भारतीय मानक
Indian Standard

IS 7257 : 2022

इस्पात का ट्रंक—विशिष्टि

(पहला पुनरीक्षण)

Steel Trunk — Specification

(First Revision)

ICS 55.120

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Utensils, Cutlery Domestic Hardware Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1973. In this revision, the following major changes have been incorporated:

a) Material grades have been revised;
b) New material, SS has been prescribed for the trunk;
c) Test for handle has been modified;
d) Performance test for hasp has been added; and
e) Marking clause has been modified.

While laying down this standard due weightage has been given to the proper type of materials to be used and prevalent trade practices being followed by the manufacturers in this field. Though the users are free to have the sizes and dimensions of their choice, the more popular sizes have been given for their guidance.

The relevant SI units and corresponding conversion factors are given below for guidance:

$1\ kgf/cm^2 = 98.066\ 5\ kPa\ (kilopascal) = 10\ m\ of\ water\ column\ (WC)$
$= 0.098\ 066\ 5\ MPa\ (megapascal)$
$= 0.980\ 665\ bar$
$1\ Pa = 1\ N/m^2$

The composition of the committee responsible for the formulation of this standard is given in Annex B.

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 the test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

STEEL TRUNK — SPECIFICATION

(First Revision)

1 SCOPE

This standard lays down the requirements for steel trunks.

2 REFERENCES

The Indian Standard listed in below contain provisions which, through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

IS No.	*Title*
IS 206 : 2010	Tee and strap hinges — Specification (*fifth revision*)
IS 277 : 2018	Galvanized steel strips and sheets (plain and corrugated) — Specification (*seventh revision*)
IS 280 : 2006	Mild steel wire for general engineering purposes (*fourth revision*)
IS 363 : 1993	Hasps and staples — Specification (*sixth revision*)
IS 513 : (Part 1) 2016	Cold reduced carbon steel sheet and strip: Part 1 Cold forming and drawing purpose (*sixth revision*)
IS 866 : 1957	Specification for tinmens rivets
IS 1341 : 2018	Steel butt hinges — Specification (*sixth revision*)
IS 2074 : (Part 1) 2015	Ready mixed paint, air drying, red oxide — Zinc chrome, priming — Specification (*third revision*)
IS 2933 (Part 1) : 2013	Enamel, exterior: (A) undercoating (B) finishing — Specification: Part 1 For domestic and decorative applications (*second revision*)
IS 4905 : 2015	Random sampling and randomization procedures (*first revision*)
IS 6527 : 1995	Stainless steel wire rods — Specification (*first revision*)
IS 6911 : 2017	Stainless steel plate, sheet and strip — Specification (*second revision*)
IS 12817 : 2020	Stainless steel butt hinges — Specification (*third revision*)

3 TERMINOLOGY

For the purpose of this standard, following definition shall apply.

3.1 Steel Trunk — Any box made of galvanized steel or black steel sheets or stainless steel sheet and provided with a lid and handles.

4 CLASSIFICATION

4.1 The steel trunks shall be classified in three sizes as given below:

Type	*Size*
I	Large (big steel trunks)
II	Medium (trunks)
III	Small (suitcases)

5 MATERIALS

5.1 The various components of steel trunk shall be made from the materials as given in Table 1.

Table 1 Material for Steel Trunks
(*Clause* 5.1)

Sl No. (1)	Component (2)	Material (3)	Conforming to (4)
i)	Body and lid	Galvanized steel sheet (plain)	IS 277
		or	
		Cold rolled carbon steel (black steel) sheet	IS 513 (Part 1)
		or	
		Stainless steel sheet	IS 6911
ii)	Hinges (cranked)	Mild steel	IS 1341 or IS 206
		or	or
		Stainless steel	IS 12817
iii)	Hasps and staples	Mild steel or brass	IS 363
iv)	Handles	Cold rolled steel sheet	IS 513 (Part 1)
		or	or
		M. S. bar of minimum 8 mm diameter	IS 280
		or	or
		Stainless steel of minimum 8 mm diameter	IS 6527
v)	Stiffeners, strip and wires	Mild steel	IS 280
		or	or
		Stainless steel	IS 6527
vi)	Rivets	Mild steel wire	IS 866
		Or	or
		Stainless steel	IS 6527

5.2 The tolerances on the trunk shall apply to the dimensions as given in Table 2.

Table 2 Tolerances for Trunks
(*Clause* 5.1.1)

Sl No. (1)	Aspect (2)		Tolerance (3)
i)	Length and width for all sizes		± 5 mm
ii)	Height	Size I	± 2 percent
		Size II	± 3 percent
		Size III	± 3 percent
iii)	Sheet thickness		± 10 percent

6 DIMENSIONS

6.1 Nominal dimensions of trunks shall be according to Table 3.

Table 3 Dimensions of Steel Trunks
(*Clause* 6.1)

Sl No.	Trunk Size	Nominal Dimension			Sheet Thickness, Nominal		
		Length	Width	Height	Cold Rolled Carbon Steel Sheet	Galvanized Steel Sheet	Stainless Steel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	I	1 200	710	710	0.80	0.80	0.80
		1 600	650	600	0.80	0.80	0.80
ii)	II	800	500	310	0.63	0.63	0.63
iii)	III	600	400	300	0.50	0.63	0.50
		500	300	200	0.50	0.63	0.50
		450	300	200	0.50	0.63	0.50

6.2 The trunks may have dimensions other than those given in this standard subject to agreement between the manufacturer and the purchaser.

7 MANUFACTURE

7.1 Suitable stiffeners shall be provided wherever required to make the body strong and rigid. The rim of the lid shall be uniformly beaded and suitably stiffened with mild steel/stainless steel wire. The lid shall be flush and fit free on the joggled top end of the body.

7.2 The lid of trunk shall be so fixed that when fully-opened it shall not fall of its own weight, unless pulled and closed in position.

7.3 The handle with its fittings and attachments shall be strong and shall not yield under normal usage. Large trunks shall be provided with two handles on each side. They shall be symmetrically located from the vertical edge. Medium trunks and small trunks shall have one handle at each of the two sides and the front and they shall have only formed handle in the front. The handles shall be centrally located. The front handle shall be fixed in such a manner that it shall not interfere with the lock while lifting or pulling the trunk. The side handles shall be fixed such that they shall open for not more than 100° in order to avoid pinching of the fingers between handle and side while lifting the loaded trunk. The clearance between body of trunk and inner face of handle shall be ample enough to facilitate gripping.

7.4 Hinges, hasps and staples may have designs different than those given in their specifications mentioned in **5.1** but for all other requirements they shall adhere to their respective specifications.

7.5 Large trunks shall be provided with two sets of hasps and staples in the front, while medium and small trunks may have one or two sets of hasps and staples depending upon choice of the purchaser. Minimum number of hinges for large trunks shall be three while for all other types two hinges shall be provided.

7.6 In order to avoid full ground contact, large trunks shall be provided with stiffeners at the bottom (outside), while medium and small trunks shall have one protrusion near each of the four bottom corners, the lid of the trunks may also have formed ribs, if desired by the purchaser.

7.7 Certain other provisions such as inside pockets or locks in the trunks and suitcases, and alternative arrangements other than those specified in **7.5** and **7.6** may also be made as per agreement between the manufacturer and the purchaser.

8 WORKMANSHIP AND FINISH

8.1 Trunks shall be finished smooth, without any sharp edges, burrs, dents or corner constructional defects. They shall be sufficiently strong and rigid so as not to buckle or yield under normal usage.

8.2 Mild steel trunks shall be painted inside as well as outside according to IS 2074 (Part 1) and IS 2933 (Part 1) in various colours as required by the purchaser. Prior to painting they shall be properly cleaned and degreased, then one coating of primer, one coating of undercoat and two finish coatings shall be given by brushing or spraying with subsequent air drying with every coat. The resulting finish shall be able to satisfy the test requirements laid down in the specifications mentioned above.

9 TESTS

9.1 Wires, bars and strips used in the manufacture of trunks shall satisfy the following bend test.

9.1.1 The material when cold shall withstand without developing cracks, being doubled over either by pressure or by blows from hammer, until the internal radius is equal to the diameter or thickness of the material and the sides are parallel.

9.2 Handle Test

All the handles shall be tested to withstand a total load of three times the internal volume of the trunk (in litres of water) for minimum of 30 minutes. There shall be no damage to the handle.

9.3 Test for Soundness of the Joints

9.3.1 *Drop Test for Trunks*

The trunk shall be dropped from a height of 120 cm, once on the largest flat surface, once on longest edge and once on any corner of its own. The trunk shall not be damaged after the test.

9.3.2 *Rolling Test for Trunks*

The trunk shall be subjected to rolling on its sides either 6 m forward and 6 m backward or 12 m in one direction only. The trunk shall not be damaged after the test.

9.4 Load Test for Hasps

9.4.1 Apply vertical load of 1 kg to the hasp for minimum of 30 minutes. There shall be no damage to the hasp.

9.4.2 Apply horizontal load of 1 kg on either side (one at a time) to the hasp for minimum of 5 minutes. There shall be no damage to the hasp.

9.5 Hinge Performance Test

Open and close the lid of the trunk for 1 000 times. There shall be no damage to the hinge.

NOTE — Opening shall be minimum 90^{O}.

10 SAMPLING

10.1 Sampling procedure and acceptance criteria for steel trunks shall be as agreed to between the purchaser and the supplier. A recommended scheme for the same is given in Annex A.

11 MARKING

11.1 Each trunk shall be legibly stamped on the vertical side with the manufacturer's name, recognized trade-mark, material grade and year of manufacture.

11.1.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

12 PACKING

Each trunk shall be suitable packaged to avoid any damage during transit. The packaging shall be eco-friendly.

ANNEX A
(*Clause* 10.1)

SAMPLING SCHEME AND CRITERIA FOR CONFORMITY FOR TRUNKS

A-1 SAMPLING

A-1.1 Lot

In any consignment all the trunks of the same, type, size and manufactured from the same material under essentially similar conditions of manufacture shall be grouped together to constitute a lot.

A-1.1.1 For ascertaining the conformity of a lot to the requirements of this standard, the sample of trunks shall be selected and tested separately for each lot.

A-1.2 The number of trunks to be selected at random from a lot shall depend upon the size of the lot and shall be in accordance with col 2 and 3 of Table 4.

Table 4 Sample Size and Criteria for Conformity
(*Clauses* A-1.2, A-1.3.1 *and* A-1.3.2)

Sl No.	Lot Size (No. of Trunk in the Lot)	For Dimension Material and Workmanship		For All Tests	
		Sample Size	Permissible no. of defectives	Sub-sample size	Permissible no. of defectives
(1)	(2)	(3)	(4)	(5)	(6)
i)	Up to 100	8	0	2	0
ii)	101 to 150	13	1	2	0
iii)	151 to 300	20	2	3	0
iv)	301 to 500	32	3	5	0
v)	501 to 1 000	50	5	8	0
vi)	1 001 to above	80	7	13	1

A-1.2.1 The trunks in the sample shall be selected at random from the lot and in order to ensure the randomness of selection, procedures laid down in IS 4905 may be followed.

A-1.3 Number of Tests and Criteria for Conformity

A-1.3.1 *For Dimensions, Material and Workmanship*

The trunks selected according to **A-1.2** and **A-1.2.1** shall be inspected for dimensions, material and workmanship. The lot shall be considered as conforming to these requirements if the number of trunks failing in any one or more of the requirements docs not exceed the permissible number of defective trunks given in col 4 of Table 4.

A-1.3.2 *For Handle Test and Soundness of Joints Test*

The lot having been found conforming under **A-1.3.1** shall be inspected for tests at **9**. For this purpose, a number of trunks in accordance with col 5 of Table 4 shall be selected at random from those inspected and found conforming under **A-1.3.1**, and subjected to the tests at **9**. The lot shall be considered as conforming to the requirements of these tests if the number of trunks failing in any one or more of the tests does not exceed the permissible number given in col 6 of Table 4.

ANNEX B
(*Foreword*)

COMMITTEE COMPOSITION

Utensils, Cutlery Domestic Hardware Sectional Committee, MED 33

Organisation	*Representative(s)*
In Personal Capacity (*A-504, K.G Chandra Vista, OMR, Opposite to Satyabhama University, Sholinganallur, Chennai*)	SHRI G. SHANMUGANATHAN (***Chairperson***)
Aligarh Locks Manufacturers and Traders Association, Aligarh	SHRI P. L. SHIROMANI SHRI DHRUV MISHRA (*Alternate*)
Anna Aluminium Limited, Cochin	SHRI K CHANDRASHEKRAN PILLAI SHRI V. THULASIDHARAN (*Alternate*)
Butterfly Gandhimati Appliances Limited, Chennai	SHRI K. SHANMUGAVELU SHRI A. BASKAR (*Alternate* I) SHRI A. VIJAIMIRATHARAJ (*Alternate* II)
Central Electrochemical Materials Science Division, Karaikudi	DR S. VASUDEVAN DR S. MURALIDHARAN (*Alternate*)
Central Public Works Department, New Delhi	SHRI SURINDER KUMAR SHRI R. K. SARASWAT (*Alternate*)
Consumer Voice, New Delhi	SHRI B.K. MUKHOPADHYAY SHRI M. A. U. KHAN (*Alternate*)
Delhi Test House, New Delhi	SHRI DINESH GOEL SHRI ROHIT GOEL (*Alternate*)
D.P Garg and Company Private Limited, Noida	SHRI SANDIP GARG
Federation of Hardware Manufacurers and Traders Welfare Association, Gurugram	SHRI TAKSHAY BANSAL SHRI NAVEEN HANDA (*Alternate* I) SHRI VIKAS NARWAL (*Alternate* II)
Godrej and Boyce Manufacturer's Company Limited, Mumbai	SHRI K SHITIJ R. GAIKAR SHRI VINAYAK G. NALGIRKAR(*Alternate*)
Hamilton Housewares Private Limited, Mumbai	SHRI SANJAY MORESHWAR MHATRE SHRI INDUPRAKASH SINGH (*Alternate*) SHRI VIKAS SURENDRA KUMAR BHATIA (*Young Professional*)
Hawkins Cookers Limited, Thane	SHRI B. S. SETHI SHRI RAHUL PATHAK (*Alternate*) SHRI RAVINDER MALI (*Young Professional*)

Organisation	*Representative(s)*
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Jindal Stainless Limited, Hisar	SHRI BISWABASU ROY CHOWDHURY SHRIMATI NISHA GOEL (*Alternate*)
Ministry of Defence (DGQA) , Kanpur	ER M. SATYANARAYANA SHRI S. J. KOLARKAR (*Alternate*)
MSME Testing Centre, New Delhi	SHRI SUSHANT KUMAR SOM SHRI SUVANKARSANTRA (*Alternate*)
National Metallurgical Laboratory, Jamshedpur	DR S. GHOSH CHOWDHURY DR K. L. SAHOO (*Alternate*)
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TTK Prestige Ltd , Bengaluru	SHRI ANTO VIMAL ANAND SHRI RAJASEKARANS. (*Alternate*)
In Personal Capacity (*179, Sri Sai, 13th Cross, Ananthnagar Phase 1, Electronic City Post, Bengaluru*)	SHRI B. VISWANATH SHENOY
BIS Directorate General	SHRI RAJNEESH KHOSLA, SCIENTIST 'E' / DIRECTOR AND HEAD (MECHNICAL ENGINEERING DEPARTMENT) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI CHANDAN GUPTA SCIENTIST 'D' / JOINT DIRECTOR (MECHNICAL ENGINEERING DEPARTMENT), BIS

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