इंटरनेट मानक

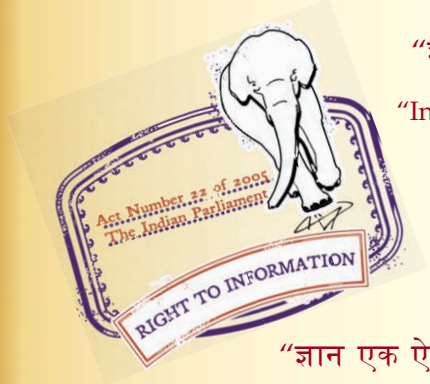
Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 7197 (1974): Specification for double action floor springs (without oil check) heavy door [CED 15: Builder Hardware]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

IS : 7197 - 1974
(Reaffirmed 2006)

Indian Standard

SPECIFICATION FOR DOUBLE ACTION FLOOR SPRINGS (WITHOUT OIL CHECK) FOR HEAVY DOORS

(First Reprint MARCH 1986)

UDC 683.372.4

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3

July 1974

Indian Standard

SPECIFICATION FOR DOUBLE ACTION FLOOR SPRINGS (WITHOUT OIL CHECK) FOR HEAVY DOORS

Builder's Hardware Sectional Committee, BDC 15

Chairman	*Representing*
SHRI YUSUF MOWJEE	M.C. Mowjee & Company, Calcutta; *and* Builder's Hardware Industries Association of India Calcutta
Members	
SHRI SAHIB SINGH (*Alternate* to Shri Yusuf Mowjee)	
SHRI AJOYENDU PAUL	Gobindo Sheet Metal Works and Foundry, Calcutta
SHRI D. R. BAHL	Engineer-in-Chief's Branch, Army Headquarters
SHRI J. L. KAPOOR (*Alternate*)	
SHRI J. P. BAJAJ	Institution of Engineers (India), Calcutta
SHRI AJAY BHARADWAJ	Indian Institute of Architects, Bombay
SHRI B. D. KSHIRSAGAR (*Alternate*)	
SHRI A. K. BHIMANI	Vertex Manufacturing Company Limited, Bombay
SHRI H. C. SAMPAT (*Alternate*)	
SHRI R. M. CHAUDHRI	Indian Aluminium Company Limited, Calcutta
SHRI J. K. ANAND (*Alternate*)	
CONTROLLER OF STORES, EASTERN RAILWAY	Railway Board (Ministry of Railways)
SHRI P. K. DE	De's Lock Industries, Calcutta
SHRI K. P. JAIN	Engineering Association of India, Calcutta
*SHRI V. S. KAMBOJ	Jayna Trading Corporation, Delhi
SHRI J. R. KANSARA	Arvind Industries, Jamnagar (Gujarat)
SHRI S. C. KAPOOR	Directorate General of Supplies & Disposals (Ministry of Supply)
SHRI S. D. MAJUMDAR	National Test House, Calcutta
DR A. V. R. RAO	National Buildings Organization, New Delhi
SHRI O. P. RATRA (*Alternate*)	
SHRI T. C. SOLANKI	Sen-Harvic, Bombay
SHRI N. K. RAGOOWANSHI (*Alternate*)	
SURVEYOR OF WORKS (I)	Central Public Works Department, New Delhi
SHRI D. AJITHA SIMHA, Director (Civ Engg)	Director General, ISI (*Ex-officio Member*)

Secretary

SHRI S. P. MAGGU
Assistant Director (Civ Engg), ISI

*He also represents Arvind Industries, Jamnagar (Gujarat) as alternate member.

(*Continued on page* 2)

(*Continued from page* 1)

Door and Window Fittings Subcommittee, BDC 15 : 1

Convener	*Representing*
SHRI YUSUF MOWJEE	M. C. Mowjee & Company, Calcutta
Members	
SHRI SAHIB SINGH (*Alternate* to Shri Yusuf Mowjee)	
SHRI AJOYENDU PAUL	Gobindo Sheet Metal Works and Foundry, Calcutta
SHRI A. K. BHIMANI	Vertex Manufacturing Company Limited, Bombay
SHRI H. C. SAMPAT (*Alternate*)	
SHRI P. BOSE	C. K. Sirkar & Company, Calcutta
SHRI J. P. JAIN	Indian Hardware Industries Limited, New Delhi
SHRI M. R. JOSHI	Department of Defence Production (Ministry of Defence)
SHRI S. SESHADRI (*Alternate*)	
SHRI V. S. KAMBOJ	Jayna Trading Corporation, Delhi
SHRI BIPIN KUMARIA	Chemi Chrome Industries Private Limited, Kanpur
SHRI L. S. KUMAWAT	Engineer-in-Chief's Branch, Army Headquarters
SHRI S. BALAKRISHNAN (*Alternate*)	
SHRI N. V. SHASTRI	Railway Board (Ministry of Railways)
SURVEYOR OF WORKS (I)	Central Public Works Department, New Delhi

Indian Standard

SPECIFICATION FOR DOUBLE ACTION FLOOR SPRINGS (WITHOUT OIL CHECK) FOR HEAVY DOORS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 8 February 1974, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Use of automatic door closing devices to minimize the loss or gain of heat due to frequent opening and closure of doors in air-conditioned public buildings, as also for convenience in other buildings, is ever increasing in this country, and hence the need for a national standard.

0.2.1 It is essential that these devices should be compact in shape and size, and easy to mount; those fitted to heavy entrance doors in public buildings need special attention because of their long service period requirement.

0.3 In the 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.

0.4 This standard contains clause **4.1** which permits the purchaser to use his option in selecting the shapes and materials to suit his special requirements, and also clauses **3.2**, **6.1** and **10.1** which call for an agreement between the purchaser and the manufacturer regarding size, tolerances and finish of the material.

0.5 This standard is one of a series of Indian Standards on builder's hardware.

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, 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*).

I. SCOPE

1.1 This standard covers the requirements for concealed type floor springs (without oil check) for vertical doors weighing not more than 125 kg. For doors having more than one leaf, the weight of each leaf shall not exceed 125 kg.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Floor Spring (Without Oil Check) — A device used to close doors automatically.

2.2 Shoe — The device fixed to the bottom of door leaf to hoist it to floor spring.

2.3 Top Centre Pivot — The device to secure the upper portion of door leaf with the door frame above.

3. TYPE AND SHAPE

3.1 Typical details of a floor spring (without oil check) are given in Fig. 1.

3.2 The floor springs may be manufactured in other shapes if agreed to between the purchaser and the manufacturer.

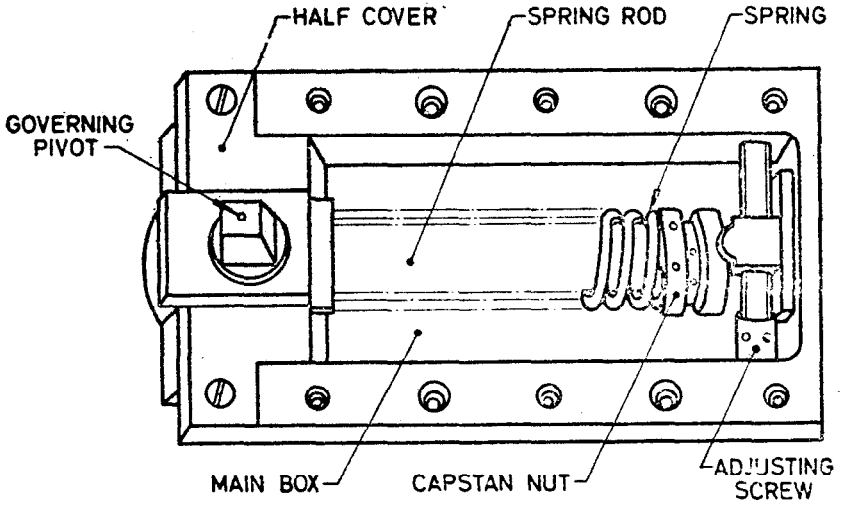


FIG. 1 TYPICAL DETAILS OF A DOUBLE ACTION FLOOR SPRING (WITHOUT OIL CHECK)

4. MATERIALS

4.1 Materials for the manufacture of various parts of floor springs are given in Table 1. The purchaser, however, may specify a particular material for components.

5. MANUFACTURE

5.1 The floor springs shall be suitable for fixing to doors weighing up to 125 kg.

5.2 The floor springs shall operate smoothly and easily without undue delay during the opening and closing.

6. DIMENSIONS AND TOLERANCES

6.1 The dimensions and tolerances of floor springs shall be as agreed to between the purchaser and the manufacturer.

7. CONSTRUCTION

7.1 The floor spring shall be covered by brass or aluminium sheet which only shall be flush with the floor.

7.2 The shoe shall be fitted to the governing pivot of floor spring by a square profile so that it stands horizontally, parallel to the top cover plate of the floor spring. Provisions shall be made in floor springs for adjusting the door leaf to the final closed position by turning the adjusting screw (*see* Fig. 1).

7.3 Top centre pivot shall be securely fitted so that door panel can make easily a circular motion, the door can be adjusted horizontally and vertically and door leaf can be taken out of the frame when required.

8. PERFORMANCE REQUIREMENTS

8.1 A sample shall be picked out in accordance with Appendix A. The sample shall be mounted on to a door leaf weighing 125 kg and subjected to 50 000 operations at the rate of not more than 6 to 8 operations per minute. One operation being the movement of door leaf through 180°. The test shall be carried out at normal conditions. At the end of the test, floor spring shall not show any damage or deterioration in its working.

8.2 A force not more than 2 kgf (20 N) shall be required at a distance of one metre from the door frame, to open the door leaf weighing 125 kg, through 90°.

9. WORKMANSHIP

9.1 The floor springs shall be free from all mechanical defects, sharp edges and other surface defects.

TABLE 1 REQUIREMENTS FOR MATERIALS FOR FLOOR SPRINGS

(*Clause* 4.1)

Sl No.	Part	Material	Example of a Suitable Grade in Indian Standard
(1)	(2)	(3)	(4)
i)	Foundation box, main body and half cover	a) Brass sheet 1·25 mm, *Min*, in thickness	Alloy designation CuZn 40 of IS : 410-1967*
		b) Mild steel sheet 1·25 mm, *Min*, in thickness	IS : 226-1969†
		c) Cast iron	Grade 20 of IS : 210-1970‡
		d) Aluminium alloy pressure die-castings 2 mm, *Min*, in thickness	IS : Designation A-5M or A-6M of IS : 617-1959§
		e) Aluminium alloy sheet 1·25 mm, *Min*, in thickness	IS : Designation NS_4-1/4H or HS20-W of IS : 737-1965‖
		f) Zinc base alloy pressure die-castings 2 mm, *Min*, in thickness	Alloy 1 or 2 of IS : 742-1966¶
ii)	Spring rod	Mild steel	IS : 226-1969†
iii)	Governing pivot	a) Mild steel case-hardened	Grade 1 of IS : 2708-1964**
		b) Malleable cast iron	IS : 2108-1962††
iv)	Top cover	a) Cast brass	Grade 3 of IS : 292-1961‡‡
		b) Brass sheet 1·25 mm, *Min*, in thickness	Alloy designation CuZn 40 of IS : 410-1967*
		c) Aluminium alloy pressure die-castings 2 mm, *Min*, in thickness	IS : Designation A-5M or A-6M of IS : 617-1959§
		d) Aluminium alloy sheet 2 mm, *Min*, in thickness	IS : Designation NS_4-1/4 H or HS20-W of IS : 737-1965‖
v)	Spring	Spring steel	Grade 1 of IS : 4454-1967§§
vi)	Shoe	a) Cast brass	Grade 3 of IS : 292-1961‡‡
		b) Mild steel	IS : 226-1969†
		c) Cast iron	Grade 20 of IS : 210-1970‡
vii)	Top centre pivot and pin	Cast brass and mild steel	Grade 3 of IS : 292-1961‡‡ and IS : 226-1969†

*Specification for rolled brass plate, sheet, strip and foil (*second revision*).

†Specification for structural steel (standard quality) (*fourth revision*).

‡Specification for grey iron castings (*second revision*).

§Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*revised*).

‖Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*revised*).

¶Specification for zinc base alloy die-castings (*first revision*).

**Specification for 1·5 percent manganese steel castings.

††Specification for blackheart malleable iron castings.

‡‡Specification for brass ingots and castings (*revised*).

§§Specification for steel wires for cold formed springs.

10. FINISH

10.1 The cover sheet, shoe and top centre pivot shall be polished, electroplated or anodized as agreed to between the purchaser and the manufacturer.

10.2 Mild steel and cast iron parts shall be given the treatment in accordance with **10.2.1** to **10.2.3** before painting.

10.2.1 All dents, burrs and sharp edges shall be removed from the components and they shall be pickled, scrubbed and rinsed to remove grease, rust, scale or any other foreign elements.

10.2.2 After pickling, the components shall be given phosphating treatment in accordance with IS : 3618-1966*, followed by a coat of suitable primer, such as red oxide.

NOTE — Putty shall be applied to all surfaces requiring filling, and shall conform to IS : 426-1961†. Aluminium primer shall conform to IS : 2931-1964‡.

10.2.3 A finish coat with synthetic stoving enamel conforming to IS: 2932-1964§ or IS : 2933-1964‖ shall then be applied.

10.2.3.1 The components shall then be baked at the specified temperature in an oven heated uniformly. The finish shall be smooth and uniform with a hard and tough film of enamel strongly adhering to the surface. The finish shall be free from all visible defects, and shall not chip, when tapped lightly with a pointed instrument.

10.3 Aluminium parts shall be anodized and the anodic coating shall not be less than Grade AC 10 of IS : 1868-1968¶.

11. MARKING

11.1 Each floor spring shall be stamped with the following information:

a) Manufacturer's name or trade-mark,

b) Year of manufacture, and

c) Country of origin.

*Specification for phosphate treatment of iron and steel for protection against corrosion.

†Specification for paste filler for colour coats (*revised*).

‡Specification for ready mixed paint, brushing, aluminium-zinc oxide composite primer.

§Specification for enamel, synthetic, exterior, Type 1, (a) Undercoating, (b) finishing, colour as required.

‖Specification for enamel, exterior, Type 2, (a) Undercoating, (b) finishing, colour as required.

¶Specification for anodic coatings or aluminium (*first revision*).

11.2 The floor spring 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.

12. PACKING

12.1 Each floor spring shall be wrapped in suitable craft paper or polyethylene and packed in a cardboard box. Each cardboard box shall be marked with the following information:

a) Manufacturer's name or trade-mark,
b) Quantity in the package,
c) Country of origin, and
d) Year of manufacture.

13. ACCESSORIES

13.1 The manufacturer shall also supply the following with the floor spring:

a) Accessories like adjusting steel bars, etc; and
b) Instructions for fixing the floor spring.

14. GUARANTEE

14.1 The manufacturer shall give a guarantee against any manufacturing defects for one year from the date of installation.

15. SAMPLING AND CRITERIA FOR CONFORMITY

15.1 The method of drawing representative samples of the material and the criteria for conformity is given in Appendix A.

APPENDIX A

(*Clauses* 8.1 *and* 15.1)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment, all the floor springs of the same type and size and manufactured from the same material under essentially similar conditions of production shall be grouped together to constitute a lot.

A-1.2 Sample Size — The number of floor springs to be selected from a lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of the Table 2.

TABLE 2 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVE FLOOR SPRINGS

Lot Size	Sample Size	Permissible No. of Defective Floor Springs
(1)	(2)	(3)
Up to 100	5	0
101 „ 150	8	0
151 „ 300	13	0
301 „ 500	20	1
501 „ 1 000	32	2
1 001 and above	50	3

A-1.2.1 The floor springs for the sample shall be selected at random from at least 10 percent of the package subject to a minimum of three packages.

A-1.3 All the floor springs selected as in **A-1.2** shall be inspected for manufacture and construction, dimensional requirements and tested for the performance requirements. A floor spring failing in any one or more of the requirements or the characteristics shall be considered as defective.

A-2. CRITERIA FOR CONFORMITY

A-2.1 The lot shall be considered as conforming to the requirements of this standard if the number of the defective found in the samples does not exceed the corresponding permissible number in col 3 of Table 2, otherwise the lot shall be considered as not conforming to the requirements of this standard.

A-2.2 For comformity to the requirements of the material the manufacturer shall provide a certificate of compliance to the requirements of the corresponding Indian Standard (*see* col 4 in Table 1).