

Specification for  
**Terminals —**

**For electrical apparatus —  
For railway signalling purposes**

## Co-operating organizations

The Electrical Industry Standards Committee,<sup>1)</sup> under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:—

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 British Railways, The Railway Executive\*  
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 National Union of Manufacturers  
 Individual manufacturers of Railway Signalling Apparatus

This British Standard, having been approved by the Electrical Industry Standards Committee and endorsed by the chairman of the Engineering Divisional Council, was published under the authority of the General Council on 30 December 1950

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<sup>1)</sup> The Electrical Industry Standards Committee is the British National Committee of the International Electrotechnical Commission.

### Amendments issued since publication

Amd. No.	Date	Comments

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## Foreword

This standard requires reference to the following British Standards:—

BS 57, *B.A. bolts, screws, nuts and washers.*

BS 93, *British Association screw threads, with tolerances for sizes Nos. 0 to 15 B.A.*

BS 249, *Brass bars (high speed screwing and turning).*

BS 488, *Moulded insulating materials for general electrical purposes.*

This British Standard, first issued in 1932, has now been revised in order to bring it into line with recent developments in design and manufacturing of the terminals specified.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 4 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## 1 Scope

This British Standard applies to the main terminals on electrical apparatus for railway signalling purposes, to which cables external to the apparatus are connected. It is not intended to apply to terminals inside the apparatus.

Terminals of both the nut and the screw type, and of the insulated screw type, are specified.

## 2 Definition

For the purposes of this standard a terminal is defined as that portion of an apparatus which is intended for the reception of a conductor by means of which the apparatus may be connected electrically to another apparatus.

## 3 General

The dimensions of British Standard signalling terminals (B.S.S.T.) shall be in accordance with Table 1 and Table 2 and Figure 1, Figure 2, Figure 3 or Figure 4, for the particular type of terminal concerned.

These dimensions shall apply to the finished, i.e. plated, components.

## 4 Screw threads

Subject to the nuts or screws being rotatable without the aid of a spanner or screwdriver, their screw threads shall comply with the sizes and the tolerances laid down for 0 B.A. and 2 B.A. bolts and nuts in B.S. 93, "*British Association screw threads with tolerances for sizes Nos. 0 to 15 B.A.*"

## 5 Components and assembly

The complete terminals shall be assembled according to one of the following arrangements:—

- 0 B.A. and 2 B.A. nut type comprising:
  - a) one bolt, two binding nuts, three washers and one clamp nut according to Figure 1(a) and Figure 2.
  - b) one stud, two binding nuts, two washers and means of fixing bolt or nut securely to the terminal base according to Figure 1(b) and Figure 2, in a manner such that the bolt or stud will not become loose in service and, at the same time, will provide a metal contact surface of an area not less than that of a clamp nut of the appropriate size. The metal contact surface shall be treated to remove all burrs and sharp edges so that it will not damage the conductor.

0 B.A. and 2 B.A. screw type (including insulated screw type) comprising:

- a) one screw and two washers in accordance with Figure 1(c) and Figure 3.
- b) one insulated screw and two washers (one of which may be a locking washer of a type approved by the purchaser) in accordance with Figure 1(c) and Figure 4.

The metal component into which the screw is fitted shall have a metal contact surface of an area not less than that of a clamp nut of the appropriate size.

## 6 Materials and finish

All metal components shall be made of brass complying with BS 249, "*Brass bars (high speed screwing and turning)*" or other equivalent material approved by the purchaser, and shall be nickel plated.

The thickness of plating shall be not less than 0.0002 in. and not more than 0.0005 in.

Washers shall be treated to remove burrs and sharp edges so that they will not damage the conductors.

The ends of bolts and screws may, at the option of the manufacturer, be finished with a radius (approximately equal to the diameter of the shank), or a chamfered flat, or with the normal finish obtained during manufacture in the process of thread rolling, and shall be free from burrs.

The insulating head of the insulated screw type terminal shall be of moulded insulating material complying with Grade III or III X of BS 488, "*Moulded insulating materials for general electrical purposes.*"

**Table 1 — Dimensions of nut type terminals** (See Figure 1 and Figure 2)

Designation	Binding nut (Ref. 1)					Clamp nut (Ref. 2)			Washer (Ref. 3)			Bolt or stud (Ref. 4)		
	A	B	D	E	F	A	C	D	G	H	J	Dia.	L.	t.p.i.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0 B.A.	0.500	0.313	0.236	0.188	0.438	0.500	0.188	0.236	0.250	0.563	0.056	0.236	1	25.4
2 B.A.	0.365	0.281	0.185	0.188	0.313	0.365	0.188	0.185	0.190	0.421	0.048	0.185	0.875	31.3

NOTE The dimensions given are maximum and are subject to normal manufacturing tolerances.

**Table 2 — Dimensions of screw type terminals**  
(See Figure 2 for washer and Figure 3 for screw)

Designation	Screw									Washer		
	A	B	D	H	J	L min.	R (rad.)	Y max.	t.p.i.	G	H	J
	in.	in.	in.	in.	in.	in.	in.	in.		in.	in.	in.
0 B.A.	0.472	0.165	0.236	0.048	0.089	0.375	0.02	0.060	25.4	0.250	0.563	0.056
2 B.A.	0.365	0.130	0.185	0.048	0.069	0.313	0.02	0.048	31.3	0.190	0.421	0.056

NOTE 1 The screw dimensions have been taken from BS 57, "B.A. bolts, screws, nuts and washers." Tolerances given in that standard are applicable to these dimensions except where otherwise stated.

NOTE 2 The washer dimensions are subject to normal manufacturing tolerances.

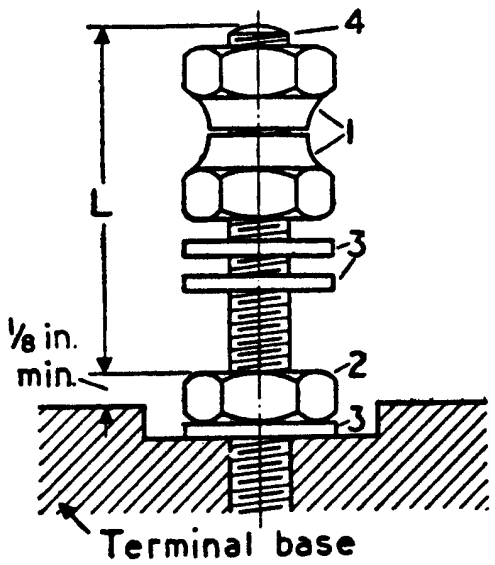


Figure 1(a)  
 Assembly of nut type terminals. Numbers relate to references in Table 1.

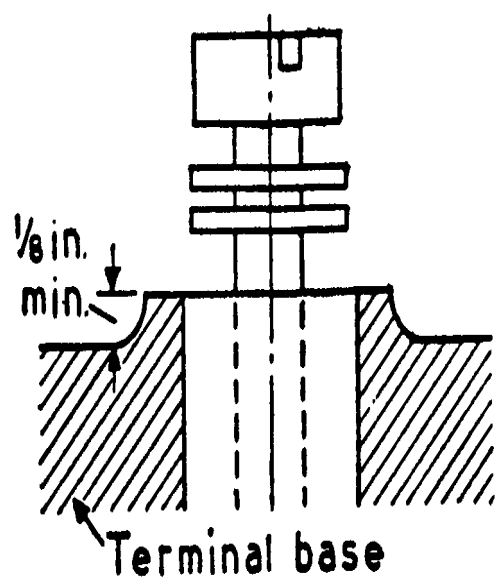
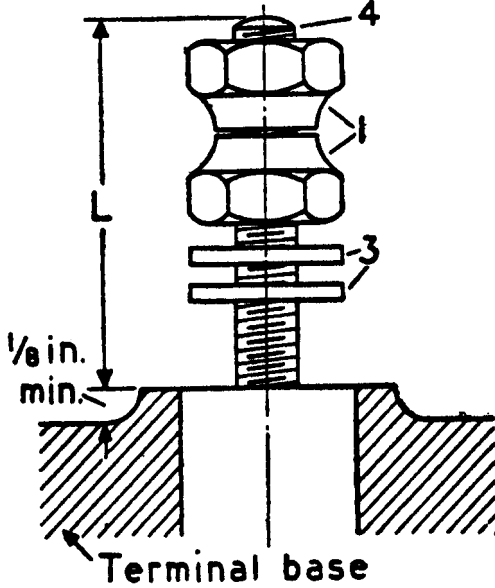


Figure 1(c)  
 Assembly of screw type terminals

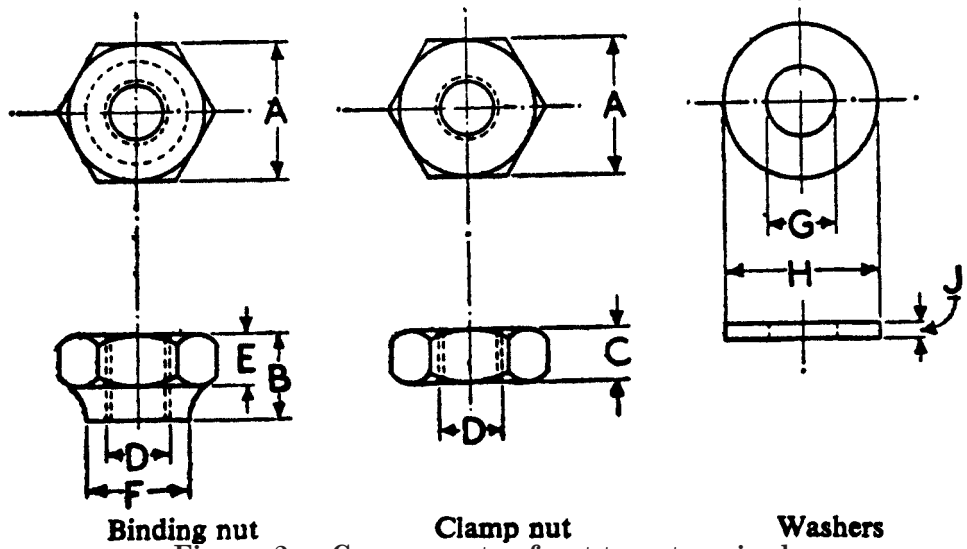


Figure 2 — Components of nut type terminals  
 Letters relate to references in Table 1.

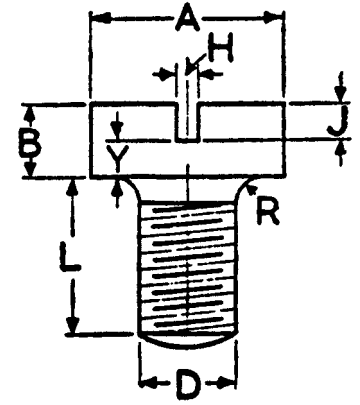
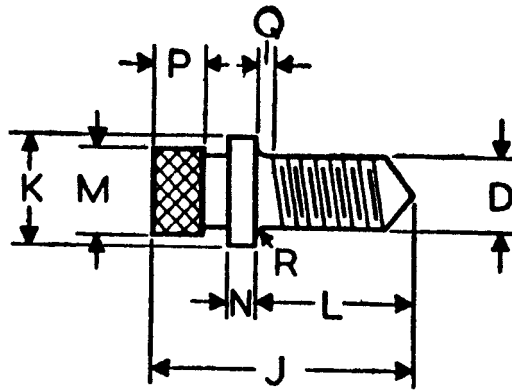
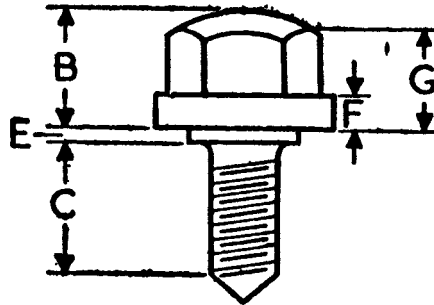
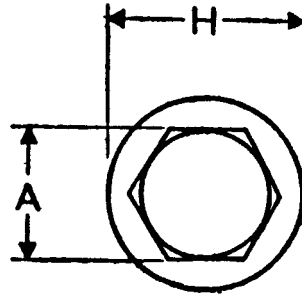


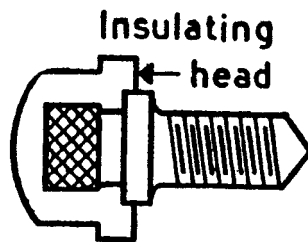
Figure 3 — Screw type terminal  
 Letters relate to references in Table 2.

Table 3 — Dimensions of insulated screw type terminals

Dimension	Size
	in.
A	0.500
B	0.438
C	0.500
D	0.236
E	0.031
F	0.125
G	0.375
H	0.688
J	0.969
K	0.438
L	0.625
M	0.313
N	0.094
P	0.25
Q max.	0.06
R max.	0.02
Screw designation	0 B.A.
threads per inch	25.4



Brass screw insert.



See Table 2 and Figure 2 for washer.

NOTE The dimensions given in the above table are subjected to normal manufacturing tolerances.

Figure 4 — Dimensions of insulated screw type terminal





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