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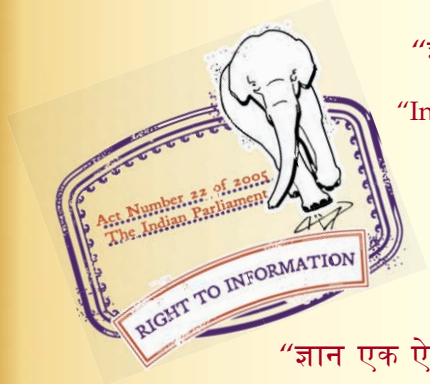
IS 9106 (1979): Specification for rising butt hinges [CED 15: Builder Hardware]



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Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS : 9106 - 1979
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Indian Standard

SPECIFICATION FOR RISING BUTT HINGES

UDC 683·372·62

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DEI.HI 110002

August 1979

Indian Standard

SPECIFICATION FOR RISING BUTT HINGES

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SPECIFICATION FOR RISING BUTT HINGES

0. FOREWORD

0.1 This Indian standard was adopted by the Indian Standards Institution on 24 February 1979, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Rising butt hinges are used for fixing the door shutters to the frame when it is intended that the shutters get automatically closed. When the door is opened, the flap of the hinge fixed to the shutter, spirally over the other flap fixed to the frame, elevates the shutter. The door gets automatically closed when the flap of the hinge by way of its own weight and weight of the shutter tends to move down spirally. These hinges find their use when the door shutters are not up to the full height of the opening, such as doors for cabins of doctors, station officers of police or railway stations or for other offices where considerable public dealings are involved.

0.3 This standard contains clauses **5.1** and **6.3** which permit the purchaser to use his options for selection to suit his requirements.

0.4 In formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries, in addition to relating it to the practices in the field in this country.

0.5 This standard is one of a series of Indian Standards on builder's hardware. Other standards published so far in the series are given at page 13.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard lays down the requirements regarding materials, dimensions, manufacture and finish of rising butt hinges.

2. TYPES

2.1 Rising butt hinges shall be of the following types according to the material used:

Type	*Material*
1	Cold rolled mild steel
2	Cast iron
3	Extruded brass

3. MATERIALS

3.1 Material used for the manufacture of rising butt hinges shall comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR MATERIALS FOR RISING BUTT HINGES

PART	MATERIAL	SUITABLE GRADE IN INDIAN STANDARD
(1)	(2)	(3)
Flap	Mild steel	Grade 0 of IS : 1079-1973* or Temper No 2 or No. 3 of IS . 4030-1973†
	Cast iron	Grade 15 of IS 210-1978‡
	Extruded brass	IS : 319-1974§.
Pin	Mild steel wire	$\frac{1}{4}$H or $\frac{1}{2}$H of IS . 280-1972‖

*Specification for hot rolled carbon steel sheet and strip (*third revision*).
†Specification for cold rolled carbon steel strip for general engineering purposes (*first revision*).
‡Specification for grey iron castings (*third revision*).
§Specification for free cutting brass bars rods and sections (*third revision*).
‖Specification for mild steel wire for general engineering purpose (*second revision*).

4. DIMENSIONS AND TOLERANCES

4.1 The dimensions for different types of hinges shall be as given in Tables 2 to 4 read with Fig. 1 to 3 respectively.

NOTE — The figures are diagrammatic in third angle projection.

TABLE 2 DIMENSIONS OF STEEL RISING BUTT HINGES

(*Clauses* 4.1, 5.1, 5.4.1 *and* 5.4.2, and *Fig.* 1)

All dimensions in millimetres.

Size of Hinge	Length of Joint *A*	Open Width Over Flaps *B*	Dia of Pin *C*	Thickness of Flap *D*	Rise of Flap When Open 90°	Rise of Flap When Open 180° *E*	Holes for Screw Designation	No. of Screw Holes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
75	75	50	4·8	1·70	5	10	8	6
100	100	65	5·8	2	6	12	9	8

NOTE — These hinges are handed and it is essential that purchasers indicate, when ordering, whether left-hand or right-hand hinges are required.

TABLE 3 DIMENSIONS OF CAST IRON RISING BUTT HINGES

(*Clauses* 4.1, 5.1, 5.4.1 *and* 5.4.2, and *Fig.* 2)

All dimensions in millimetres.

Size of Hinge	Length of Joint *A*	Open Width Over Flaps *B*	Dia of Pin *C* *Min*	Thickness of Flap *D* *Min*	Rise of Flap When Open 90°	Rise of Flap When Open 180° *E*	Holes for Screw Designation	No. of Screw Holes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
75	75	60	6·4	3·3	6	12	12	6
100	100	70	7	3·5	6	12	12	6

NOTE — These hinges are handed and it is essential that purchasers indicate, when ordering, whether left-hand or right-hand hinges are required.

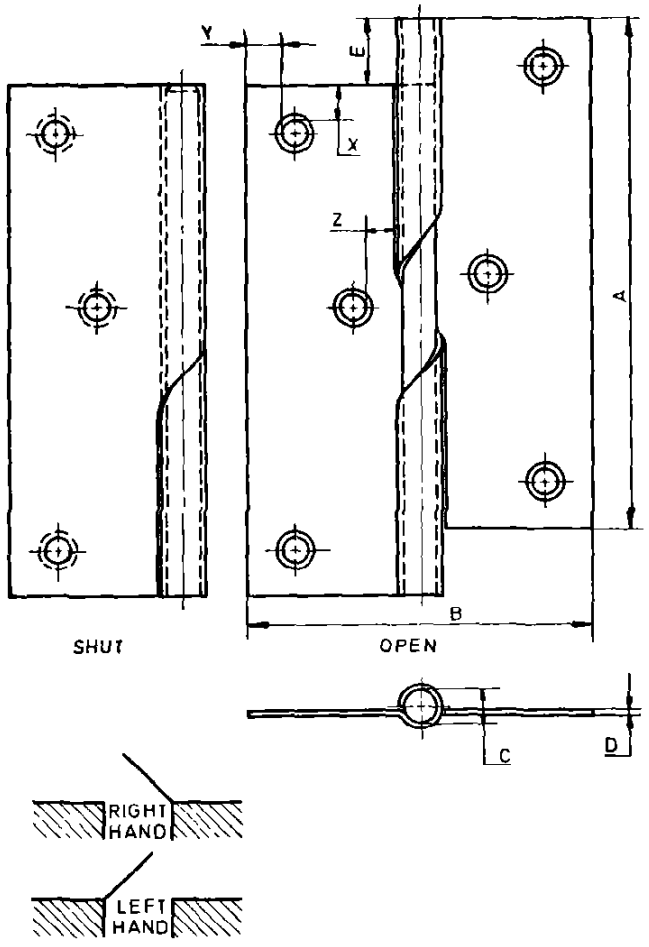
TABLE 4 DIMENSIONS OF BRASS RISING BUTT HINGES

(*Clauses* 4.1, 5.1, 5.4.1 *and* 5.4.2, and *Fig.* 3)

All dimensions in millimetres.

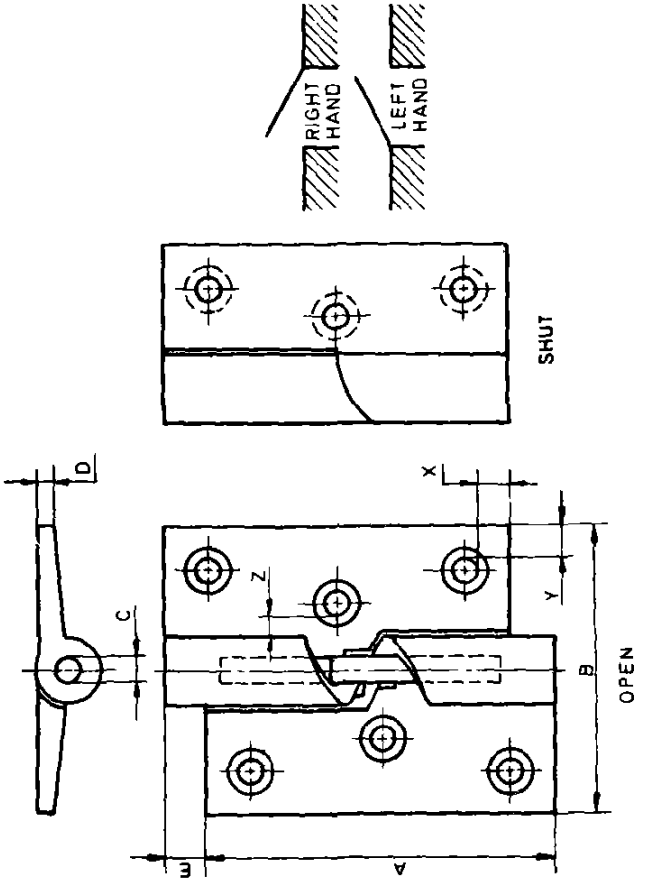
Size of Hinge	Length of Joint *A*	Open Width Over Flaps *B*	Dia of Pin *C* *Min*	Thickness of Flap *D* *Min*	Rise of Flap When Open 90°	Rise of Flap When Open 180° *E*	Holes for Screw Designation	No. of Screw Holes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
75	75	60	7·1	4	6	12	10	6
100	100	65	7·9	4	6	12	10	8
100	100	75	9·5	4·7	6	12	12	8
125	125	100	9·5	6·7	6	12	12	8

NOTE — These hinges are handed and it is essential that purchasers indicate, when ordering, whether left-hand or right-hand hinges are required.



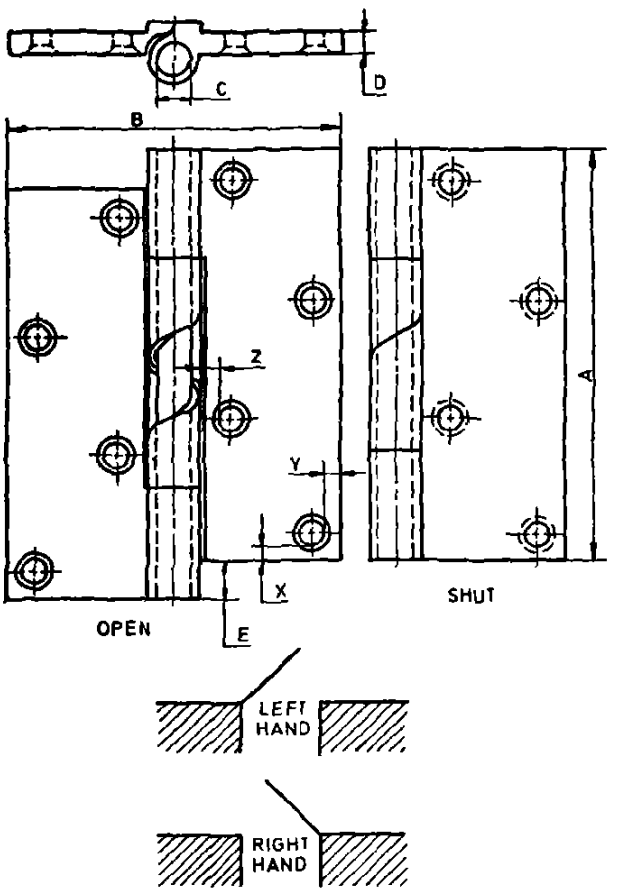
NOTE — A left-hand hinge is illustrated.

FIG. 1 STEEL RISING BUTT HINGE



NOTE — A left-hand hinge is illustrated

FIG. 2 CAST IRON RISING BUTT HINGE



NOTE — A left-hand hinge is illustrated.

FIG. 3 BRASS RISING BUTT HINGE

4.2 Tolerances — The tolerances on dimensions of hinges specified for different types shall be as given in Table 5.

TABLE 5 TOLERANCES ON DIMENSIONS OF RISING BUTT HINGES

(All dimensions in millimetres)

Sl No.	Type	Length of Joint *A*	Open Width Over Flaps *B*	Dia of Pin *C*	Thickness of Flap *D*	Rise of Flap When Open 90°	Rise of Flap When Open 180°
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Steel rising butt hinges	± 0 5	± 2	± 0 05	± 0 01	± 0·5	± 0 5
ii)	Cast iron rising butt hinges	± 1·5	± 1·5	—	—	± 0 5	± 0 5
iii)	Brass rising butt hinges	± 0 5	± 1	—	—	± 0·5	± 0·5

5. CONSTRUCTION

5.1 General — The rising butt hinges shall comply with Fig. 1 to 3, read with Tables 2 to 4.

NOTE — The purchaser, when ordering, should state the hand of rising butt hinges Handing of rising butt hinges shall be determined by the handing of the door on which it is fitted The hinge is termed ' left-hand ' if it is fitted to left-hand door, and ' right-hand ' if it is fitted to right-hand door.

5.2 Pins — Pins shall be made of steel wire for all types of rising butt hinges. The pins shall be firmly fixed except that the steel butt hinges may also be supplied with loose headed pins. In case of brass hinges the pins shall be flush with the ends of the hinges as shown in Fig. 3.

5.3 The helix and the linings of knuckles of brass rising butt hinges shall be of mild steel.

5.4 Screw Holes — All screw holes shall be countersunk.

5.4.1 The screw holes shall be suitable for countersunk head wood screw conforming to IS : 6760-1972* and of the sizes specified in Tables 2 to 4 for different types and sizes of hinges. The size of the holes shall be such that when it is countersunk it shall be able to accommodate the full depth of countersunk head of the wood screw specified.

5.4.2 *Number of Holes* — The number of holes shall be as specified in Tables 2 to 4.

*Specification for slotted countersunk head wood screws.

5.4.3 *Position of Holes* — When more than two screw holes are provided in each flap they shall be distributed in zig-zag manner as shown in Fig. 1 to 3 but shall be equidistant from one another. The minimum clear distance of the screw holes from the end of the flap either parallel to the pin or across it shall be as follows:

X or Y	
For hinges of 75 mm and 100 mm sizes	Not less than 5 mm
For hinges of 125 mm size	Not less than 7 mm
Z	
For all sizes of hinges	Not less than 4 mm

where

X = distance of the end hole from the end of flap measured parallel to the pin;

Y = distance of the end hole from the end of flap measured at right angles to the pin; and

Z = distance of the end of hole nearest to knuckle edge, where holes are provided in zig-zag manner, from the edge of the knuckle slot.

6. WORKMANSHIP AND FINISH

6.1 Hinges shall be well made and shall be free from flaws and defects.

6.2 Movement — The movement of the hinge shall be firm and easy to operate when fitted.

6.3 Unless specified otherwise, the hinges shall be finished bright with smooth surfaces The brass hinges shall have bright or satin finish and shall be suitably protected against discolouration.

7. MARKING

7.1 Each hinge shall be legibly and indelibly marked with the name of manufacturer or trade-mark, if any.

7.1.1 The hinge may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8. PACKING

8.1 Hinges shall be packed in cardboard boxes or in any other approved packing. The number of hinges in a package shall be ten.

NOTE — Hinges may be packed in multiples of six, if required by the purchaser

8.2 Each package shall bear the following particulars:

a) Type of hinges;
b) Size of hinges;
c) Quantity of hinges; and
d) Name of manufacturer or trade-mark, if any.

9. SAMPLING AND CRITERION FOR CONFORMITY

9.1 The method of sampling rising butt hinges and the criterion for conformity shall be as given in Appendix A.

APPENDIX A

(Clause 9.1)

SAMPLING AND CRITERION FOR CONFORMITY

A-1. LOT

A-1.1 In any consignment all the rising butt hinges of the same type and size manufactured at the same time shall be grouped together to constitute a lot.

A-2. LOT SIZE AND SAMPLE SIZE

A-2.1 Lot Size — The number of rising butt hinges to be selected from a lot shall depend on the size of lot and shall be in accordance with col 1 and 2 of Table 6.

TABLE 6 SCALE OF SAMPLING AND CRITERION FOR CONFORMITY

(*Clauses* A-2.1 *and* A-4.1)

Lot Size	Sample Size	Permissible No. of Defective Hinges
(1)	(2)	(3)
Up to 150	5	0
151 ,, 300	20	1
301 ,, 500	32	2
501 ,, 1 000	50	3
1 001 and above	80	5

A-2.2 Sample Size — Rising butt hinges for testing shall be selected at random from at least 10 percent of the packages subject to a minimum of three packages, equal number of hinges being selected from each such package.

A-3. TESTS

A-3.1 All rising butt hinges as selected as given in **A-2.1** and **A-2.2** shall be checked for dimensions subject to tolerances, defects in manufacture, and finish. Any hinge which fails to satisfy these requirements shall be considered as defective hinge.

A-4. CRITERION FOR CONFORMITY

A-4.1 A lot shall be considered as conforming to the requirements of this standard if the number of defective hinges among those tested does not exceed the corresponding number given in col 3 of Table 6.

INDIAN STANDARDS

ON

BUILDER'S HARDWARE

IS:

204 (Part I)-1978 Tower bolts, Part I Ferrous metals (*fourth revision*)
204 (Part II)-1978 Tower bolts, Part II Non-ferrous metals (*fourth revision*)
205-1978 Non-ferrous metal butt hinges (*third revision*)
206-1973 Tee and strap hinges (*second revision*)
208-1979 Door handles (*third revision*)
281-1973 Mild steel sliding door bolts for use with padlocks (*second revision*)
362-1975 Parliament hinges (*third revision*)
363-1976 Hasps and staples (*third revision*)
364-1970 Fan-light catch (*second revision*)
452-1973 Door springs, rat-tail type (*second revision*)
453-1973 Double acting spring hinges (*second revision*)
729-1979 Drawer locks, cupboard locks and box locks (*third revision*)
1019-1974 Rim latches (*second revision*)
1341-1976 Steel butt hinges (*third revision*)
1495-1970 Mild steel dust-bins (*first revision*)
1823-1974 Floor door stoppers (*second revision*)
1837-1966 Fanlight pivots (*first revision*)
2209-1976 Mortice locks (vertical type) (*third revision*)
2681-1979 Non-ferrous metal sliding door bolts for use with padlocks (*third revision*)
3564-1975 Door closers (hydraulically regulated) (*second revision*)
3818-1971 Continuous (piano) hinges (*first revision*)
3828-1966 Ventilator chains
3843-1966 Steel back flap hinges
3847-1966 Mortice night latches
4621-1975 Indicating bolts for use in public baths and lavatories (*first revision*)
4948-1974 Welded steel wire fabric for general use (*first revision*)
4992-1975 Door handles for mortice locks (vertical type) (*first revision*)
5187-1972 Flush bolts (*first revision*)
5899-1970 Bathroom latches
5930-1970 Mortice latch (vertical type)
6315-1971 Floor springs (hydraulically regulated) for heavy doors
6318-1971 Plastic window stays and fasteners
6343-1971 Door closers (pneumatically regulated) for light doors weighing up to 40 kg
6602-1972 Ventilator poles
6607-1972 Rebated mortice locks (vertical type)

IS:

7196-1974 Hold fast
7197-1974 Double action floor springs (without oil check) for heavy doors
7534-1974 Mild steel locking bolts with holes for padlocks
7540-1974 Mortice dead locks
8756-1978 Ball catches for use in wooden almirah
8760-1978 Mortice sliding door locks with lever mechanism
9131-1979 Rim locks

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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