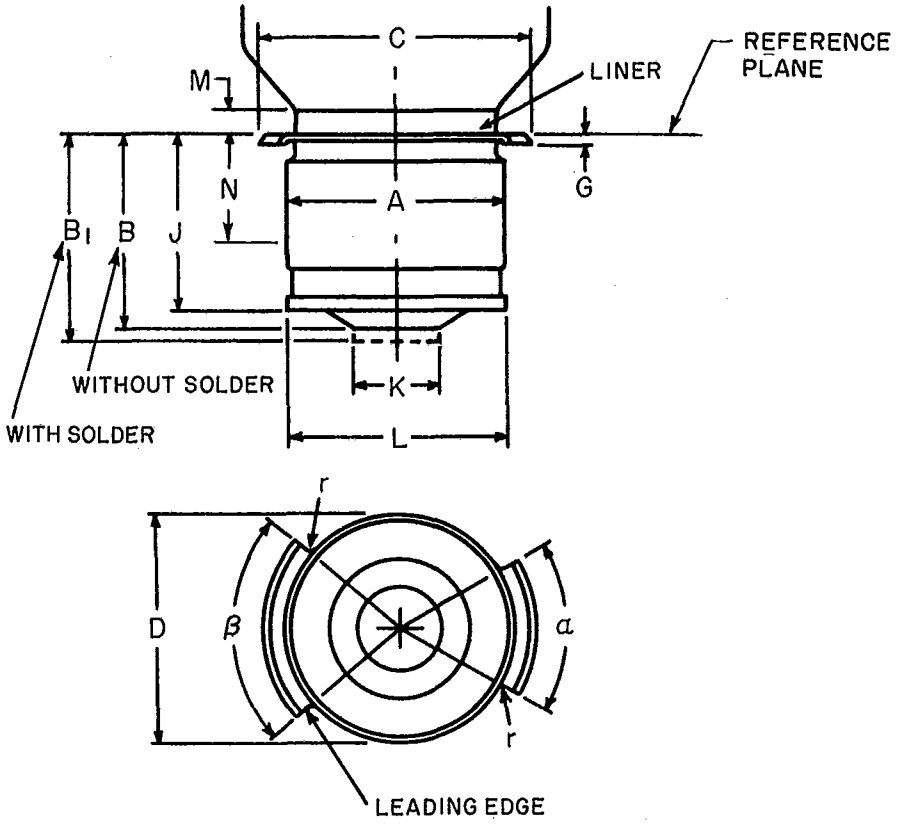
A lampholder standard has not been developed for use with this base standard.

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P28 Medium Prefocus Base

The designation assigned to this base in accordance with the system of the International Electrotechnical Commission (IEC) is P28/25. This base is very similar to the one referred to as P28/24 in IEC Publication 61. There are minor differences in dimensions A, B, and G. Nevertheless, the IEC standard includes the American values as future objectives so that the difference will be eliminated eventually.

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



The winged flanges of the base shell are the intended means of location of the lamp filament position. The top surface of the flanges determines the vertical location; the diameter determines the lateral location; and the leading edge of the larger flange determines the rotational alignment.

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	Standard Dimensions (inches)						Nearest Metric Equivalent (millimeters)					
	Unmounted (Note 3)			On Finished Lamps			Unmounted (Note 3)			On Finished Lamps		
Reference	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
A	1.065	–	1.085	1.065	–	1.090	27.05	–	27.56	27.05	–	27.69
B	0.945	–	0.985	–	–	–	24.00	–	25.02	–	–	–
B_1	–	–	–	0.953	–	1.025	–	–	–	24.21	–	26.04
C	1.313	–	1.333	1.313	–	1.336	33.35	–	33.86	33.35	–	33.93
D	–	–	1.116	–	–	1.116	–	–	28.35	–	–	28.35
G	0.030	–	0.060	0.030	–	0.060	0.76	–	1.52	0.76	–	1.52
J	–	–	0.886	–	–	0.886	–	–	22.50	–	–	22.50
K	–	0.44 approx	–	–	0.44 approx	–	–	11.18 approx	–	–	11.18 approx	–
L	–	–	1.085	–	–	1.085	–	–	27.56	–	–	27.56
M	–	–	–	0.118	–	–	–	–	–	3.00	–	–
N (Note 1)	0.354	–	–	0.354	–	–	9.00	–	–	9.00	–	–
r	–	–	0.010	–	–	0.010	–	–	0.25	–	–	0.25
α (degrees)	59°	–	61°	59°	–	61°	–	–	–	–	–	–
β (degrees)	79°	–	81°	79°	–	81°	–	–	–	–	–	–

NOTES:
(1) Dimension N denotes the minimum length over which both the minimum and maximum limits of dimension A apply; below this length, dimension L applies.
(2) The creepage distance over the insulation on finished lamps shall not be less than 0.118 in (3 mm).
(3) These dimensions are solely for base design and are not to be gauged on the finished lamp.

Gauging
When a lamp is fully inserted into Gauge 3-700 and the flanges pressed to surface x, the contact making surface shall reach to surface y, but shall not project beyond surface z. During insertion, the force shall not exceed 1 lbf (4.45 N).

See ANSI C81.63 for gauges.

Lampholder
See ANSI C81.62, Standard Sheet 2-700.

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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.

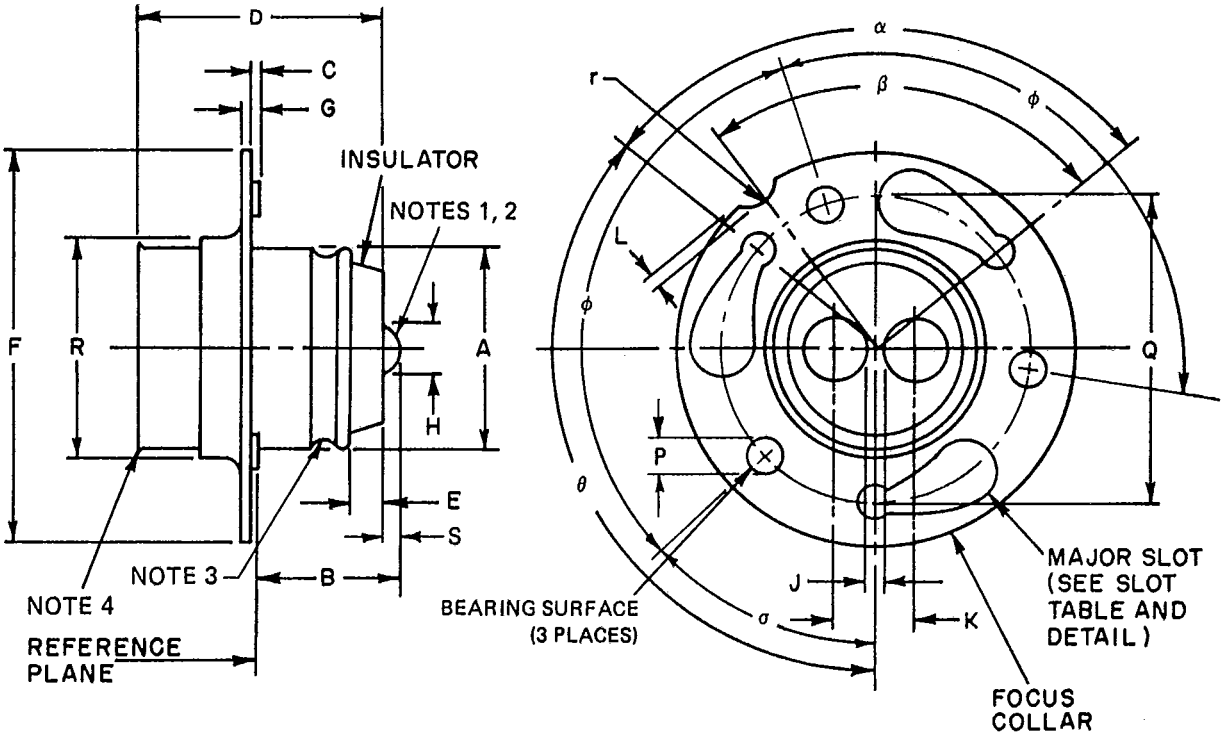


Figure 1
Double-Contact Base

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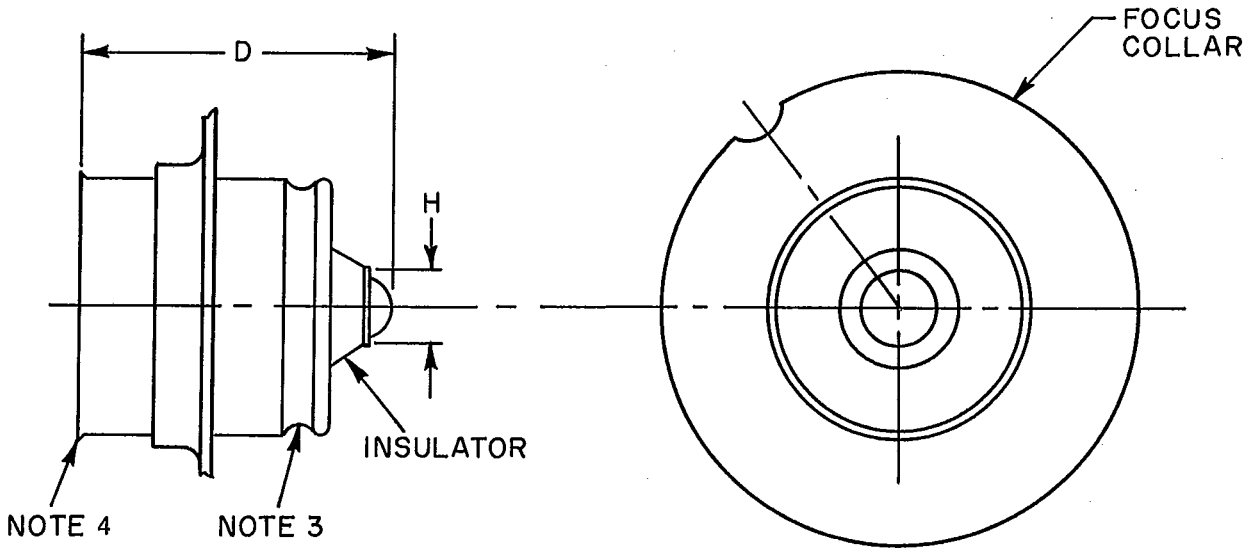


Figure 2
Single-Contact Base

Slot Data (Note 8)

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.

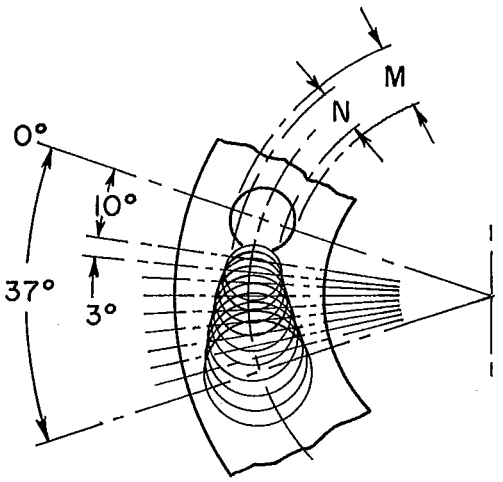


Figure 3
Slot Detail

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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	0.177	–	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 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.

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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PREFOCUS CAPS

CULOTS PREFOCUS

P32d & PK32d

Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holders P32 and PK32, see sheet 7005-111.
Pour les détails des douilles P32 et PK32, voir feuille 7005-111.

P32d

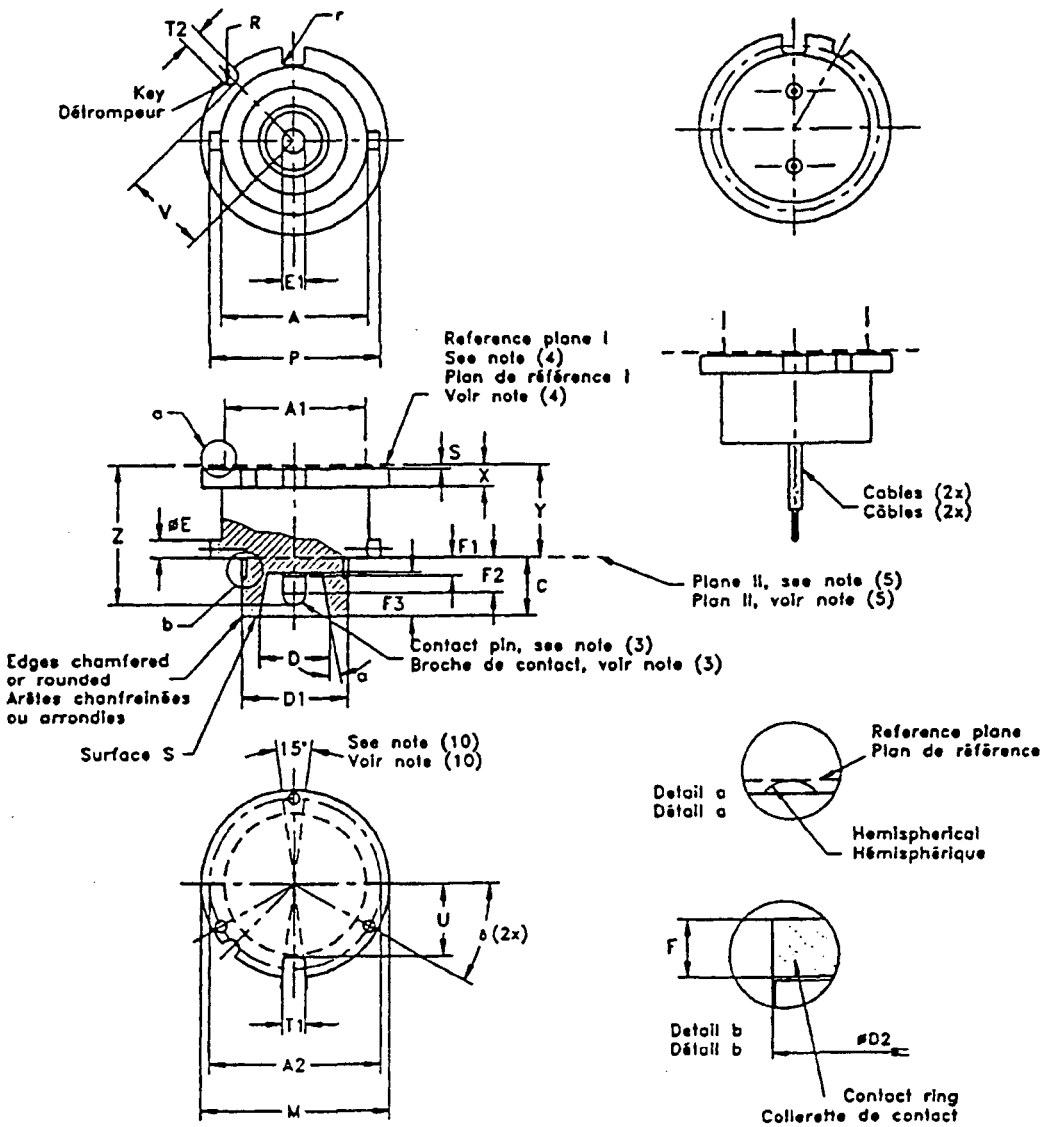
Only the P32d-1 cap is shown.
For caps with different designation, see keys on page 2/3.

Seul le culot P32d-1 est représenté.
Pour les culots d'autres désignations, voir détrompeurs en page 2/3.

PK32d

Only the PK32d-4 cap is shown. For caps with different designation, see keys on page 2/3. For dimensions see P32d-1.

Seul le culot PK32d-4 est représenté. Pour les culots d'autres désignations, voir détrompeurs en page 2/3. Pour les dimensions, voir P32d-1.



7004-111-1

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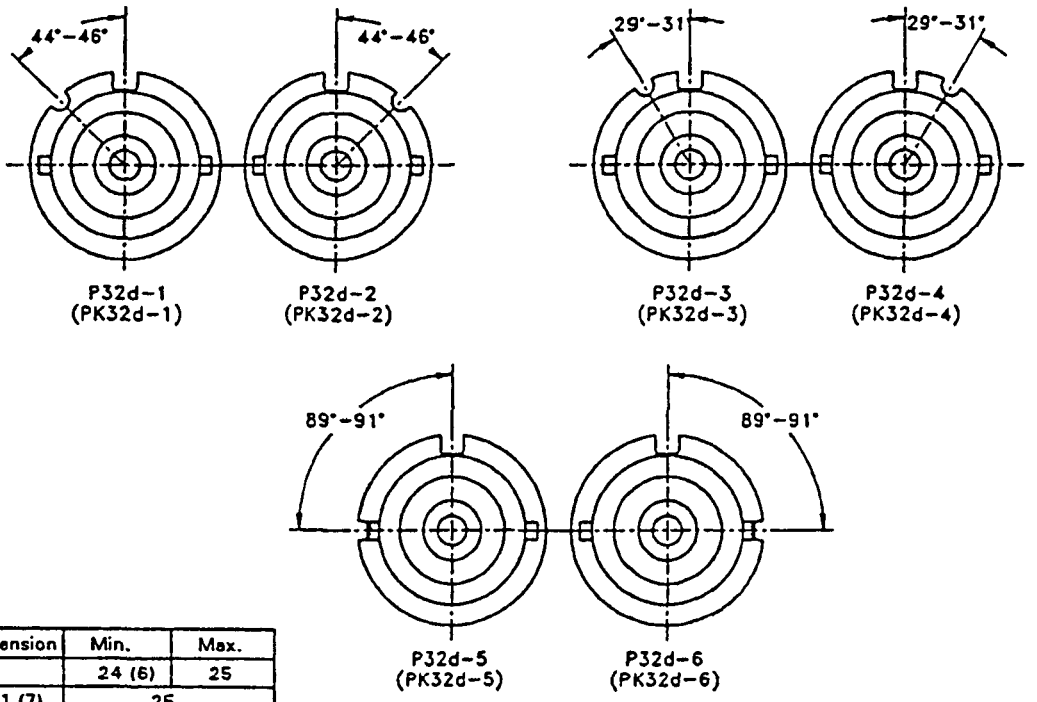
PREFOCUS CAPS

CULOTS PREFOCUS

P32d & PK32d

Dimensions in millimetres · Dimensions en millimètres

KEYS
DETROMPEURS



Dimension	Min.	Max.
A	24 (6)	25
A1 (7)	25	
A2*	28,5	29,5
C (8)	9,5	10,2
D	11,9	12,1
D1	17,9	18,1
D2	17,9 (10)	18,1
E	2,95	3,0
E1(1)(2)(3)	3,8	4,0
F (5)(8)	3,7	4,1
F1 (1)(8)	–	3,5
F2 (1)(8)	7,5	–
F3	6,8	7,2
M (9)	31,8	32
P	28,7	–
R	½T2	
S (4)	0,2	0,5
T1	4	4,1
T2	2,9	3,1
U	A/2	13
V	–	14
X	2,7	3
Y (6)	14,7	–
Z	24,0	25,5
r	–	0,3
α	9°	11°
δ°	29°30'	30°30'

* These dimensions are solely for cap design and are not to be gauged on the finished lamp.

(1) The contact pin shall comply with dimension E1 over the distance delineated by dimensions F1 and F2.
Contact shall be made along the cylindrical part of the contact pin.
(2) The end of the contact pin shall be chamfered or rounded.
(3) The end of the contact pin on the finished lamp shall not project beyond surface S.
(4) Reference plane I is determined by the tops of the three bosses. Reference plane I is intended for the lampholder.
(5) Plane II is a plane parallel to reference plane I, tangent to the lower surface of the two "bayonet" pins.
(6) Amin and Y are not applicable to PK32d caps.
(7) Dimension A1 delineates the demarcation between the space which may be occupied by parts of the lamp and the space which may be occupied by rigid parts of the lampholder and/or luminaire.
(8) Dimensions C, F, F1 and F2 are measured from plane II.
(9) Manufacturing techniques shall not create irregularities on the surface of the cylinder with diameter M which protrude beyond Mmax. Such irregularities may be smaller than Mmin, but not in the areas of the keys nor in the supporting areas (V-block area; see holder sheet).
(10) Indents in the contact ring are allowed in these areas only, with the restriction that D2max shall not be exceeded.

GAUGING: Caps P32d and PK32d shall fulfil the tests of the gauges shown on sheets 7006-.. (under consideration).

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	PREFOCUS CAPS CULOTS PREFOCUS P32d & PK32d	Page 3/3

Dimensions in millimetres - Dimensions en millimètres

• Ces dimensions ne s'appliquent qu'au culot et n'ont pas à être vérifiées sur la lampe terminée.

(1) La broche de contact doit se conformer à la dimension E1 tout au long de la distance définie par les dimensions F1 et F2.
Le contact doit s'effectuer sur la longueur de la partie cylindrique de la broche de contact.
(2) L'extrémité de la broche de contact doit être chanfreinée ou arrondie.
(3) L'extrémité de la broche de contact de la lampe terminée ne doit pas saillir au-delà de la surface S.
(4) Le plan de référence I est défini par les sommets des trois bossages. Ce plan de référence est destiné à la douille.
(5) Le plan II est un plan parallèle au plan de référence I, tangent à la surface inférieure des deux ergots "baïonnette".
(6) Les dimensions Amin et Y ne s'appliquent pas aux culots PK32d.
(7) La dimension A1 définit la démarcation entre l'espace qui peut être occupé par des parties de la lampe et celui qui peut être occupé par des parties rigides de la douille et/ou du luminaire.
(8) Les dimensions C, F, F1 et F2 sont mesurées depuis le plan II.
(9) Les techniques de fabrication ne doivent pas créer des irrégularités sur la surface du cylindre de diamètre M. Si ces irrégularités existent, elles ne doivent pas dépasser la dimension Mmax. Elles peuvent être inférieures à Mmin, sauf dans les zones des détrompeurs et dans les zones d'appui (blocs en "V"; voir feuille de la douille).
(10) Les indentations à la collerette de contact ne sont admises que dans ces zones et à condition que la dimension D2max ne soit pas dépassée.

VERIFICATION: Les culots P32d et PK32d doivent satisfaire aux essais des calibres représentés sur les feuilles 7006-.. (à l'étude).

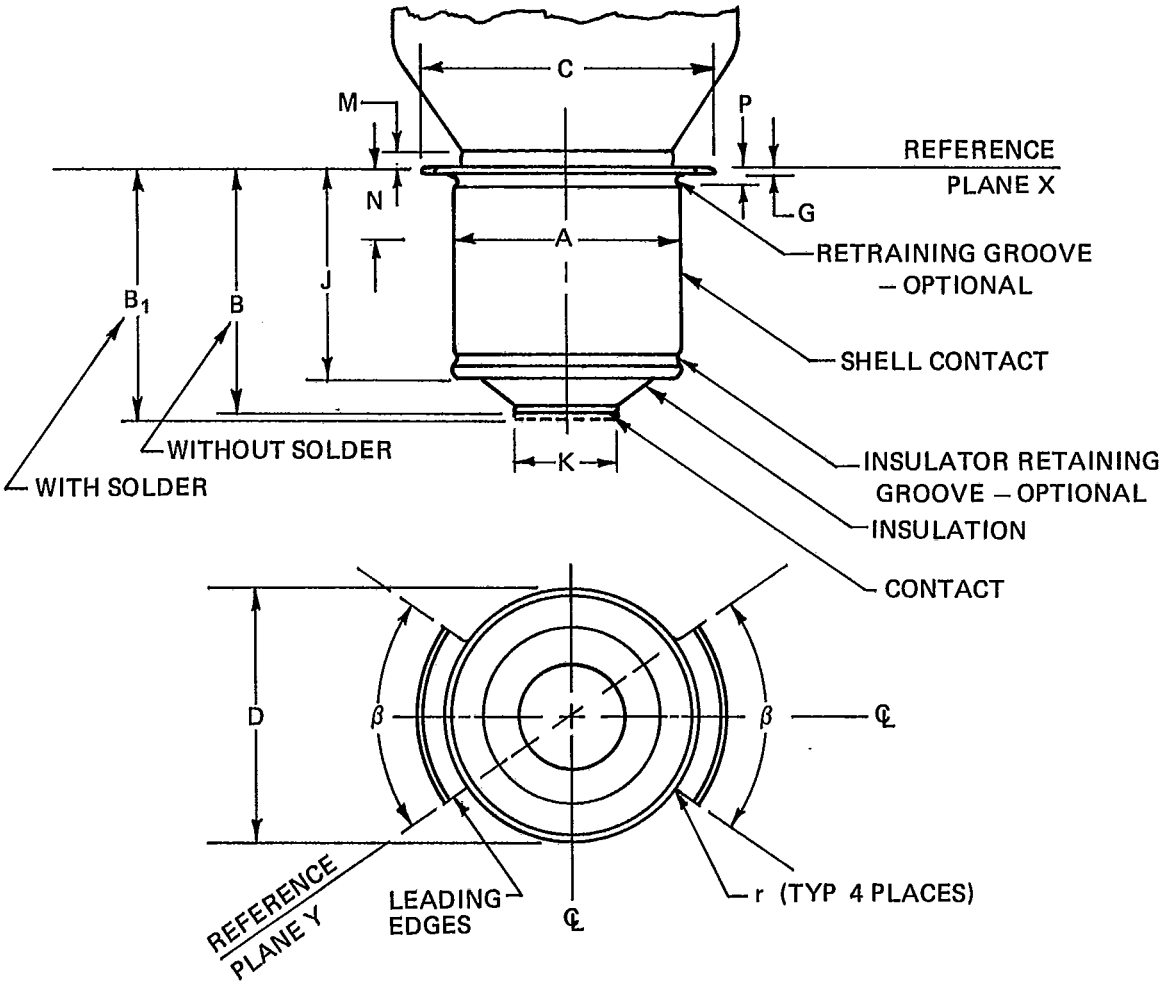
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P40 Mogul Prefocus Base

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.



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.

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	Standard Dimensions (inches)				Nearest Metric Equivalent (millimeters)			
	Unmounted (Note 1)		On Finished Lamps		Unmounted (Note 1)		On Finished Lamps	
Reference	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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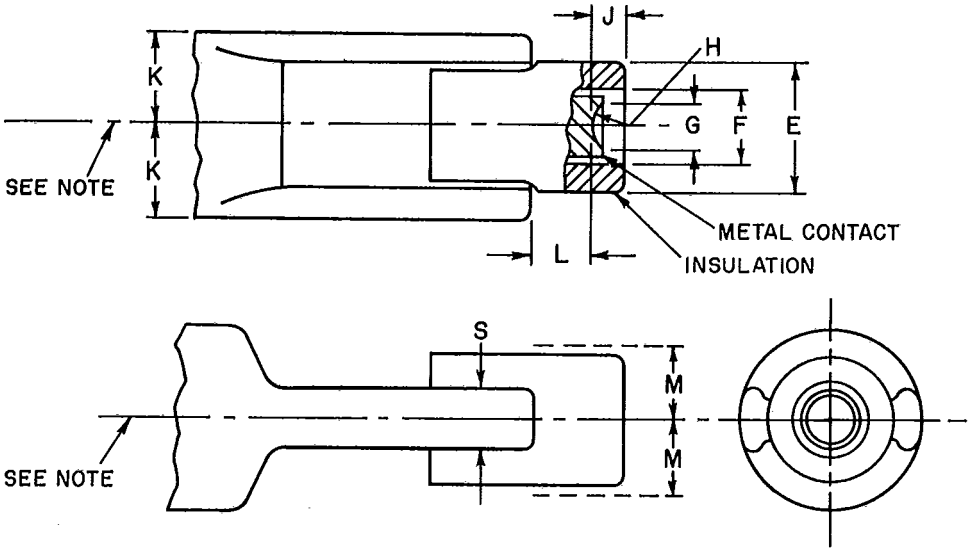
R7s Recessed Single-Contact Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is R7s. This standard sheet is nearly equivalent to IEC Publication 61.

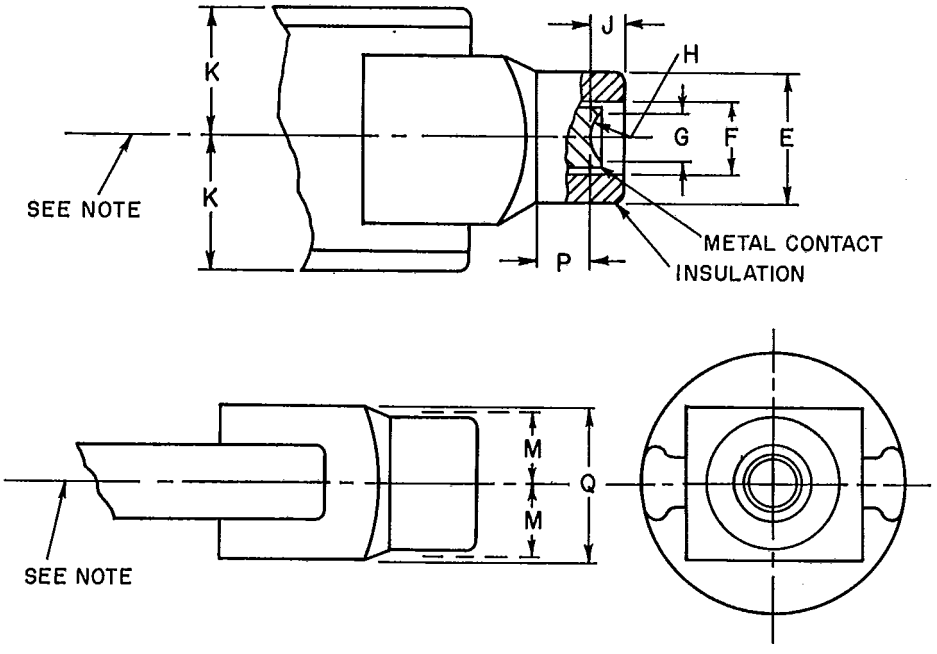
The dimensions shown on this sheet apply to finished bases after assembly on lamps.

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

Type A Base



Type B Base



NOTE: The centerline shown is the line passing through the center of the contacts at the two ends of the lamp.

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Reference	Standard Dimension (inch) Min	Max	Nearest Metric Equivalent (millimeters) Min	Max
E	–	0.295	–	7.49
F	0.165	–	4.19	–
G	0.110	–	2.79	–
H	0.070	0.110	1.78	2.79
J	(Note 1)	0.080	(Note 1)	2.03
K (Note 2)	–	0.290 (T3)	–	7.37 (T3)
	–	0.355 (T4)	–	9.02 (T4)
	–	0.420 (T5)	–	10.67 (T5)
	–	0.440 (T6)	–	11.18 (T6)
L	0.115	–	2.92	–
M (Note 3)	–	0.160	–	4.06
Q (Note 4)	–	0.360	–	9.14
P (Note 5)	0.195	–	4.95	–
S	–	(Note 6)	–	–

NOTES:
(1) The minimum for dimension J is determined by the requirement that a test probe having a hemispherical end with a radius of 0.205 inch (5.21 mm) shall not be able to touch the metal contact.
(2) Includes eccentricity of bulb with respect to the centerline. Dimension K is shown separately for T3, T4, T5, and T6 bulb lamps.
(3) Includes eccentricity of insulator with respect to the centerline.
(4) The two lamp bases shall be aligned to fit between two parallel planes spaced 0.370 inch (9.40 mm) apart [objective for future design of Type B bases].
(5) This dimension shall be measured at a reference diameter of 0.295 inch (7.49 mm).
(6) The thickness of this part of the lamp must be such as to fit the gauge shown in American National Standard for Electric Lamps – Tubular Tungsten-Halogen Lamps – Physical Characteristics, ANSI C78.260-1985.

Gauging

Gauges have not been developed for this base.

Lampholder

See ANSI C81.62, Standard Sheet 2-770.

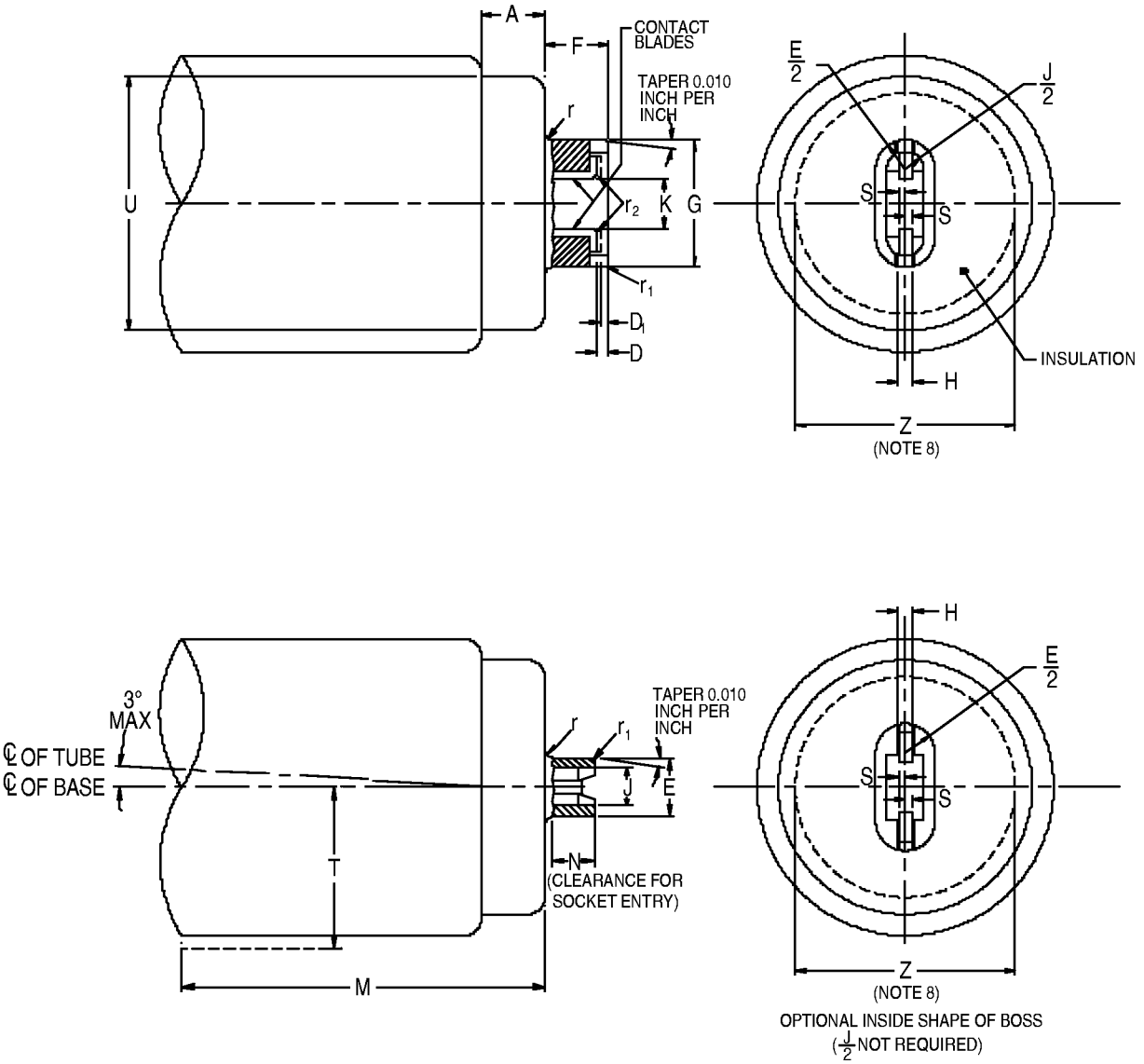
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R17d Recessed Double-Contact Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is R17d. This standard sheet is equivalent to IEC 61.

The drawings are 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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	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
Reference	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.

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(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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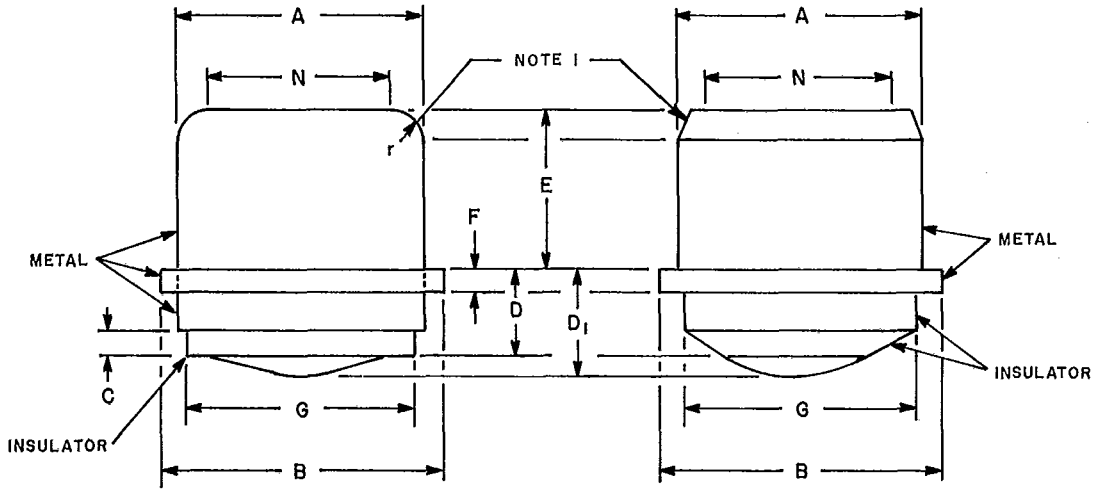
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SX4 Submidget Flanged Base

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 (inch) Min	Max	Nearest Metric Equivalent (millimeters) 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.

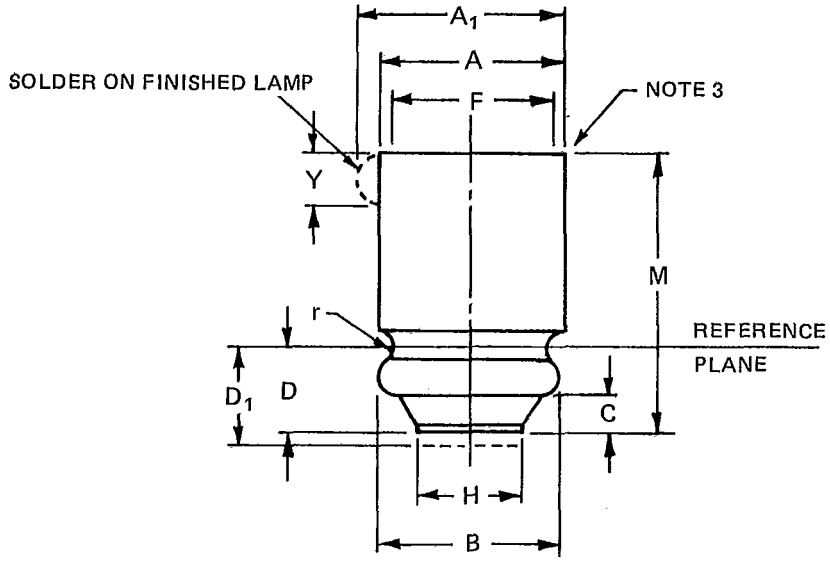
Lampholder
See ANSI C81.62, Standard Sheet 2-850.

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S5.7 Midget Grooved Base

The designation assigned to this base by the International Electrotechnical Commission (IEC) is S5.7s. This standard sheet is nearly equivalent to IEC Publication 61.

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



Reference	Standard Dimensions (inch) Min	Max	Nearest Metric Equivalent (millimeters) Min	Max
A (Note 3)	0.219	0.229	5.56	5.82
A_1	–	0.259	–	6.58
B	0.217	0.225	5.51	5.72
C	0.031	–	0.8	–
D (Note 1)	0.067	0.106	1.7	2.7
D_1 (Note 2)	0.094	0.130	2.4	3.3
F (Notes 1,4)	0.189	0.200	4.8	5.08
H	–	0.125	–	3.2
M (Note 1)	0.319	0.341	8.10	8.65
Y	–	0.090	–	2.3
r (Note 1)	0.015	0.020	0.38	0.51

NOTES:

(1) These dimensions are solely for base design and are not to be gauged on the finished lamp.

(2) This dimension includes solder.

(3) Bases may be made with a flare the diameter of which shall not be more than 0.020 inch (0.5 mm) greater than A max.

(4) Dimension F is the root diameter of the groove.

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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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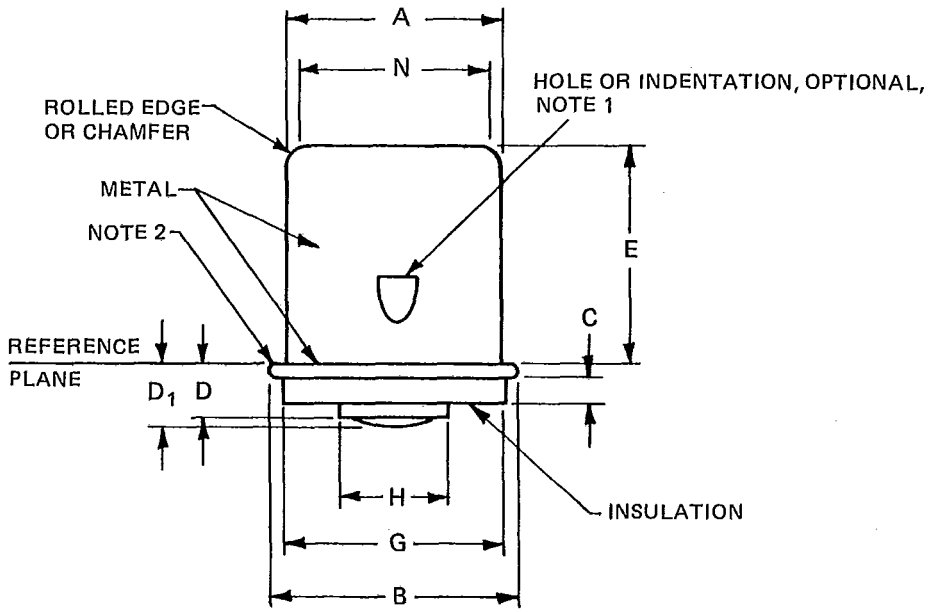
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SX6 Midget Flanged Base

The designation assigned to the base by the International Electrotechnical Commission (IEC) is SX6. This standard sheet is nearly equivalent to IEC Publication 61.

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 (inch)			Nearest Metric Equivalent (millimeters)		
	Min	Nom	Max	Min	Nom	Max
A	0.240	–	0.250	6.10	–	6.35
B	0.280	–	0.290	7.11	–	7.37
C	0.024	–	–	0.60	–	–
D (Note 3)	0.057	–	0.076	1.45	–	1.93
D_1 (Note 4)	0.067	–	0.110	1.70	–	2.80
E	0.250	–	0.270	6.35	–	6.86
G	0.245	–	0.275	6.22	–	6.98
H	0.100	–	0.130	2.54	–	3.30
N	–	0.214	–	–	5.44	–

NOTES:

(1) An access hole or indentation for soldering in the cylindrical part of the shell is permissible except that, on finished lamps, the diameter A max shall not be exceeded, including the solder.

(2) An edge with a radius is required in order that a grip may be obtained with fingernails during removal of a lamp. A chamfer or other suitable shape is permissible as an alternative.

(3) These dimensions are solely for base design and are not to be gauged on the finished lamp.

(4) This dimension includes solder.

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Gauging
Gauges have not been developed for this base.

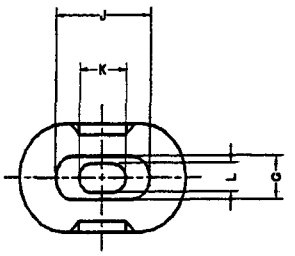
Lampholder
A lampholder standard has not been developed for use with this base standard.

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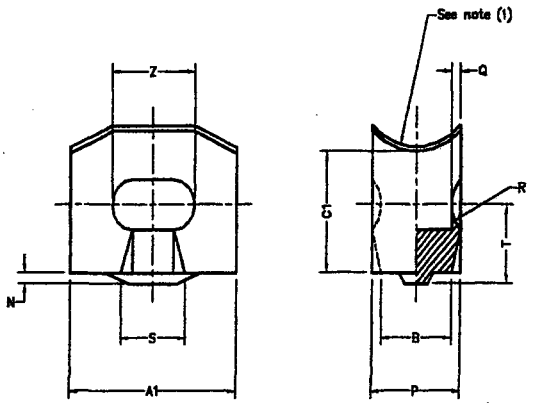
Caps

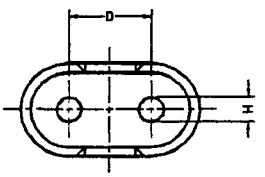
S14

Dimensions in millimetres
The drawing is intended only to illustrate the dimensions essential for interchangeability.
For details of holders S14, see sheet 7005-112.

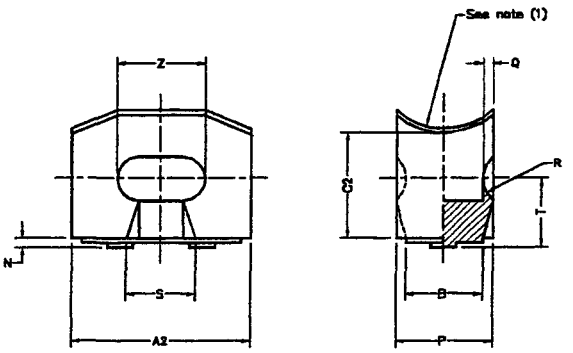


S14s





S14d

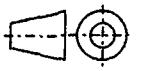


For finished lamps, the creepage distance over insulation between the contact(s) and the metal shell shall be not less than 2 mm.

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Caps

S14



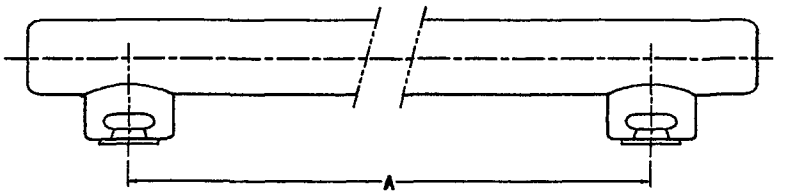
Dimensions in millimetres

Dimension	Min.	Max.
A1	25,5	26,1
A2	29,3	30,3
B *	10,5	11,5
C1	16,5	-
C2	17,5	-
D	15,8	16,2
G *	-	4,6
H *	-	5,1
J *	-	16,7
K *	7,2	8,2
L *	Approx. 3,2	
N	0,5	-
P	13,5	14,0
Q	1,5	2,2
R	3,5	4,5
S	11,0	-
T (2)	8,5	10,5
Z	13,0	-

* These dimensions are solely for cap design and are not to be gauged on the finished lamp.

(1) Depends on lamp construction.
(2) With solder.

Nominal mounting distance A	Min. (3)	Max.
241	240	242
441	440	442
941	940	942



(3) In France the minimum mounting distances are 239, 439, and 939 mm respectively.

Without using undue force, the two caps on the finished lamps shall pass simultaneously through a slot, 14,5 mm - 0,02mm ** in width and with a minimum length of (A + A1max).

** The tolerance applies only to the two end areas of the slot, having a length of A1max, the centers of which are situated at nominal mounting distance A.

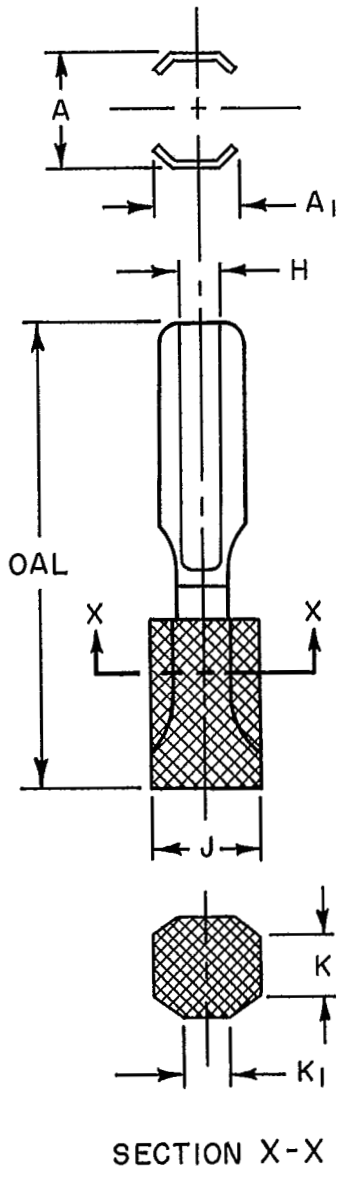
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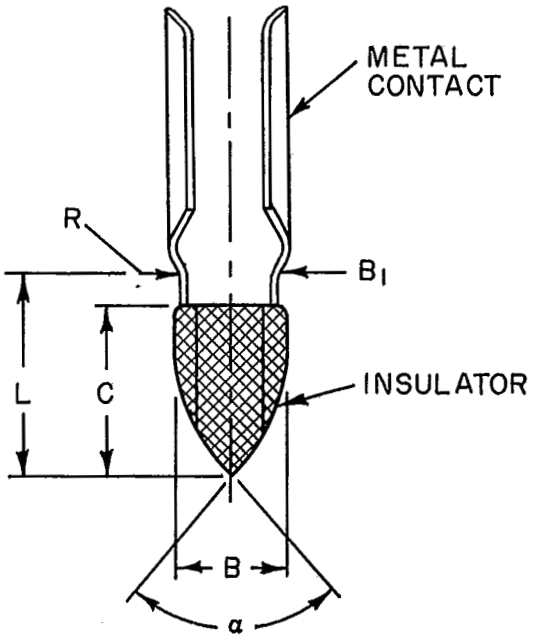
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T7.2-1 Telephone Slide Base No. 1 for T2 Lamps

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.





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.

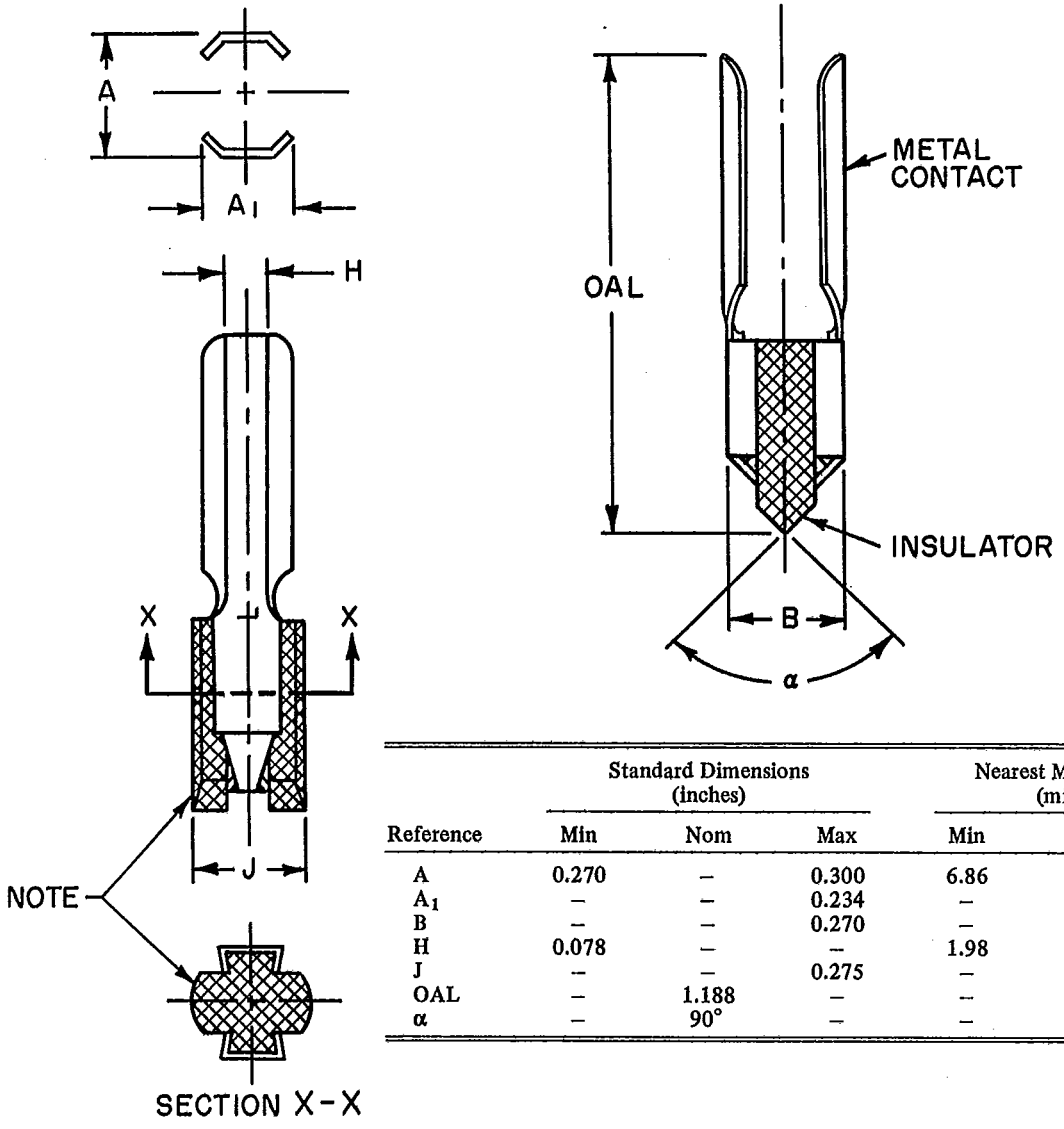
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T7.2-2 Telephone Slide Base No. 2 for T2 Lamps

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.



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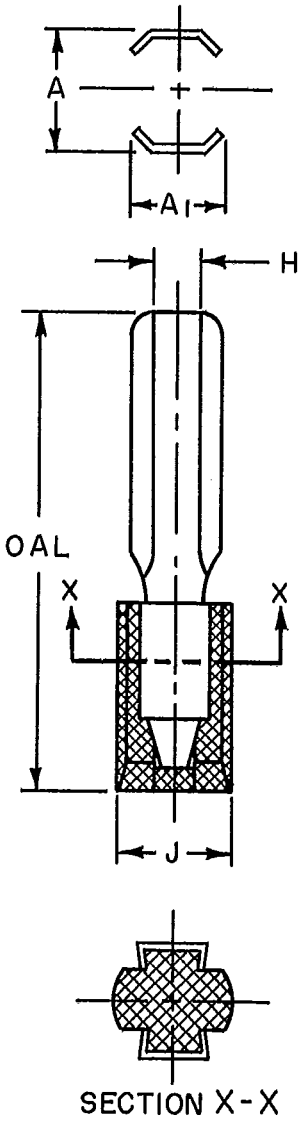
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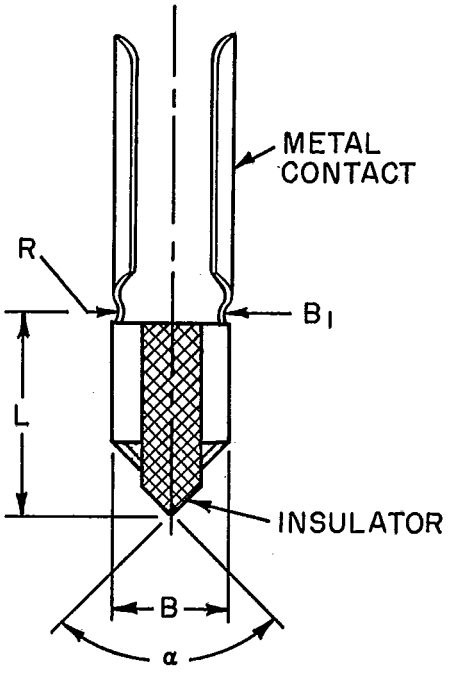
T7.2-3 Telephone Slide Base No. 3 for T2 Lamps

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.





Reference	Standard Dimensions (inches) Min	Nom	Max	Nearest Metric Equivalent (millimeters) 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.

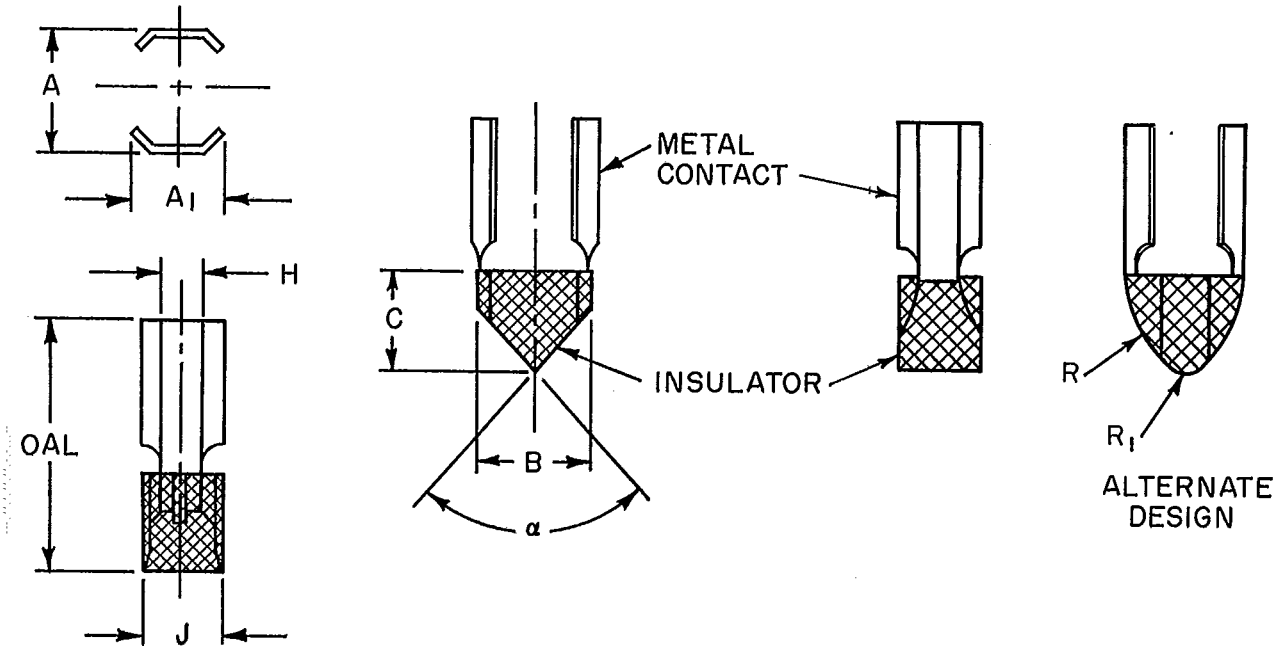
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T7.2-5 Telephone Slide Base No. 5 for T2 Lamps

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.

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	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.

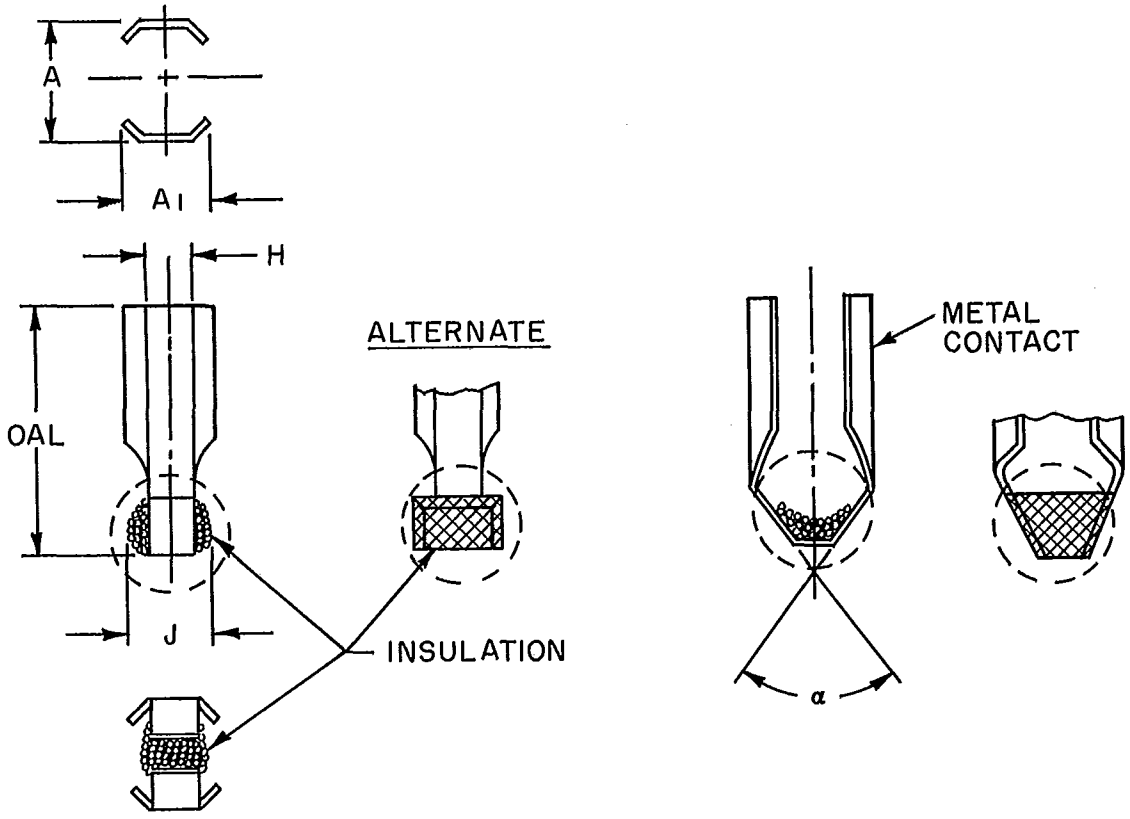
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T7.2-6 Telephone Slide Base No. 6 for T2 Lamps

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.



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.

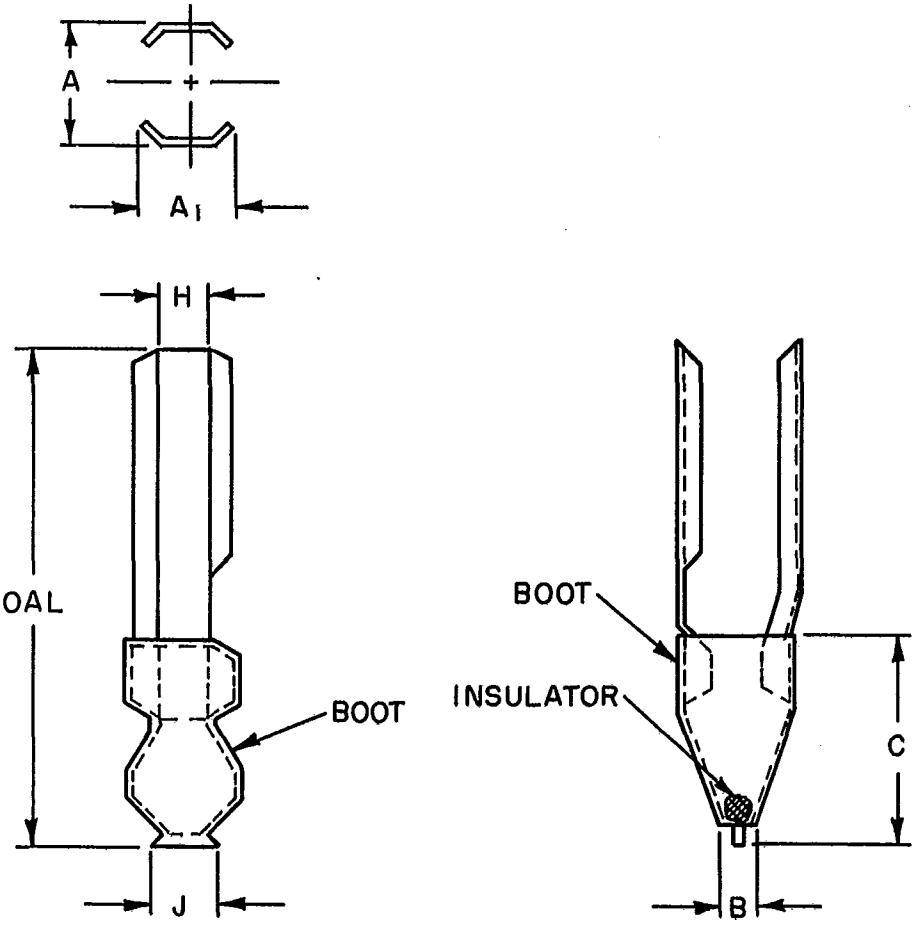
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T7.2-7 Telephone Slide Base No. 7 for T2 Lamps

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.

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



	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
Reference	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	–

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Gauging
Gauges have not been developed for this base.

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

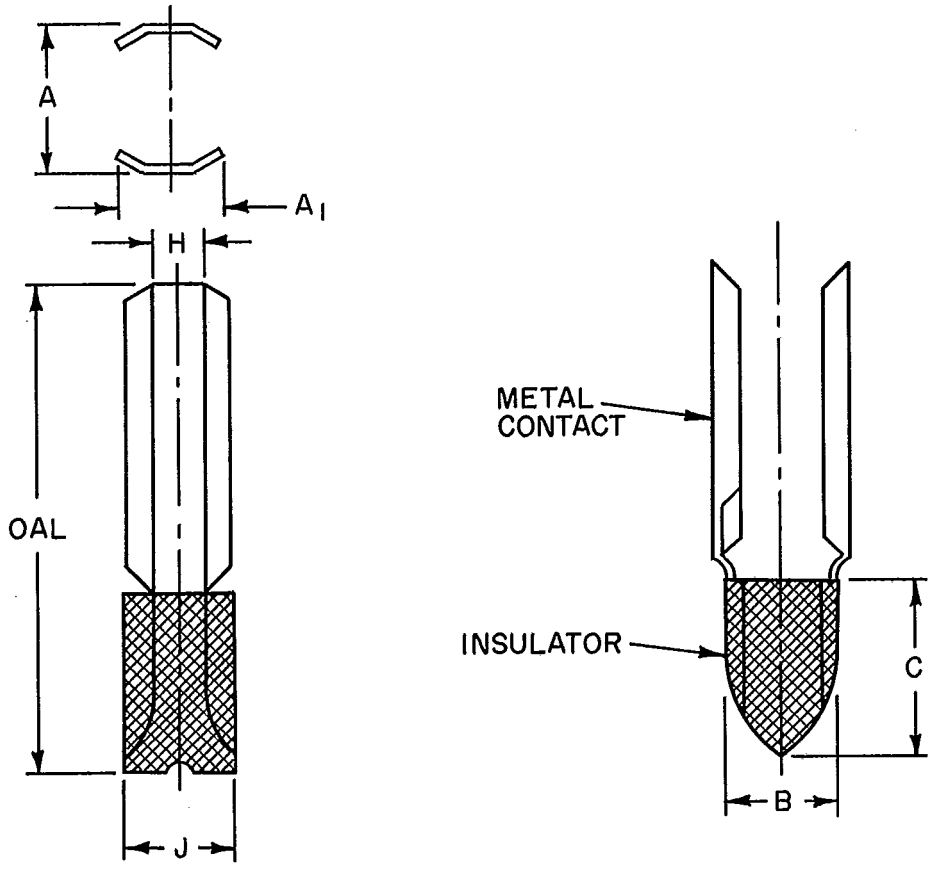
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T7.2-8 Telephone Slide Base No. 8 for T2 Lamps

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.

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



	Standard Dimensions (inches)			Nearest Metric Equivalent (millimeters)		
Reference	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

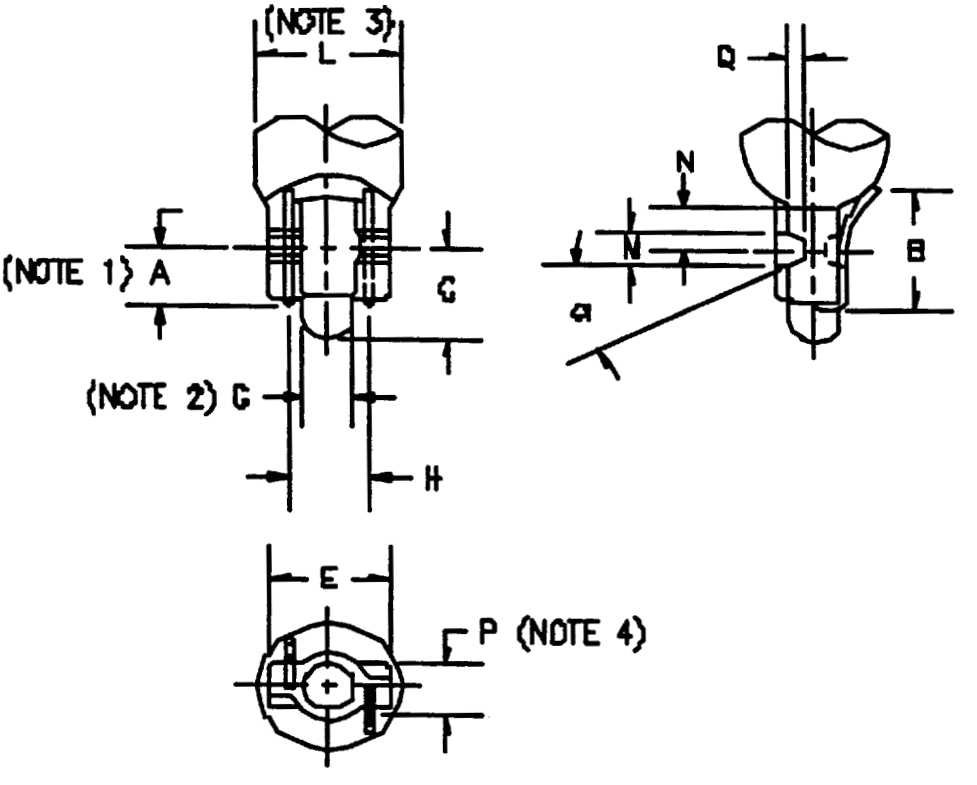
A lampholder standard has not been developed for use with this base standard.

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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 61. It is commonly known as the Sub-Miniature Wedge T1-3/4 (SAE Type W-1) in the United States.

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



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	Standard Dimensions (millimeters)			Nearest Equivalent (inches)		
Reference	**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 deg	–	18 deg	10 deg	–	18 deg

Note:

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 C81.61-19xx Standard Sheet 1-530-x.
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

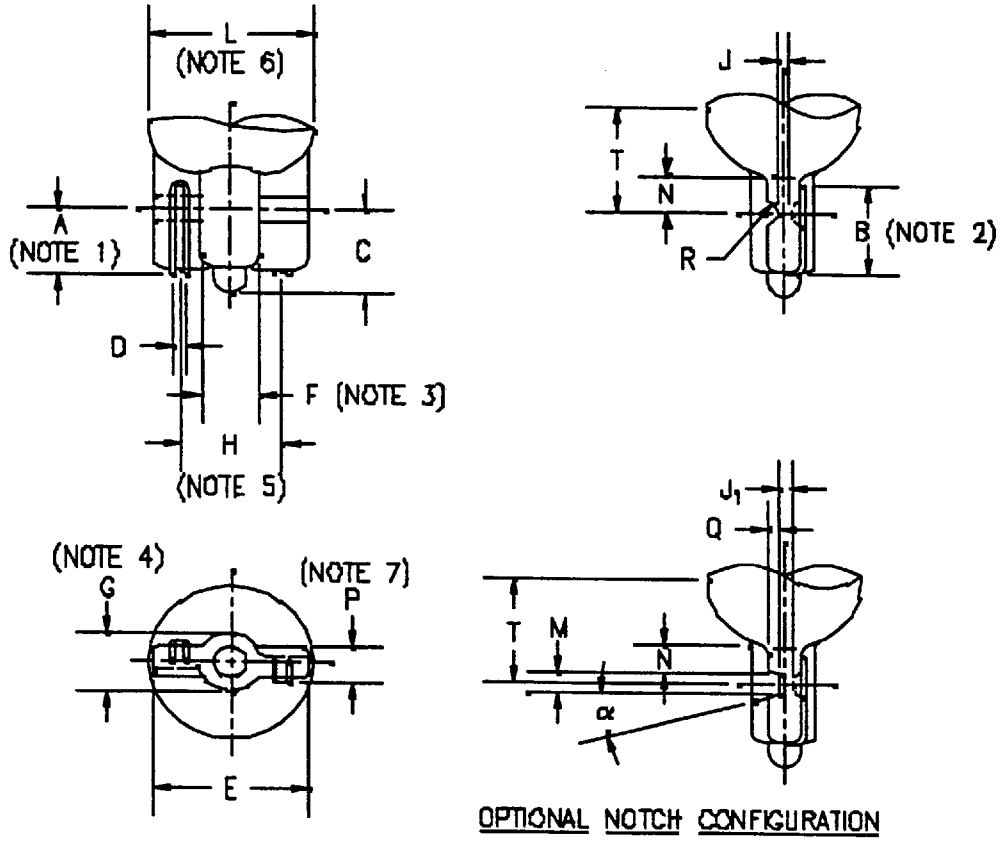
To be determined.

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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 61. 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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	Standard Dimensions (millimeters)			Nearest Equivalent (inches)		
Reference	**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 deg	–	18 deg	10 deg	–	18 deg

Note:

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 C81.61-19xx Standard Sheet 1-550-x.
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

To be determined.

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WEDGE BASES

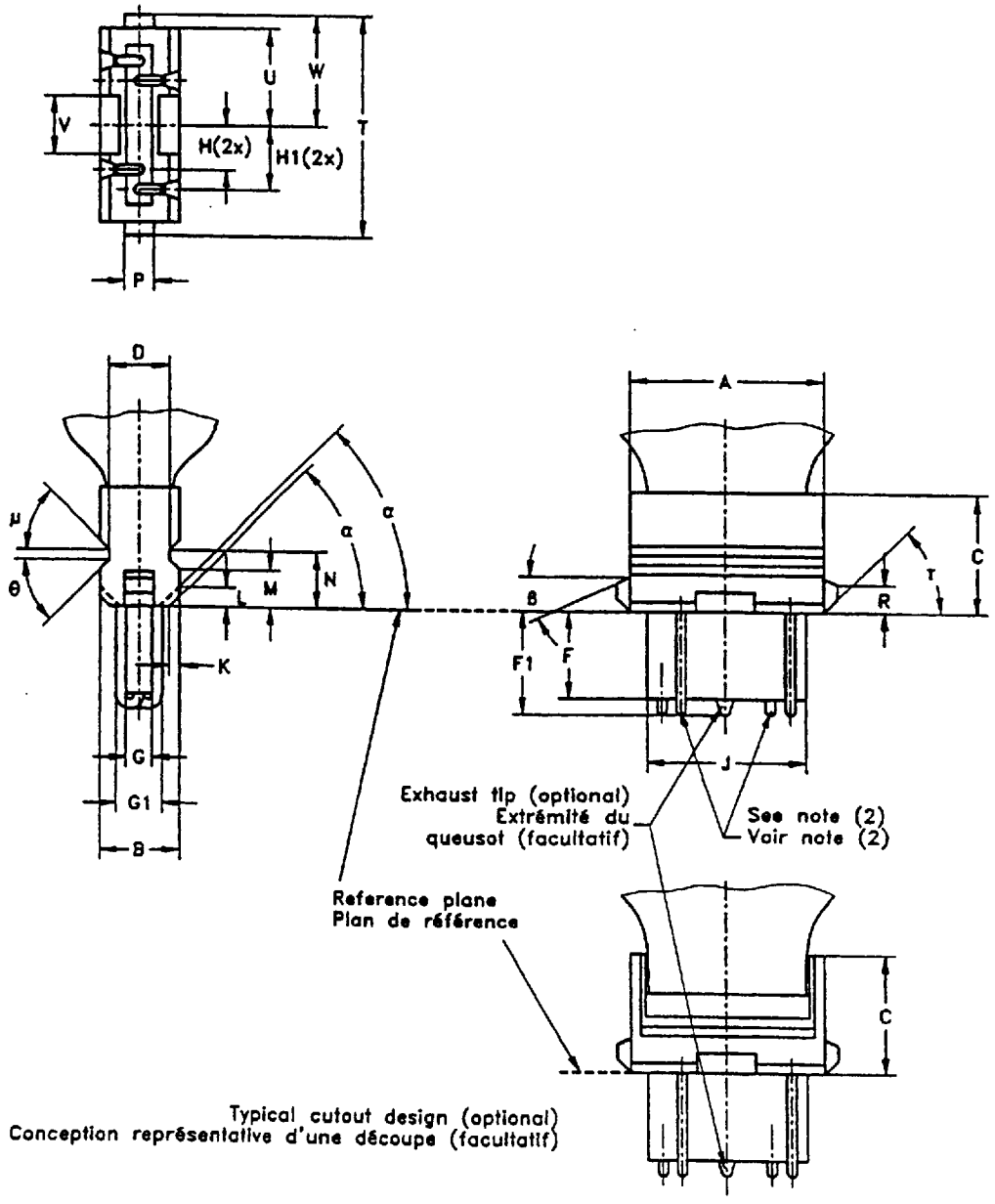
SOCLES

W2.5x16

Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holders W2.5x16, see sheet 7005-104.
Pour les détails des douilles W2.5x16, voir feuille 7005-104.



Typical cutout design (optional)
Conception représentative d'une découpe (facultatif)

The drawing shows the W2.5x16q base. For the W2.5x16d base the two innermost lead wires located by dimension H are not present.

La figure représente le socle W2.5x16q. Le socle W2.5x16d se distingue du premier par l'absence des deux fils situés le plus à l'intérieur, déterminés par la dimension H.

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WEDGE BASES

SOCLES

W2.5x16

Dimensions in millimetres - Dimensions en millimètres

Dimension	Min.	Max.
A	19,4	19,6
B	8,0	8,2
C (3)(4)	11,9	12,1
D	5,9	6,3
F	8,4	9,4
F1 (1)	–	10,5
G	2,49	2,79
G1	3,45	4,30
H	4,3	4,6
H1	6,3	6,6
J	15,75	16,25
K (4)(7)	1,0	
L	1,8	2,2
M (5)	3,65	3,85

Dimension	Min.	Max.
N (5)	5,7	–
P (W2.5x16d)	5,4	5,6
P (W2.5x16q)	2,9	3,1
R (6)	2,75	2,95
T (6)	22,1	22,3
U	9,65	9,85
V	5,6	6,0
W	11,0	11,2
α	44°	46°
ß	24°	26°
τ (6)	44°	46°
θ (5)	44°	46°
μ (4)	40°	–

(1) Includes any exhaust tip, if present.
(2) Lead wire size and location are controlled by the base "Go" gauge shown on sheet 7006-104.
(3) Base designs vary. Some provide uniform side of cap dimension C over distance A, some provide cutout designs over distance A.
(4) These dimensions are for base design only and are not to be gauged on the finished lamp.
(5) Dimensions M, N and angle θ are critical for applications in type A lampholders.
(6) Dimensions R,T and angle τ are critical for applications in type B lampholders.
(7) Dimension K and angle α do not apply over distance V.

(1) Comprend toute extrémité du queusot, s'il y en a.
(2) La localisation et les dimensions des entrées de courant sont contrôlées au moyen du calibre "Entre" du socle, représenté sur la feuille 7006-104.
(3) Il existe divers modèles de socles. Certains présentent une paroi lisse de dimension C sur la longueur A, d'autres présentent des formes découpées sur la longueur A.
(4) Ces dimensions sont destinées uniquement à la conception du socle et ne doivent pas être contrôlées au calibre sur la lampe terminée.
(5) M, N et l'angle θ sont des dimensions critiques en ce qui concerne les applications avec des douilles du type A.
(6) R, T et l'angle τ sont des dimensions critiques en ce qui concerne les applications avec des douilles du type B.
(7) La dimension K et l'angle α ne s'appliquent pas le long de la distance V.

GAUGING: Bases W2.5x16d and W2.5x16q shall fulfil the tests of the relevant gauge shown on sheet 7006-104.

VERIFICATION: Les socles W2.5x16d et W2.5x16q doivent satisfaire aux essais du calibre correspondant défini à la feuille 7006-104.

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CAP

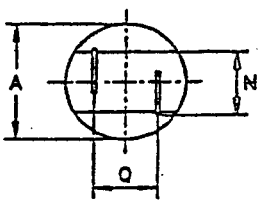
CULOT

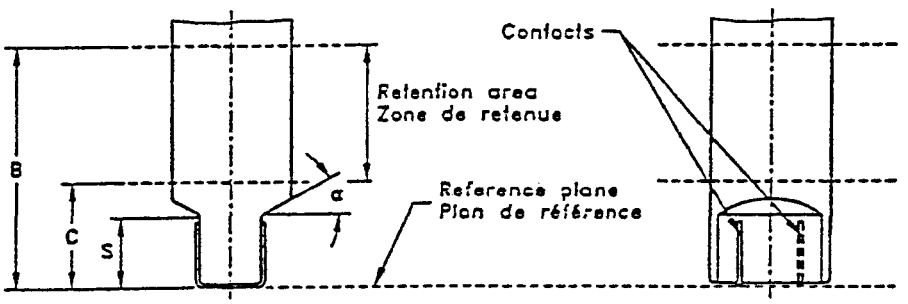
W4.3x8.5d

Dimensions in millimetres - Dimensions en millimètres

The drawing is intended only to illustrate the dimensions essential for interchangeability.
Le dessin a pour seul but d'illustrer les dimensions essentielles pour l'interchangeabilité.

For details of holder W4.3x8.5d, see sheet 7005-115.
Pour les détails de la douille W4.3x8.5d, voir feuille 7005-115.





- These dimensions are solely for cap design and are not to be gauged on the finished lamp.

(1) Only applicable within dimension B.
(2) Need not be continuous.
(3) May reach .. mm (under consideration) in the retention area on condition that when applying a force of .. N (under consideration) the limit for Amax is complied with.

- Ces dimensions s'appliquent seulement à la conception du culot et n'ont pas à être vérifiées sur la lampe terminée.

(1) S'applique uniquement le long de la dimension B.
(2) La continuité n'est pas requise.
(3) Peut atteindre .. mm (à l'étude) dans la zone de retenue pourvu que la limite pour Amax soit respectée lorsqu'on applique une force de .. N (à l'étude).

Dimension	Min.	Max.
A (1)	8,2 (2)	8,5 (3)
B*	17,5	
C*	7,5	
N*	4,3	
Q*	4,2	
S	4,8	5,3*
α	29°	–

GAUGING: When used on double-ended lamps, the alignment of the cap planes which carry the contacts is checked within dimension S with an alignment gauge having two opposite parallel slots each 4,85 mm - 0,02 mm (under consideration) wide.

VERIFICATION: Lorsque le culot est utilisé dans les lampes à deux extrémités, l'alignement des plans contenant les contacts est vérifié sur la dimension S à l'aide d'un calibre d'alignement ayant deux fentes parallèles opposées d'une largeur de 4,85 mm - 0,02 mm (à l'étude).

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ANNEX A
(informative)
Former sheet numbers of C81.61 standards

LAMP BASES

Designation	Common Name	Standard Sheet Number	Former Standard Sheet Number	Former ANSI Standard
BA9	Miniature Bayonet Base	1-10-1	1-1	C81.30a-1983
BA15s, BA15d	Candelabra, Single-Contact and Double-Contact Bayonet Bases	1-20-1	1-3	C81.30d-1986
BAY15s, BAY15d	—	1-22-1	1-11	C81.30d-1986
BAZ15d	—	1-23-1	1-12	C81.30d-1986
BY22d	—	1-30-1	1-15	C81.30c-1986
E5	Midget Screw Base	1-100-1	1-1	C81.10a-1979
E10	Miniature Screw Base	1-111-1	1-3	C81.10-1976
E11	Mini-Can Screw Base	1-123-1	1-5	C81.10a-1979
E12	Candelabra Screw Base	1-131-1	1-7	C81.10d-1986
E17	Intermediate Screw Base	1-144-1	1-9	C81-10d-1986
E26/24	Single-Contact Medium Screw Base	1-157-1	1-11	C81.10d-1986
E26d	Double-Contact Medium Screw Base	1-158-1	1-13	C81.10d-1986
E26/50x39	Skirted Medium Screw Base	1-159-1	1-15	C81.10c-1983
E26/53x39	Special Skirted Medium Screw Base	1-162-1	New	—
E39	Mogul Screw Base	7004-24-1	1-185-1	C81.61-1990
E39d	Double-Contact Mogul Screw Base	1-187-1	New	—
EP39	Position-Oriented Mogul Screw Base	1-202-1	1-19	C81.10b-1983
Fa8	Single-Pin Base	1-250-1	1-1	C81.20-1976
GY1.3-2.4	Subminiature Bipin Base (T3/4)	1-288-1	1-3	C81.50-1976
GY1.3-3.2	Subminiature Bipin Base (T1)	1-291-1	1-5	C81.50-1976
GY2.5	Subminiature Bipin Base (T1-1/4)	1-294-1	1-7	C81.50-1976
GY3.2	Subminiature Bipin Base (T1-3/4)	1-297-1	1-9	C81.50-1976
G3.9	—	1-300-1	1-15	C81.40b-1983
GU4	—	7004-108-1	New	—
G5	Miniature Bipin Base	1-310-1	1-3	C81.20-1976
G5.3	—	1-320-1	1-1	C81.40-1976
GU5.3	—	7004-109-1	New	—
GX5.3	—	1-321-1	1-2	C81.40d-1986
GY5.3	—	1-322-1	1-4	C81.40d-1986
G6.35/GY6.35	—	1-340-1	1-3	C81.40-1976
GZ6.35	—	1-342-1	New	—
2G7	—	7004-103-1	New	—
2GX7	—	7004-102-1	New	—
G7.9/GX7.9	—	1-356-1	1-5	C81.40c-1983
G9.5	—	1-368-1	1-7	C81.40c-1983
GY9.5/GZ9.5	—	1-369-1	1-9	C81.40d-1986
G10q	Four-Pin Circular Fluorescent Lamp Base	1-383-1	1-9	C81.20b-1985
2G11	—	7004-82-1	1-393-2	C81.61a-1993
G13	Medium Bipin Base	1-406-1	1-5	C81.20c-1977

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ANSI C81.61g-1996
Supplement to ANSI C81.61-1991

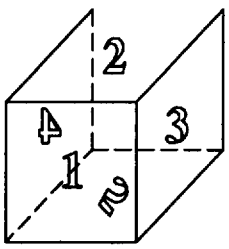
Designation	Common Name	Standard Sheet Number	Former Standard Sheet Number	Former ANSI Standard
2G13	U-Shaped Fluorescent Base	1-420-1	1-6	C81.20
GX16d	Mogul and Extended Mogul-End Prong Bases	1-430-1	1-17	C81.40
GX16d	Termination	1-431-1	1-19	C81.40
G17t	Tri-Pin Prefocus Base	1-439-1	1-10	C81.30a-1983
G17q/GX17q	Four-Pin Prefocus Base	1-440-1	1-9	C81.30-1976
G20	Mogul Bipin Base	1-452-1	1-7	C81.20-1976
G22	Medium Bipost Base	1-466-1	1-11	C81.40a-1979
G23	—	7004-69-1	1-475-1	C81.61-1990
GX23	—	7004-86-1	1-476-1	C81.61-1990
G24/GY24	—	7004-78-1	1-493-1	C81.61-1990
G32/GX32/ GY32	—	7004-87-2	1-506-1	C81.61a-1993
G38	Mogul Bipost Base	1-519-1	1-13	C81.40-1976
PG12	—	7004-64-2	New	—
P13.5s	Single-Contact Miniature Flanged Base	1-600-1	1-2	C81.30d-1986
P28	Medium Prefocus Base	1-700-1	1-5	C81.30b-1983
P30	Candelabra Prefocus Base	1-709-1	1-4	C81.30a-1983
P40	Mogul Prefocus Base	1-715-1	1-7	C81.30a-1983
R7s	Recessed Single-Contact Base	1-770-1	1-1	C81.50-1976
R12.5	—	1-774-X*	—	—
R17d	Recessed Double-Contact Base	1-777-1	1-11	C81.20a-1984
SX4	Submidget Flanged Base	1-850-1	1-2	C81.50b-1983
S5.7	Midget Grooved Base	1-856-1	1-26	C81.50c-1985
SX6	Midget Flanged Base	1-862-1	1-25	C81.50c-1985
T7.2-1	Telephone Slide Base No. 1	1-875-1	1-11	C81.50a-1981
T7.2-2	Telephone Slide Base No. 2	1-876-1	1-13	C81.50a-1981
T7.2-3	Telephone Slide Base No. 3	1-877-1	1-15	C81.50a-1981
T7.2-5	Telephone Slide Base No. 5	1-878-1	1-17	C81.50a-1981
T7.2-6	Telephone Slide Base No. 6	1-879-1	1-19	C81.50a-1981
T7.2-7	Telephone Slide Base No. 7	1-880-1	1-21	C81.50a-1981
T7.2-8	Telephone Slide Base No. 8	1-881-1	1-23	C81.50a-1981

* No standard sheet has been issued for this item. The sheet number is held in reserve.

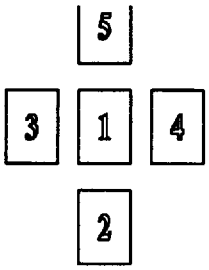
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ANNEX B
(informative)
Contrast of projections methods on engineering drawings

I. European Method: First angle projection

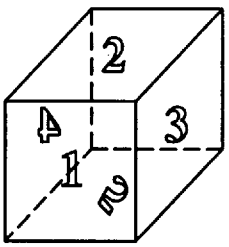


Product

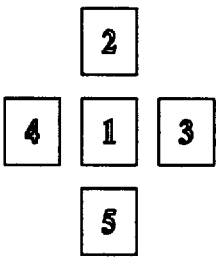


Drawing projections

II. American Method: Third angle projection



Same Product



Drawing projections

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