

INTERNATIONAL STANDARD

Capacitors and resistors for use in electronic equipment – Preferred dimensions of shaft ends, bushes and for the mounting of single-hole, bush-mounted, shaft-operated electronic components

Document Preview

[IEC 60915:2006](#)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CAPACITORS AND RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –
PREFERRED DIMENSIONS OF SHAFT ENDS, BUSHES
AND FOR THE MOUNTING OF SINGLE-HOLE, BUSH-MOUNTED,
SHAFT-OPERATED ELECTRONIC COMPONENTS**

FOREWORD

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International Standard IEC 60915 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This second edition cancels and replaces the first edition published in 1987 and constitutes a minor revision, related to Tables, Figures and references.

The text of this standard is based on the following documents:

CDV	Report on voting
40/1654/CDV	40/1783/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

The contents of the corrigendum 2 of March 2008 have been included in this copy. It cancels and replaces the corrigendum 1 of May 2007.

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CAPACITORS AND RESISTORS FOR USE IN ELECTRONIC EQUIPMENT – PREFERRED DIMENSIONS OF SHAFT ENDS, BUSHES AND FOR THE MOUNTING OF SINGLE-HOLE, BUSH-MOUNTED, SHAFT-OPERATED ELECTRONIC COMPONENTS

1 Scope and object

This International Standard is applicable to variable capacitors, potentiometers and variable resistors for use in electronic equipment.

The dimensions given in this standard have been selected from IEC 60390 and IEC 60620 because the ranges of dimensions included in these standards were considered too large and contained too many variants for capacitors and resistors for electronic equipment. Consequently this standard contains preferred dimensions for shaft ends and bushes and for the mounting of single-hole, bush-mounted, shaft-operated variable capacitors, variable resistors and potentiometers. If other dimensions not listed in this standard have to be used, it is recommended to select them also from the above-mentioned standards.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60390, *Dimensions of spindle ends for manually operated electronic components*

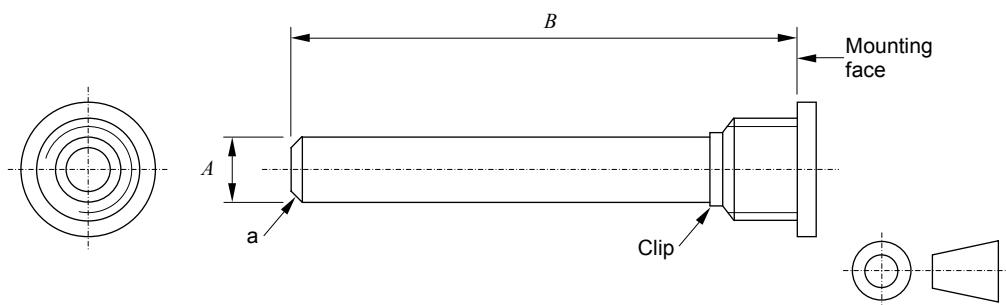
IEC 60620, *Dimensions for the mounting of single-hole, bush-mounted, spindle-operated electronic components*

[IEC 60915:2006](http://standards.iteh.org/catalog/standards-iec/24c7a3bd-63ff-4b83-acb8-233d5aedf015/iec-60915-2006)

3 Preferred dimensions of shaft ends and bushes

All dimensions are in mm.

3.1 Plain round shaft



^a Chamfer at 40°/50° or a radius for a depth of between 5 % and 10 % of the dimension *A*.

Figure 1 – Plain round shaft

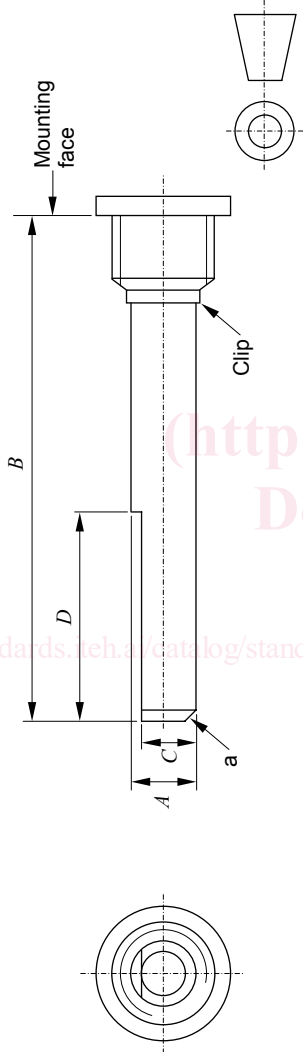
Table 1 – Preferred dimensions of plain round shaft

Dimension <i>A</i> ^a		Dimension <i>B</i>										
General	Precision	10 ±0,5	12,5 ±0,5	15 ±0,5	20 ±0,5	22 ±0,5	25 ±0,5	30 ±1,0	32 ±1,0	35 ±1,0	40 ±1,0	50 ±1,0
3.0 ⁰ _{-0,06}	3.00 ⁰ _{-0,025}	X	X	X	X	X	X	X	X			
4.0 ⁰ _{-0,075}	4.00 ⁰ _{-0,03}	X	X	X	X	X	X	X	X	X	X	X
6.0 ⁰ _{-0,075}	6.00 ⁰ _{-0,03}		X	X	X	X	X ^b	X	X	X	X	X
10.0 ⁰ _{-0,09}	10.00 ⁰ _{-0,036}			X	X	X	X	X	X	X	X	X

^a Dimension *A* includes finish requirements.

^b When specifically required this variant may have a cross-hole, with a diameter of 3,15 mm ± 0,05 mm, at 5 ± 0,4 mm from the end of the shaft. The centre line of the cross-hole shall not deviate from the centre line of the shaft by more than 0,1 mm.

3.2 Flatted shaft



^a Chamfer at $40^\circ/50^\circ$, or a radius for a depth of between 5 % and 10 % of dimension A .

Figure 2 – Flatted shaft

Table 2 – Preferred dimensions of flatted shaft

Dimension A^a		Dimension B^b										Dimension $C^{c,d}$		Dimension D
General	Precision	10 $\pm 0,5$	12,5 $\pm 0,5$	15 $\pm 0,5$	20 $\pm 0,5$	22 $\pm 0,5$	25 $\pm 0,5$	30 $\pm 1,0$	32 $\pm 1,0$	35 $\pm 1,0$	40 $\pm 1,0$	50 $\pm 1,0$	Screwed knob	
$3,00^0_{-0,06}$	$3,00^0_{-0,025}$	X	X	X	X	X	X	X	X	X			$2,5^0_{-0,1}$	$2,0^0_{-0,1}$
$4,00^0_{-0,075}$	$4,00^0_{-0,03}$	X	X	X	X	X	X	X	X	X	X		$3,5^0_{-0,1}$	$3,0^0_{-0,1}$
$6,00^0_{-0,75}$	$6,00^0_{-0,03}$		X	X	X	X	X	X	X	X	X	X	$5,0^0_{-0,2}$	$4,0^0_{-0,1}$
$10,0^0_{-0,09}$	$10,0^0_{-0,036}$				X	X	X	X	X	X	X	X	$9,0^0_{-0,2}$	$7,0^0_{-0,1}$

From 4 mm in increments of 2 mm
(4,6,8,12 mm)
Tolerance $\pm 0,5$ mm

^a Dimension A includes finish requirements.

^b If additional values are required, they should preferably be chosen from the R20 series.

^c Dimensions C and D of the flat shall be selected from the options given in Table 2 and dimension D shall be specified in the detail specification of the component in consideration of the diameter and length of shaft.

^d The angle of flat shall be specified in steps of $22,5^\circ \pm 5^\circ$ clockwise from the reference line (the position of the reference line shall be defined).

3.3 Slotted shaft

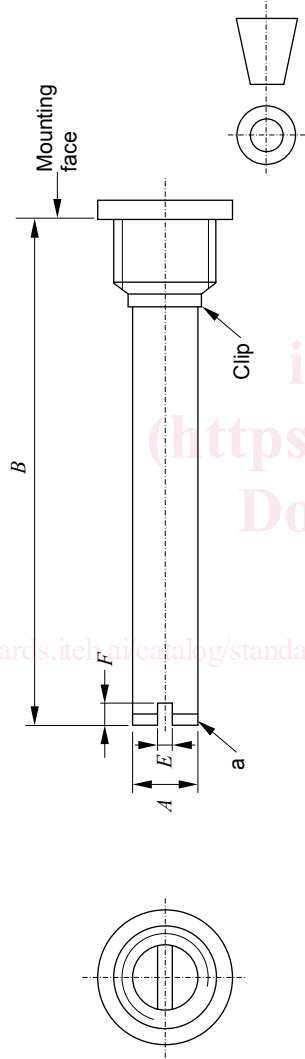


Figure 3 – Slotted shaft

Table 3 – Preferred dimensions of slotted shaft

Dimension A ^a		Dimension B ^b										Dimension E	Dimension F						
		10 ±0,5	12,5 ±0,5	15 ±0,5	20 ±0,5	22 ±0,5	25 ±0,5	30 ±1,0	32 ±1,0	35 ±1,0	40 ±1,0			50 ±1,0					
General	Precision																		
	3,00 ⁰ _{-0,06}	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,0 ± 0,1 1,2 ± 0,2
	4,00 ⁰ _{-0,075}		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2 ± 0,2 1,5 ± 0,2
	6,00 ⁰ _{-0,075}			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,6 ± 0,2 2,0 ± 0,2
	10,00 ⁰ _{-0,09}				X	X	X	X	X	X	X	X	X	X	X	X	X	X	3,0 ± 0,2

^a Dimension A includes finish requirements.

^b If additional values are required they should preferably be chosen from the R20 series.