

भारतीय मानक
Indian Standard

IS 208 : 2020

दरवाजों के हत्थे — विशिष्टि

(छठवाँ पुनरीक्षण)

Door Handles — Specification

(Sixth Revision)

ICS 91.060.50

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Price Group 6

Builder's Hardware Sectional Committee, CED 15

FOREWORD

This Indian Standard (Sixth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

This standard lays down the requirements for materials, manufacture, dimensions and finish of door handles of the types that are commonly fixed to doors. The standard was originally published in 1950 and subsequently revised in 1965, 1972, 1979, 1987 and 1996.

This revision has been brought out to incorporate the modifications found necessary in the light of experience gained in its use and also to bring it in line with the latest development on the subject nationally as well as internationally.

Significant modifications in this revision include the following:

- a) Stainless steel pressed and fabricated door handles have been covered incorporating their material requirements, dimensional requirements and typical figures.
- b) Performance requirements for finish of the door handles have been introduced.
- c) Slight modifications have been made in the dimensional requirements of Type 4 handles.
- d) Various cross referred standards have been updated and the grades of materials have been modified accordingly.

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

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

DOOR HANDLES — SPECIFICATION

(Sixth Revision)

1 SCOPE

This standard lays down the requirements for materials, manufacture, dimensions and finish of door handles of the type that are commonly fixed to doors.

NOTE — This standard covers door handles of size up to 150 mm depending upon the type of handles.

2 REFERENCES

The standards listed in Annex A contain provisions, which through reference in this text, constitute provisions 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.

3 TYPES

Doors handle shall be of the following types according to the materials used:

- a) *Type 1* — Cast
- b) *Type 2* — Pressed oval
- c) *Type 3* — Pressed half oval
- d) *Type 4* — Fabricated

4 MATERIALS

4.1 Materials for different types of door handles shall be as follows:

- a) *Type 1* — Cast iron, malleable cast iron, cast brass, cast aluminium alloy or zinc alloy die casting.
- b) *Type 2 and Type 3* — Mild steel or stainless steel, and
- c) *Type 4* — Mild steel, stainless steel, brass or aluminium alloy.

4.2 The materials used for different types of door handles shall comply with the requirements given in Table 1.

5 MANUFACTURE

5.1 General

The door handles shall be well made and free from defects. They shall be finished correct to shape and dimensions. All sharp edges and corners shall be

removed and finished smooth so as to facilitate easy handling. Cast handles shall be free from casting defects. Where the grip portion of the handle is joined with the base piece by mechanical means, the arrangement shall have adequate strength comparable to that of integrally cast type handles.

Table 1 Requirement for Materials
(Clause 4.2)

Sl No.	Material	Conforming to Indian Standard
(1)	(2)	(3)
i)	Mild steel	Grade HR 1 of IS 1079
ii)	Mild steel bar	Grade E 165 of IS 15911
iii)	Malleable cast iron	Grade BM 350 of IS 14329
iv)	Cast brass	LCB 2 of IS 292
v)	Aluminium alloy pressure die casting	Designation 5230 or 4600 of IS 617
vi)	Aluminium alloy sheet/strip	Designation 19000 H2 of IS 737
vii)	Extruded aluminium alloy rod and flat	Grade 63400 WP or 65032 WP of IS 733
viii)	Cast iron	FG 200 of IS 210
ix)	Zinc base alloy die casting	IS 742
x)	Stainless steel sheet, any suitable grade	IS 6911
xi)	Stainless steel wire, any suitable grade	IS 6527

6 DIMENSIONS AND TOLERANCES

6.1 The sizes, dimensions and tolerances of the door handles shall conform to Tables 2A, 2B and 2C read with Figs. 1 to 5. The shape of the door handle shown in the figures is only illustrative.

6.2 The tolerances where not specified on dimensions of door handles shall be as under:

Dimension	Tolerance
mm	Mm
(1)	(2)
up to 100	± 1
101 to 200	± 1.5
201 and above	± 2

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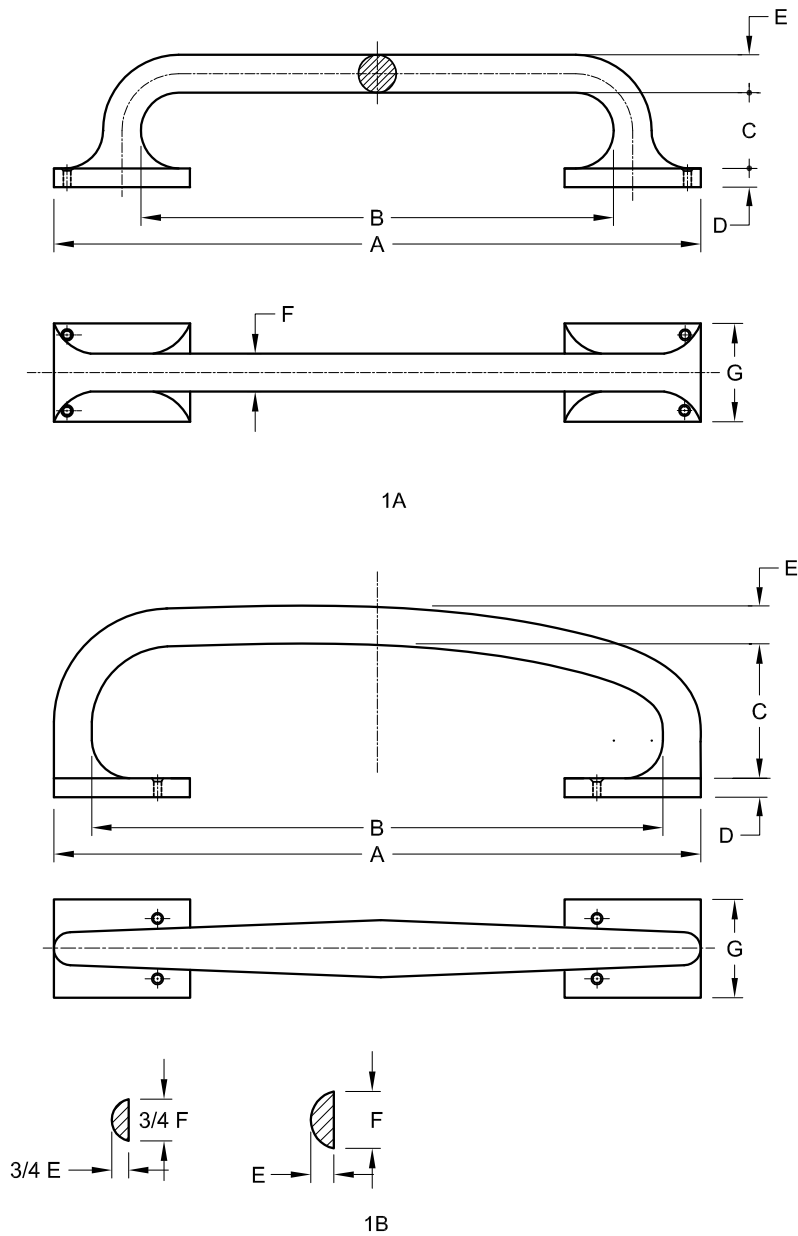


FIG. 1 TYPICAL DOOR HANDLE (TYPE 1)

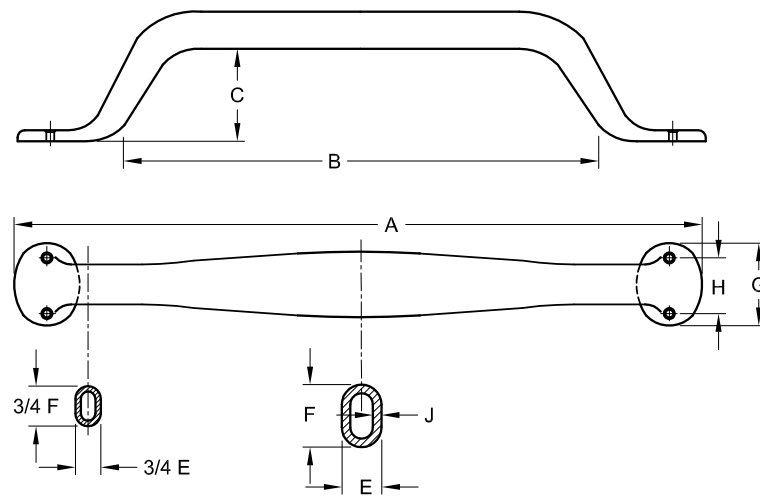


FIG. 2 TYPICAL DOOR HANDLE (TYPE 2)

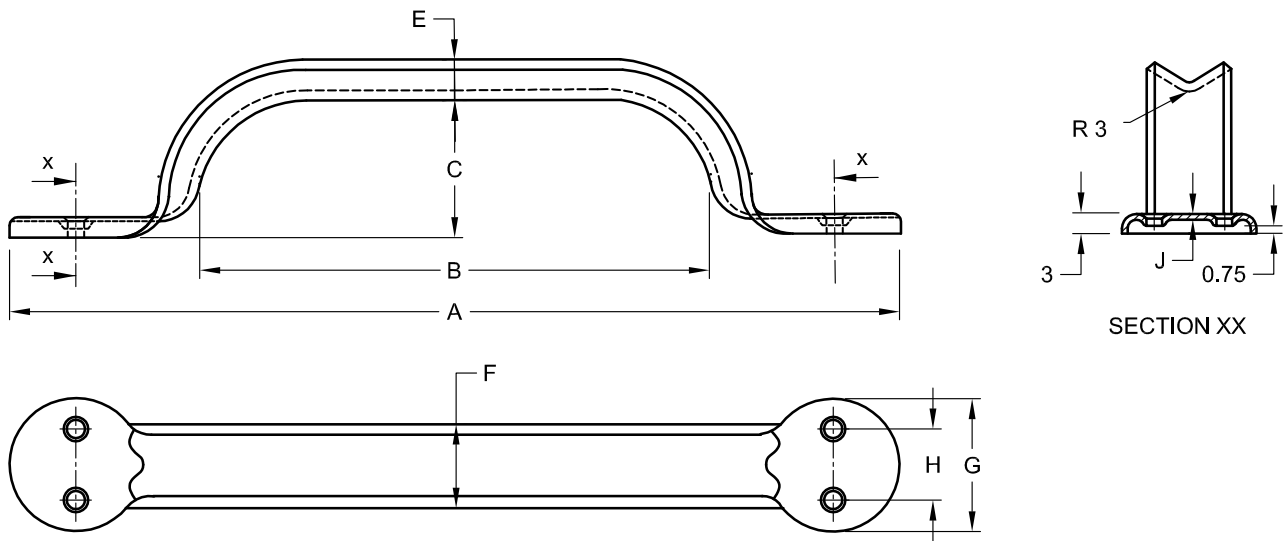
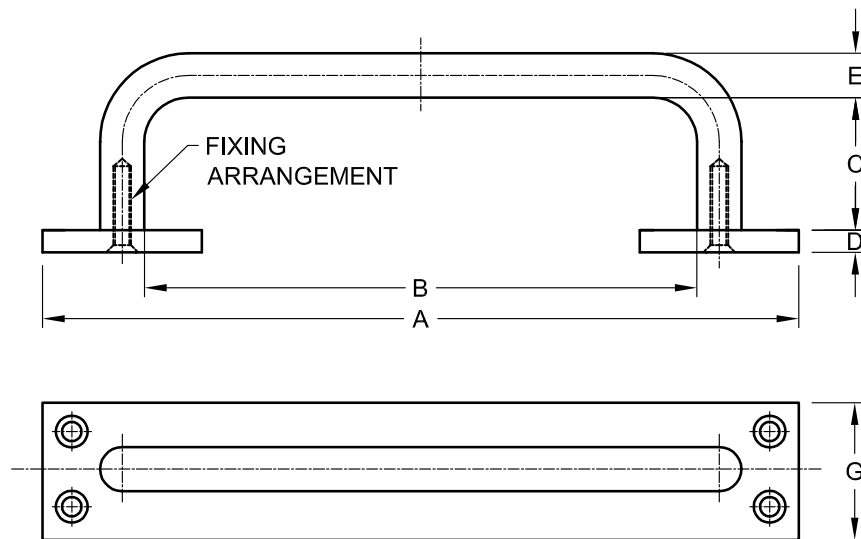


FIG. 3 TYPICAL DOOR HANDLE (TYPE 3)



NOTE — M5 × 20 mm GI Countersunk machine screw or any other suitable fixing arrangement may be used.

FIG. 4 TYPICAL DOOR HANDLE (TYPE 4)

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Table 2A Dimensions of Door Handles

(Clause 6.1 and Figs. 1 to 3)

All dimensions in millimetres.

Type	Ref to Fig.	Size	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>J</i>	Screw Holes ¹⁾	
			<i>Min</i>		<i>Min</i>	<i>Min</i>	<i>Min</i>	<i>Min</i>	<i>Min</i>	<i>Min</i>	<i>Min</i>	No. in Each Lug	Size Designation of Counter-sunk Head Wood Screws (see IS 6760)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	1A	75	125	75	20	2.5	5	8	25	—	—	2	6
		100	150	100	25	3.0	8	10	25	—	—	2	6
		125	190	125	25	4.0	10	12	30	—	—	2	6
		150	215	150	30	4.5	12	15	30	—	—	2	8
	1B	75	85	75	20	2.5	5	8	25	—	—	2	6
		100	110	100	25	3.0	5	10	25	—	—	2	6
		125	140	125	25	3.0	7.5	12	30	—	—	2	6
		150	165	150	30	4.0	7.5	15	30	—	—	2	8
2	2	75	125	75	20	—	10	16	32	20	0.65	2	6
		100	150	100	25	—	11	19	38	20	0.65	2	6
		115	175	115	28	—	13	22	45	25	0.65	2	8
		135	200	135	30	—	14	25	50	32	0.90	2	8
3	3	75	100	75	20	—	5	14	25	8	1.25	2	6
		90	125	90	25	—	6	16	25	10	1.25	2	6
		100	150	100	28	—	7	18	25	12	1.60	2	6

¹⁾ More evenly spaced screw holes may be provided, if so required by the purchaser. Steel screws suitable for steel doors as per relevant Indian Standards can also be used.

Table 2B Dimensions of Door Handles

(Clause 6.1 and Fig. 4)

All dimensions in millimetres.

Type	Ref to Fig.	Size	A	B	C Min	D ¹⁾	E ²⁾	G (Width)	Screw Holes ³⁾		
									in Each Lug	No. in a Plate	Size Designation of Counter-sunk Head Wood Screws (see IS 6760)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
4	4	75	115	75	25	2 ± 0.2	10 ± 0.3	30 ± 0.5	2	4	6
		100	150	100	30	2 ± 0.2	10 ± 0.3	30 ± 0.5	2	4	6
		125	175	125	35	2.25 ± 0.2	12 ± 0.3	35 ± 0.5	3	6	6
		150	200	150	35	2.25 ± 0.2	12 ± 0.3	35 ± 0.5	3	6	6

¹⁾ In case a round base is used instead of continuous base plate, the thickness 'D' of round base be interested to 5 mm ± 0.3 mm.

²⁾ Round or hexagonal.

³⁾ More evenly spaced screw holes may be provided, if so required by the purchaser. Steel screws suitable for steel doors as per relevant Indian Standards can also be used.

NOTE — In Figs. 1 to 4 the distance of screw hole from edge of the plate shall be 4.0 mm, *Min.*

Table 2C Dimension of SS Door Handles

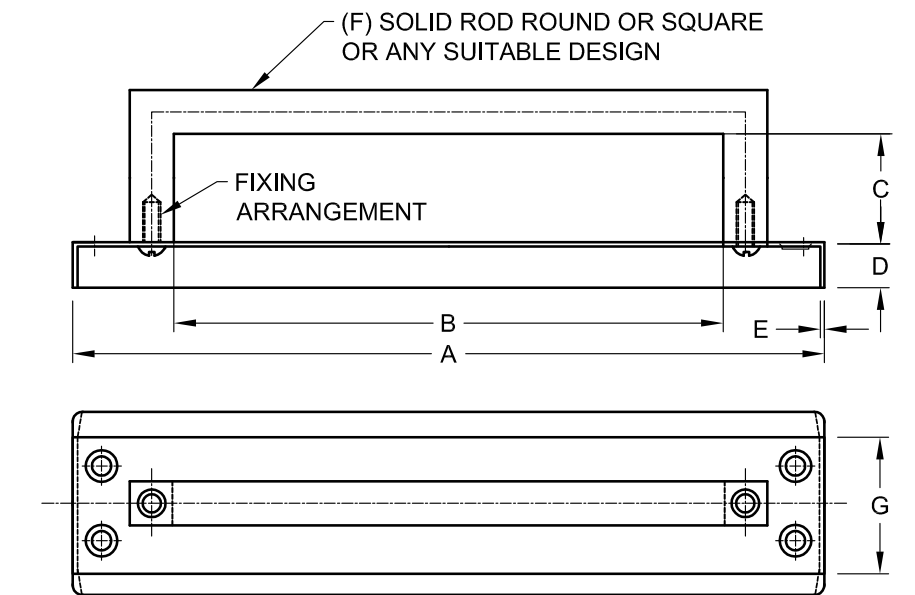
(Clause 6.1 and Fig. 5)

All dimensions in millimetres.

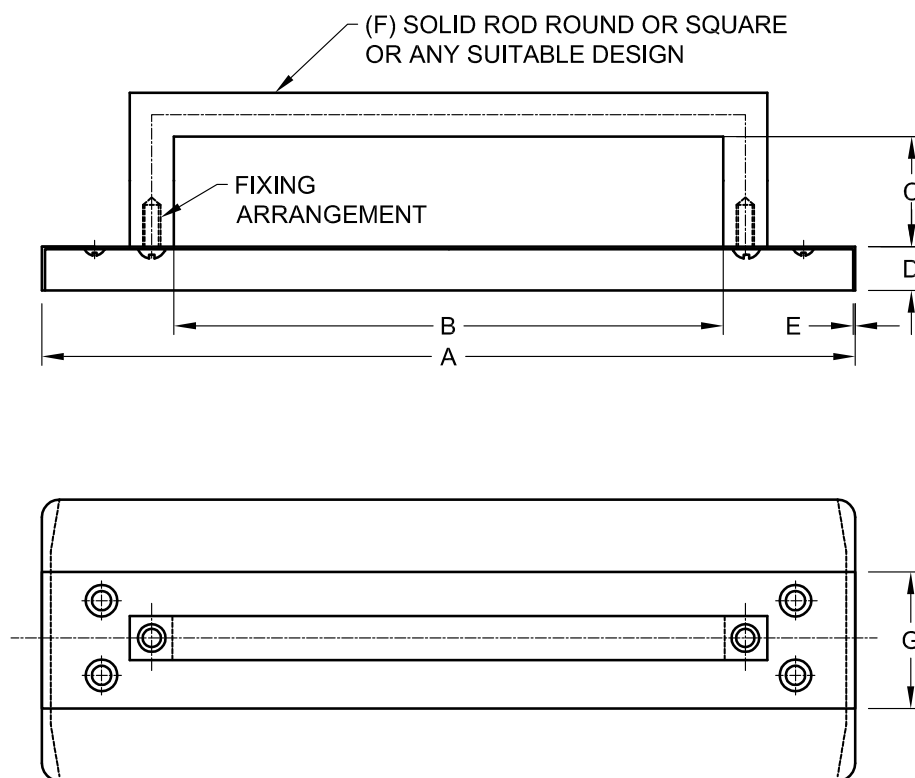
Type	Ref to Fig.	Size	A	B	C Min	D Min	E	F		G (Width) Min	Screw Holes ¹⁾		
								Solid Rod (Round/Square) Min	Pipe ODx Thickness Min		No. in Each Lug	No. in a plate	Size Designation of Counter-Sunk Head Wood Screws (see IS 6760)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
4	5	75	115	75	30	6	0.9 ± 0.2	8	9 × 0.6	30	2	4	7
		100	150	100	30	6	0.9 ± 0.2	8	9 × 0.6	30	2	4	7
		125	175	125	35	6	1.1 ± 0.2	10	11 × 0.6	35	3	6	8
		150	200	100	35	6	1.1 ± 0.2	10	11 × 0.6	35	3	6	8

¹⁾ More evenly spaced screw holes may be provided, if so required by the purchaser. Steel screws suitable for steel doors as per relevant Indian Standards can also be used.

NOTE — In Fig. 5 the distance of outer circle of the screw hole from the edge of the plate shall be 4.0 mm, *Min*



SOLID ROD ROUND OOR SQUARE OR ANY SUITABLE DESIGN



PIPE IN ROUND , SQUARE, ELLIPTICAL OR ANY SUITABLE DESIGN

NOTE — M5 × 15 mm SS machine screw or any other suitable fixing arrangement may be used

FIG. 5 TYPICAL DOOR HANDLE (TYPE 4)

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7 FINISH

7.1 Unless otherwise ordered, the finish shall be as follows:

- a) *Type 1* — Bright satin finish, nickel chromium plated as per Grade I of IS1068 or copper oxidized as per IS 1378 or bronze finish for cast brass and zinc die cast handles. Stove enamelled black or copper oxidized for cast iron and malleable cast iron handles. Aluminium anodized to a bright natural, mat or satin finish or dyed, the anodic coating shall not be less than Grade AC 10 of IS 1868 for aluminium alloy handles.
- b) *Type 2 and Type 3* — Stove enamelled black for mild steel handles.
- c) *Type 4* — Bright satin finish, nickel plated or copper oxidized, bronze finish for brass handles. Aluminium anodized to a bright, natural, mat or satin finish or dyed, the anodic coating shall not be less than Grade AC 10 of IS 1868 for aluminium alloy handles.

NOTE — PVD finish, may be used as per the agreement between the manufacturer and the purchaser.

8 PERFORMANCE REQUIREMENTS OF FINISH

8.1 Pencil Hardness Test

Sharpen your 4H pencil. Create a flat end with a piece of sandpaper and place the pencil at a 45° angle to the coated surface. Press the pencil down into the coating and then push. If that pencil cuts down the coating to show the metal then the sample has failed in the test. If there is no scratch on the coated surface, then the sample is considered as passed.

8.2 Corrosion Test

The surface shall be wiped thoroughly with hot water using a soft cloth. The piece shall not show any sign of corrosion when it is immersed in a 5 percent solution of acetic acid, or 5 g of pure sodium chloride dissolved in distilled water to make 100 ml for a period of not less than 12 h.

8.3 Quenching Test

Sample shall be heated in an oven for a period of 1 h at a temperature given below:

Zinc alloy	: 150 ± 10 °C
Aluminium alloys and steel	: 300 ± 10 °C

At the end of period, the sample shall be quenched in water at room temperature. The coating shall continue to adhere to the base metal after the test. This test shall be done after removing the plastic parts.

9 SAMPLING AND CRITERION FOR CONFORMITY

The method of selecting door handles and the criterion for conformity shall be as given in Annex B.

10 MARKING

10.1 Each door handle shall be legibly and indelibly marked with the following:

- a) Manufacturer's name or trade-mark; and
- b) Size of the door handle.

10.2 BIS Certification Marking

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 products may be marked with the Standard Mark.

11 PACKING

Door handles shall be suitably packed in cartons. Each carton shall be legibly and indelibly marked with the following:

- a) Manufacturer's name and registered trade-mark, if any;
- b) Address of the manufacturer;
- c) Type, material (grade and corresponding Indian Standard) and finish;
- d) Size;
- e) Quantity;
- f) Date of manufacture; and
- g) Batch/lot number.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
210 : 2009	Grey iron castings — Specification (<i>fifth revision</i>)	1079 : 2017	Hot rolled carbon steel sheets, plate and strip — Specification (<i>seventh revision</i>)
292 : 1983	Leaded brass ingots and castings (<i>second revision</i>)	1378 : 1987	Specification for oxidized-copper finishes (<i>third revision</i>)
617 : 1994	Cast aluminium and its alloys — Ingots and castings for general engineering purposes — Specification (<i>third revision</i>)	1868 : 1996	Anodic coatings on aluminium and its alloys — Specification (<i>third revision</i>)
733 : 1983	Wrought aluminium and aluminium alloy bars, rods and sections (for general engineering purposes) (<i>third revision</i>)	15911 : 2010	Structural steel (ordinary quality) — Specification
737 : 2008	Wrought aluminium and aluminium alloy sheet and strip for general engineering purposes — Specification (<i>fourth revision</i>)	14329 : 1995	Malleable iron castings — Specification
742 : 1981	Specification for zinc base alloy die castings (<i>second revision</i>)	4905 : 2015	Random sampling and randomization procedures (<i>first revision</i>)
1068 : 1993	Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium — Specification (<i>third revision</i>)	6527 : 1995	Stainless steel wire rods — Specification (<i>first revision</i>)
		6760 : 1972	Specification for slotted countersunk head wood screws
		6911 : 2017	Stainless steel plate, sheet and strip — Specification (<i>second revision</i>)

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ANNEX B

(Clause 9)

SAMPLING AND CRITERION FOR CONFORMITY

B-1 LOT

In any consignment, all the door handles of the same type, finish and size, manufactured from similar materials under identical conditions of manufacture in one day, shall be grouped together to constitute a lot.

B-2 NUMBER OF SAMPLES

The number of door handles, to be selected from a lot, shall depend upon the size of the lot and shall be in accordance with col 1 and col 2 of Table 3.

B-2.1 These door handles shall be selected at random for at least 10 percent of the packages subject to a minimum of 3, equal number of door handles being selected from each such package. In order to ensure the randomness of selection procedure given in IS 4905 may be followed.

B-3 NUMBER OF TESTS

All the door handles selected as in **B-2** shall be checked for dimensional requirements (*see 6*), finish (*see 7*) and performance requirements of finish (*see 8*). Any door handle which fails to satisfy the requirements of dimensions or finish or performance of finish shall be considered as defective.

Table 3 Scale of Sampling and Criterion for Conformity

(Clauses B-2 and B-4)

Sl No.	Lot Size	Sample Size	Acceptance No.
(1)	(2)	(3)	(4)
i)	Up to 50	8	0
ii)	51 to 90	13	1
iii)	91 to 150	20	1
iv)	151 to 280	32	2
v)	281 to 500	50	3
vi)	501 to 1 200	80	5
vii)	1 201 and above	125	7

B-4 CRITERIA FOR CONFORMITY

A lot shall be considered as conforming to the requirement of this standard if the number of defective handles among those tested does not exceed the corresponding number given in column 3 of Table 3, otherwise the lot shall be deemed as not meeting the requirements of this standard and shall be rejected.

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Builder's Hardware Sectional Committee, CED 15

<i>Organization</i>	<i>Representative(s)</i>
In Personal Capacity (1421, Sector A, Pocket B&C, Vasant Kunj, New Delhi 110070)	SHRI B. MAJUMDAR (Chairman)
Allied Anodisers, Kolkata	SHRI SUSHIL TAWAR
Appex Association of DDA Colonies (Regd), Delhi	SHRI R. P. AGRAWAL SHRI R. R. SHARMA (<i>Alternate</i>)
Argent Industries, New Delhi	SHRI ANIL CHADHA SHRIMATI VANITA CHADHA (<i>Alternate</i>)
Builders' Association of India, New Delhi	SHRI NEERAV PARMAR SHRI H. S. PSRICHA (<i>Alternate</i>)
Building Materials & Technology Promotion Council, New Delhi	SHRI C. N. JHA SHRI PANKAJ GUPTA (<i>Alternate</i>)
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M. C. Mowjee & Company Pvt Ltd, Kolkata	SHRI RUSHD MOWJEE SHRI SAJID MOWJEE (<i>Alternate</i>)
MECH (India) Industries, Delhi	SHRI SUDHIR BATRA SHRI SAMEER ARORA (<i>Alternate</i>)
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Ministry of Micro, Small & Medium Enterprises, New Delhi	SHRI U. C. SHUKLA
Ministry of Railways, New Delhi	REPRESENTATIVE

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<i>Organization</i>	<i>Representative(s)</i>
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National Real Estate Development Council, New Delhi	BRIG (RETD) R. R. SINGH SHRI SUSHIL SIONEE (<i>Alternate</i>)
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BIS Director General	SHRI SANJAY PANT, SCIENTIST 'F' AND HEAD (CIVIL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

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AND

SHRIMATI DIVYA S.
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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

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