BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

एयर होस्टेस एवं स्टुअर्डस के लिए हवाई यात्रा बैग— *विशिष्टि*

(पहला पुनरीक्षण)

Draft Indian Standard

Air Travel Bags for Air Hostesses and Stewards – Specification

(*First Revision*)

(ICS. 59.140.35)

Leather, Tanning Materials and Allied Products, CHD 17	Last Date for Comments: 27-03-2024

Leather, Tanning Materials and Allied Products, CHD 17

(*Formal clause shall be added later*)

Air travel bags differ in design, shape, colour and size from one manufacturer to another. Even with a particular shape and size, the quality of the material and the workmanship may be different.

In view of the difficulties encountered by indentors in selecting the proper materials of choice, the Committee responsible for formulation of this standard agreed to stipulate the essential requirements in this specification. In addition, it is expected to serve as a guidance to manufacturers to orient their production to manufacture air travel bags of durable and acceptable quality.

This standard was first published in 1977 with the title 'Specification of Bag for Air Travel'. Since, the title of the standard was not clear as to who are the users of the air travel bag, the Committee decided to rename the standard to its current title. In this revision, the scope of the standard has been broadened to include bags with or without shoulder straps. Some changes have been made to the requirement for material and finish.

This standard contains clauses which call for agreement between the purchaser and the supplier and which permit the purchaser to use his option for selection to suit his requirements. The relevant agreement clauses are 4.2, 6.5, 6.6, 7.3, 9.1 and 11.1.

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: 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.

Draft Indian Standard

Air Travel Bags for Air Hostesses and Stewards – Specification

(*First Revision*)

1 SCOPE

This standard prescribes the requirements for bags carried in hand made out of leather or coated fabric (provided they have similar characteristics like leather) and used in air travel.

2 REFERENCE

The Indian Standards listed in Annex A contain provision, which through reference in this text constitute provisions of this Indian Standard. At the time of publication, by editions indicated were valid. All standards are subject to revision; investigate the possibility of applying the most recent editions of the Indian Standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definition given in IS 1640 shall apply.

4 NOMENCLATURE

4.1 The nomenclature shall be as shown in **Fig. 1**.

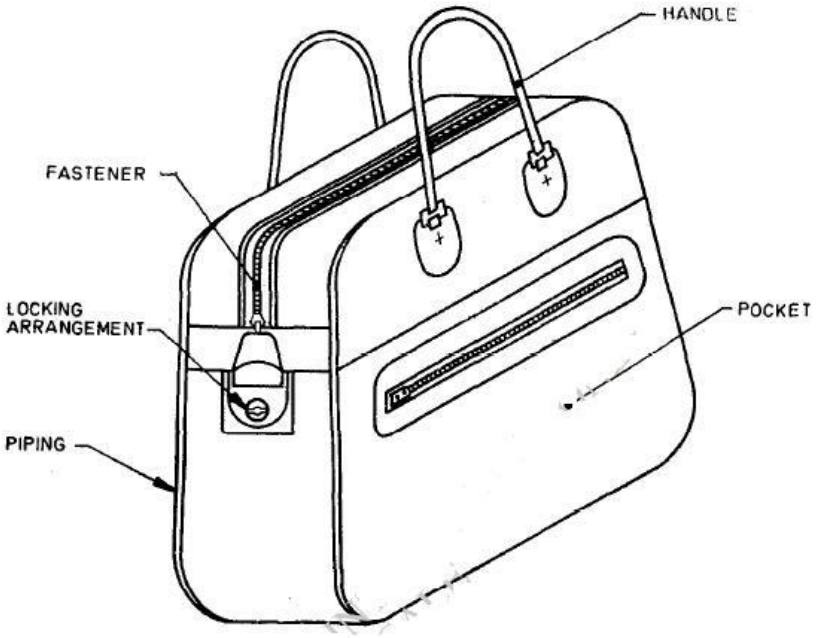

Fig. 1 Nomenclature

5 SHAPE AND DIMENSIONS

5.1 The shape and nominal dimensions of the air travel bag shall be as shown in **Fig. 2**.

5.2 The air travel bags may also be manufactured to the shape and dimensions other than those mentioned in this standard subject to the agreement between the purchaser and the supplier.

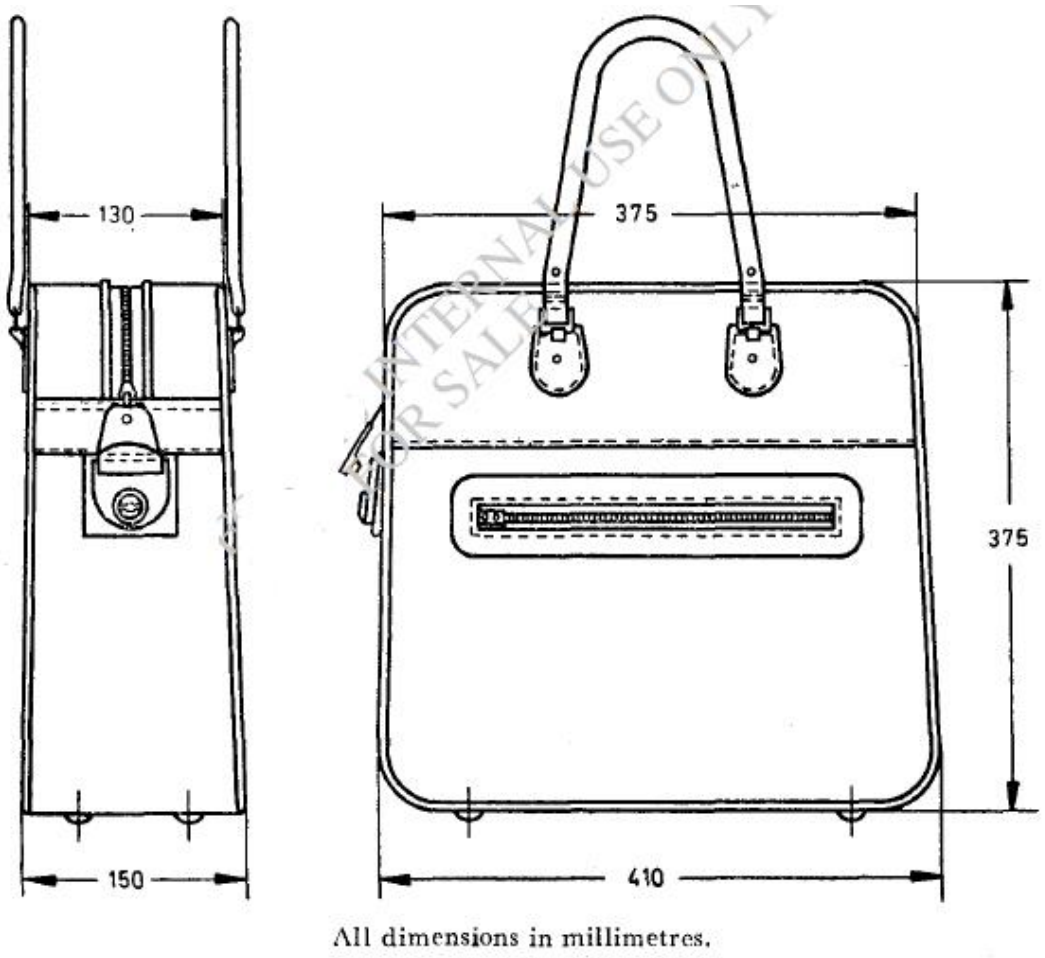

Fig. 2 Typical Air Travel Bag

6 REQUIREMENTS

6.1 MATERIALS

6.1.1 The various components of air travel bags shall be made from the materials specified in Table 1. Materials, not specifically designated, shall be suitable for the purpose intended.

Table 1 Materials for Components of Air Travel Bags

(*Clause* 5.1)

S.No.	Component	Material	Conforming to
(1)	(2)	(3)	(4)
i)	Body	Vegetable/chrome/combination tanned leather from skins/ bovines (grain finished leather)	—
		or	
		Coated fabric (PU/PVC)	IS 1259
ii)	Foundation Material		
		Foam sheet	IS 7888
		or	—
		Synthetic board	
		or	IS 1658
		Fibreboard	
iii)	Lining Material	Cotton	IS 1535
		or	—
		Synthetic	
		or	
		Leather	IS 3840
		or	
		Coated fabric	Grade 4 of IS 1259
iv)	Sewing Thread		
		Linen Thread	IS 2196
		or	
		Nylon	IS 4229
		or	
		Polyester	IS 9543
v)	Slide fastener	Metal (nickel free)	IS 3148
		or	
		Plastic	IS 14181 (Part 1) or IS 14181 (Part 2)
vi)	‘D’ rings	Metal (nickel free) /Plastic/wood/cast iron	Load bearing
vii)	Lock	Metal (nickel free)	Capacity shall be minimum 7 kg IS 10372
viii)	Rivets and Washers	Metal (nickel free)/Plastic	IS 866
ix)	Buckle	Metal (nickel free)/Plastic	IS 4274
x)	Boss (feet) (studds)	Metal or moulded plastic	IS 1862

6.2 Physical requirements

The air bag shall comply with the physical requirements prescribed in Table 2, 3, and 4.

Table 2 Outer material (Leather)

(*Clause* 6.2)

Vegetable/chrome/combination tanned leather from skins/ bovines (Full Grain Finished Leather)

Sl No.	Characteristics	Requirement, min		Method of Test, Ref to
(1)	(2)	(3)	(4)	(5)
		Skin	Bovine	
i.	Thickness (mm)	0.8	1.2	IS 5914 LP 1
ii.	Tear Strength (N)	20	50	IS 5914 LP 7
iii.	Color fastness to rubbing (Dry & Wet rub) GSR	3		IS 6191 (Part 4)
iv.	Color fastness to perspiration (GSR)	3		IS 6191 (Part 6)
v.	Stitch tear strength (N/mm)	Min 40	Min 50	IS 1529 LP 8
vi.	Colour fastness to water spotting 30 Minutes & 16 Hours	No permanent mark / GSR 4		IS 6191 LF 8
vii.	Flexing Endurance Dry 1,00,000 Flexes	No crack		IS 5914 (Part 6/Sec 1)
	Wet 50,000 Flexes	No crack and salt spue		IS 5914 (Part 6/Sec 2)

Table 3 Outer material (Coated Fabric)

(*Clause* 6.2)

Sl No.	Characteristics	Requirement, min	Method of Test, Ref to
(1)	(2)	(3)	(4)
i.	Thickness (mm)	1.0	ISO 2589
ii.	Mass (GSM)	600	IS 7016: Part 1: 1982 IS 7016 (Part 1/Sec 1) : 2022
iii.	Tear strength (N)	60	IS 7016: part 3/Sec 1 Method A
iv.	Breaking strength, (kg/5cm width)	30	IS 7016: Part 2
v.	Needle perforation strength (N/mm)	3.5	IS 8085 (Part 13)
vi.	Color fastness to perspiration (GSR)	3	IS 6191 (Part 6)

Table 4 Lining
(*Clause* 6.2)

Sl No.	Characteristics	Requirement, min	Method of Test, Ref to
(1)	(2)	(3)	(4)
i.	Thickness (mm)	0.6	IS 5914 LP 1-Leather ISO 2589-Non-Leather
ii.	Tear strength (N)	15	IS 5914 LP 7 (Leather) IS 7016: part 3/Sec 1 (Method B) (Non-Leather)
iii.	Color fastness to rubbing (Crock meter) GSR	3	IS 6191 (Part 4)

6.3 Chemical Requirements
The Air travel bags shall comply with harmful chemical substance test for all the components as prescribed in Table 5.

Table 5 Chemical Requirements
(Clause 6.3)

Sl No.	Characteristics	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i.	Azo Dyes	<20mg/kg	IS 582 (Part 5/Sec 1) IS 582 (Part 5/Sec 2)
ii.	Chromium VI	<3.0mg/kg	IS 582 (Part 11/Sec 2)
iii.	Dimethylformamide (DMFU)	<0.1mg/kg	IS 16991: 2018
iv.	Formaldehyde	<100mg/kg	IS 16297 (Part 1) IS 16297 (Part 2) IS 16297 (Part 3)
v.	Organotin compounds Dibutyltin/ Dibutyltin dichloride/ Dioctyltin/Monobutyltin	<5.0mg/kg	IS 16981
	Tributyltin/Triphenyltin/Bis(tributyltin)oxide	<1.0mg/kg	
vi.	Chlorophenol	<0.5mg/kg	CHD/17/21530/ ISO 17070
vii.	pH	Min 3.5	IS 582 (Part 9)

7 MANUFACTURE AND WORKMANSHIP

7.1 The bottom and lateral sides of the air bags shall be made strong and rigid by providing specified foundation materials.

7.2 The leather used in the manufacture of air bags shall be uniform in colour and 1.5 to 2.0 mm thick. The finish of the leather shall be aniline, or semi-aniline, pigmented, antique, two-tone, multi-coloured, glazed, patent or imitation patent. Nature of finished surface shall be full grain/corrected grain, printed or embossed, suede, nubuck.

7.3 The handles with its fittings and attachments shall be strong and shall not yield under normal usage. The handles shall be reinforced with cotton rope inside and riveted. The handles shall be centrally and symmetrically located on longer sides. The clearance between the body of the bag and the inner face of the handles shall be 5mm to 6mm to facilitate easy gripping when lifted.

7.4 Boss (feet) shall be provided to avoid ground contact.

7.5 Certain other provisions such as inside compartments, front pocket and alternative arrangements may also be provided as agreed to between the purchaser and the supplier.

7.6 The inside of the air bags shall be lined with the specified lining materials as agreed to between the purchaser and the supplier.

7.7 The locking device shall be fixed to the end of the tab of fastener and one of the lateral sides of the bag. The locking device shall be easily accessible to operate.

7.8 The threads shall be polyester, nylon, linen. The colour shall be uniform, unless a contrasting seam is an intended feature, shall acceptably match with that of the component(s) with which they are used. The colour of thread used for any contrasting seam shall be as specified by the purchaser.

7.9 The stitches shall be strong and uniform. The stitches shall be lock stitch with 28 to 32 numbers per decimetre and of even tension. The stitch ends shall be secured either by knotting the thread or back stitching or by an additional row of stitch.

7.10 All loose ends of the threads shall be trimmed off. The seams shall be uniform, continuous and straight.

7.11 The fasteners used for the outside main closure of the bags shall be of good quality and for inside/side compartments, pockets, etc., shall be of medium or light quality. Interlocking slide fasteners shall be of an intrinsically corrosion-resistant metal or of a plastic material.

7.12 The air travel bags shall be provided with piping all-round the outer edges. The core shall be solid plastic piping wire covered with corresponding outer material.

7.13 The lock flap shall be of single piece sewn to the lateral sides of the bag. The flap shall have sufficient size to accommodate components of the lock.

7.14 The D ring strap shall be reinforced with textile material/ E I leather and the size of the D ring shall be approximately 25mm

7.15 All metal components, whether functional or decorative, shall be of an intrinsically corrosion- resistant metal or shall have been so coated as to render them resistant to corrosion. They shall be of adequate size and strength for their function. The finish shall be of gold/ matt/antique/ oxidized.

8 FINISH

8.1 The steel components shall be plated chromium over nickel conforming to Grade 3 of IS 1068: 1968.

8.2 The air travel bags shall be soundly constructed and finished smooth without any sharp edges or constructional defects. There shall not be any loose thread or uneven seams. A handbag shall be clean, well made, and free from any defect that affects the appearance or may affect the serviceability of the handbag. Sewing shall be uniform and double rows of stitching shall be uniform unless intended to be otherwise.

8.3 In respect of appearance, general workmanship and finish the air travel bag shall conform to the sample previously approved by the purchaser.

9 TESTS

9.1 Handle attachment strength – Refer Annexure B

9.2 Static load bearing capacity of the bag - Refer Annexure C

10 SAMPLING

10.1 Unless otherwise agreed to between the purchaser and the supplier, the procedure given in IS 2500 (Part 1) shall be followed for sampling. The inspection level and sampling plan as given in **9.2** and **9.3** shall be followed.

10.2 The scale of sampling shall correspond to inspection level III given in Table 1 of IS 2500 (Part 1) for all the requirements specified in this standard.

10.3 The sampling plan shall correspond to AQL plans of 4.0 percent given in Table 2 of IS 2500 (Part 1).

11 MARKING

11.1 Each travel air bag shall be legibly and permanently marked with the following:

a) Manufacturer’s name or initials or registered trade-mark, and
b) Size.

11.2 BIS Certification Marking

The bags may also be marked with the Standard Mark.

11.2.1 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 products may be marked with the standard mark.

12 PACKING

12.1 The air travel bags shall be packed to ensure safe transportation and protection from damage. They may also be packed as agreed to between the purchaser and the supplier.

ANNEX A

(Clause 2)

LIST OF REFFERED INDIAN STANDARDS

IS No.	*Title*
IS 582	Methods of chemical testing of leather
Part 5	Determination of certain azo colorants in dyed leathers
Sec 1: 2018	Determination of certain aromatic amines derived from azo colorants
Sec 2: 2018	Determination of 4-aminoazobenzene
Part 9 : 2022	Determination of pH and difference figure
(Part 11/Sec 2) : 2022	part 11 determination of chromium (VI) content in leather section 2: chromatographic method
IS 866: 1957	Specification for Tinmen's Rivets
IS 1068 : 1993	Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium - Specification (*Third Revision*)
IS 1259: 2022	Vinyl coated fabrics - Specification (fourth revision)
IS 14181	Synthetic (Plastic) slide fasteners -
(Part 1) : 2002	Special purpose: Part 1 specification, selection and ordering guideline of the product (First Revision)
(Part 1) : 2002	Special purpose: Part 2 test and measurement methods
IS 1535: 2022	Textiles - Cotton Lining Cloth - Specification (second revision)
IS 1640 : 2007	Glossary of terms relating to hides, skins and leather (*First Revision*)
IS 1658: 2006	Fibre hardboards - Specification (Third Revision)
IS 1862: 1975	Specification for studs (Second Revision)
IS 2500(Part 1): 2000	Sampling Inspection Procedures - Part 1: Attribute Sampling Plans Indexed by Acceptable Quality Limit (AQL) for Lot-by-Lot Inspection (Third Revision)
IS 2196: 1985	Specification for linen (flax) sewing thread for aeronautical purposes (second revision)
IS 3840: 2011	Lining leather - Specification (Third Revision)
IS 3148: 1991	Slide fasteners (general purpose) (Fourth Revision)
IS 4229: 1992	Textiles – Nylon sewing threads for aerospace purposes – Specification (second revision)
IS 4274: 1981	Specification for Buckles (First Revision)
IS 5914	Methods of Physical Testing of Leather
Part 6	Determination of flex resistance
Sec 1:2023	Flexometer method
Sec 2 :2023	Vamp flex method
IS 6191	Methods of Micro-Biological, Colour Fastness and Microscopical Tests for Leather
(Part 4): 2018	Colour Fastness to Cycles of to-and-fro Rubbing
(Part 6): 2023	Colour Fastness to Perspiration
IS 7016	Methods of test for rubber or plastics coated fabrics
Part 1/Sec 1 : 2022	Determination of roll characteristics section 1 methods for determination of length, width and net mass (third revision)
Part 3/Sec 1:2022	Determination of tear resistance section 1 constant rate of tear methods (third revision)
IS 7888: 1976	Methods of test for flexible polyurethane foam

IS 8085 (Part 13) : 2023	Footwear - Test methods for uppers, lining and insocks-Seam strength
IS 9543: 2015	Textiles – Spun polyester sewing threads – Specification (first revision)
IS 10372: 1982	Specification for lock - Grip pliers
IS 16297 (Part 1): 2014	Leather - Chemical determination of formaldehyde content: Part 1 method using high performance liquid chromatography
IS 16297 (Part 2) : 2022	Leather- Chemical Determination of Formaldehyde Content Part 2 Method Using Colorimetric Analysis (first revision)
IS 16297 (Part 3) : 2018	Leather - Chemical Determination of Formaldehyde Content Part 3 Determination of Formaldehyde Emissions from Leather
IS 16981 : 2018	Footwear - Critical Substances Potentially Present in Footwear and Footwear Components : Determination of Organotin Compounds in Footwear Materials
IS 16991: 2018	Footwear - Critical substances potentially present in footwear and footwear components - Test method to quantitatively determine dimethyl fumarate (DMFU) in footwear materials
CHD/17/21530/ ISO 17070:2015	Leather -Chemical tests: Determination of tetrachlorophenol-, trichlorophenol-, dichlorophenol-, monochlorophenol-isomers and pentachlorophenol content
ISO 2589 :2016	Leather -Physical and mechanical tests Determination of thickness

Annex B

(*Clause* 9.1)

PROCEDURE FOR HANDLE ATTACHMENT STRENGTH

B-1 Scope

This method is to determine the handle attachment strength of the bag

B-2 Principle

Bag handle is gradually stressed by the tensile testing machine until failure occurs. The force required for failure of the attachment of handle to the bag was measured.

B-3 Apparatus and materials

a) Universal tensile testing machine with load cell capacity of approximate 2KN will use with the 2% accuracy for measuring force.
b) Jaw separation rate 100 ±10 mm/minute
c) Cutting knife or other suitable material

B-4 Preparation of test specimen

Using the cutting knife cut the bag handle along with reinforcement area and also sufficient non reinforcement area to allow the sample to be clamped.

B-5 Procedure

Clamp the handle of the bag in upper jaw of the universal tensile testing machine and the reinforcement area with sufficient non reinforcement area of the bag in the bottom jaw. Operate the testing machine so that the jaw separate at a speed of 100 ± 10mm/minute until failure of the handle bag occurs. Record the maximum forces to the nearest 0.1kg at which failure occurs.

B-6 Report

Record the maximum forces to the nearest 0.1kg at which failure occurs.

Annex C

(*Clause* 9.1)

STATIC LOAD BEARING CAPACITY OF THE BAG

C-1 Scope

This method is used to determine the static load bearing capacity of the bag when loaded.

C-2 Principle

The bag is loaded with defined mass distributed as evenly as possible. It is lifted using handle for the period of hour and set down. Any damage occurred is assessed visually.

C-3 Apparatus and materials

a) A suitable material to load the bag so that the load is spread as possible
b) Balance for measuring the load up to 20kg to an accuracy of 0.1kg.
c) A suitable hook to hang the bag.
d) A steel ruler for measuring the height of the loaded sample capable of measuring 1.0 meter.

C-4 Procedure

The air travel bag shall be filled with cloth or other suitable materials to weigh 70 ± 2.5 N (7 ± 0.25 kgf). The bag shall be fastened after filling with specified weight. Gently hang the bag from a hook at a height of approximately 50 cm from the floor and maintain it in the said position for period of one hour. Gently lower the bag to the floor and assess any damage to the bag at the handle attachment area.

C-5 Report

Any damage to the bag at the handle attachment area is assessed.