

**KENYA STANDARD**

**KS 2660 :2023**

ICS 55.080

**Second Edition**

## **Backpack bags — Specification**



**Kenya Bureau of  
Standards**

Standards for Quality life

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## REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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Public review draft

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# Backpack bags — Specification

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## Foreword

This Kenya Standard was prepared by the Technical Committee on Ready Made Garments under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

This standard specifies performance requirements for back pack type of bags for various uses in office schools, travelling and other business.

This second edition of the standard cancels and replaces KS 2660:2016 which has been technically revised

During the preparation of this standard the committee relied on data from samples from local manufacturer and retailers of Backpack bags

Acknowledgement is hereby made for the assistance received from these sources



## **1. Scope**

This Kenya Standard provides specifications, test methods and labelling requirements for backpack bags for use in schools, travelling, office and other business.

## **2. Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

KS ISO 3758, *Textiles — Care labeling using symbols*

KS 2659, *Packaging of textile products — Code of practice*

KS 479 -2, *Sewing threads — Part 2: Sewing threads made wholly or partly from fibres*

KS ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change*

KS ISO 6330, *Textiles — Domestic washing and drying procedures for textile testing*

KS ISO 5077, *Textiles — Determination of dimensional change in washing and drying*

KS ISO 3081, *Textiles — Woven fabrics — Determination of mass per unit length and mass per unit area*

KS 665, *Specification for textile labels*

KS ISO 1833-1, *Textiles — Quantitative chemical analysis Part 1. General principles of testing*

KS ISO 1833-11, *Textiles — Quantitative chemical analysis Part 11. Mixtures of cellulose and Polyester fibres (method using sulphuric acid)*

KS ISO/TR 11827, *Textiles — Composition testing — Identification of fibres*

KS ISO 2076: *Textiles — Man-made fibres — Generic names*

KS ISO 13935-1, *Seam Tensile properties, Part 1: Strip test*

KS ISO 13935-2, *Seam Tensile properties Part 2: Grab test*

EAS 223, *Zippers — Specification of vertically oriented specimens*

KS ISO 6941, *Textile fabrics — Burning behavior — Measurement of spread properties of vertically oriented specimens*

KS ISO 6940, *Textile fabrics — Burning behavior — Determination of ease of ignition*

KS 12947-2, *Textiles — Determination of abrasion resistance of fabrics by the martindale method, Part 2: Determination of specimen breakdown*

KS 214-3, *Specifications for woven linings, Part 3: Woven lining for men's and boys apparel*

KS 376-1, *Flexible polyurethane (polyether) foams — Specification Part 1: Mattresses*

KS 628, *Specifications for elastic webbings*

KS ISO 811, *Textile fabrics — Determination of resistance to water penetration*

KS ISO 13934-1, *Textiles — Tensile properties of fabrics Part 1: Determination of maximum force and elongation at maximum force using the strip method*

KS ISO 105 B02, *Textiles — Colour fastness, Part B02: Determination of colour fastness to artificial light: Xenon arc fading lamp test*

KS ISO 105 B04, *Textiles — Colour fastness Part B04: Determination of colour fastness to weathering: Xenon arc fading lamp test*

KS ISO 105 E04, *Textiles — Tests for colourfastness Part E04 Colour fastness to perspiration*

KS ISO 105 C10, *Textiles — Colour fastness Part C10 Colour fastness to washing with soap or soap with soda*

KS ISO 105 E01, *Textiles — Tests for colour fastness Part E01: Colour fastness to water*

KS ISO 105 X12, *Textiles — Tests for colour fastness Part X12: Colour fastness to rubbing*

KS 944-1, *Specification for woven bags (100 percent) for green tea leaves Part 1: Three dimensional type*

KS 2217-3, *Glossary of terms used in the education sector Part 3: Secondary Education*

KS ISO 3, *Preferred numbers-Series of preferred numbers*

### **3. Definitions**

For the purposes of this standard, the terms and definitions given below shall apply.

3.1 backpack- is a bag with two shoulder straps and/or waist straps. It can be made from polyester, canvas, or any other textile material.

### **4. Requirements**

4.1 Dimensions of Backpack bag in height, length and width shall be as declared subject to maximum tolerance of 1% when determined in accordance with Annex B

4.2 The Backpack shall have a face, back and middle panels shaped symmetrically.



### 4.3 Shoulder Straps

4.3.1 The shoulder straps may be padded for comfort and shall contain adjustable straps. The adjustable straps shall be webbing material made out of synthetic fibres and comply with KS 628.

4.3.2 Waist strap where provided shall be adjustable.

4.3.3 The shoulder straps where provided with padding material shall be secured with fabric enclosing a polyolefin or polyurethane expanded material that comply with the requirements given in Table 1

**Table 1 — Requirements for padding material**

SI No	Fibre type	Density in kg/m <sup>3</sup> , min.	Thickness in mm, min.	Test Method
i)	Expanded polyolefin	19	5	KS 376-1 Annex
ii)	Polyurethane foam	19	5	B

### 4.4 Closure

Other types of closures can be used and where zippers have been used shall comply with the physical requirements in Table 2 in terms of grade and tensile strength characteristics.

### 4.5 Fiber composition and proportion of fabric

4.5.1 The fiber for making the fabric for panels shall be declared subject to maximum tolerance of  $\pm 5$  % when tested in accordance with KS ISO 1833.

### 4.6 Physical requirements

4.6.1 The bag shall comply with the following physical characteristics as specified in Table 2 when tested with methods prescribed therein.

**Table 2 — Physical requirements**

SI No	Parameter		Requirement	Test Method
i.	Tensile strength in N, min	Warp	445	KS ISO 13934-1
		Weft	287	
ii.	Tear resistance in N, min	Warp	63	KS ISO 13937-1
		Weft	52	
iii.	Seam strength in N, min		235	KS ISO 13935-1
iv.	Strap pulling strength in N, min.	Top	425	Annex A
		Bottom	330	
v.	Water resistance, cm head of water, min.		150	KS ISO 811

vi.	Abrasion resistance, number of rubs, min.		1250	KS ISO 12947-2
vii.	Strap joint strength in N, min.		365	Annex A
viii.	Seam slippage, at 3 mm opening, load in N, min.	Warp	100	KS ISO 13936-2
		Weft	100	
ix.	Stitches per cm		2-3	Annex C
x.	Mass in g/m <sup>2</sup> , min.		330	EAS KS ISO 3801
xi.	Drop test based on 3-10 kg load, at 1 metre height		Pass	Annex D
xii.	Top handle attachment strength, in N, min,		305	KS 944-1
xiii.     xiv.	Physical requirements of zippers, in N, min.	Puller attachment	200	EAS 223
		Closed end test	80	EAS 223
		Top stop test	90	EAS 223
		Open end fastener box test	90	EAS 223
		Lateral strength test	250	EAS 223
		Lateral strength of open end	90	EAS 223
		Slider locking test	25	EAS 223

#### 4.7 Colorfastness requirements

4.7.1 The Backpack bag shall comply with the following colour fastness requirements as specified in Table 3

**Table 3 — Colour fastness requirements**

SI No	Agency		Rating, min.	Test Method	
1	Light		5	KS ISO 105 B02	
2	Weathering		5	KS ISO B04	
3	Perspiration	Acid	Colour Change	4	KS ISO 105 E04
			Staining		
		Alkali	Colour change		
			Staining		
4	Washing	Colour change	4	KS ISO 105 C10	
		Staining	4		
5	Water	Colour change	4	KS ISO 105 E01	
		Staining	4		
6	Rubbing	Wet	4	KS ISO 105 X12	
		Dry	3-4		

#### 4.8 Restricted colorants

Where colorants have been applied on the bags, the dyed fabric shall not contain dyestuffs specified in KS ISO 16373-2 and KS ISO 16373-3 and KS ISO 24632, Parts 1 and 3 and pthalates detected and quantified in accordance with KS ISO 14389 shall not be more than 0.1 % by mass.

### 5 Packaging

The unit and bulk packages of Backpack bags shall comply with requirements of KS 2659.

### 6 Marking

#### 6.1 Unit packages

The following information shall be marked legibly and indelibly on a label affixed on each bag

- a) Manufacturer's name or registered trade mark;
- b) Fibre type and content;
- c) Dimensions of bag in height, length and width
- e) Care instructions in accordance with KS ISO 3758;

## Annex A (normative)

### Determination of strap assembly strength

#### A1 Top strap attachment strength

**A 1.1** Extract and Mount a specimen, with the strap fixed at the top jaw and the bag fabric part fixed at the bottom jaw ensuring that the top strap attachment seam is clear from the bottom jaw line and the specimen length is at least 30 cm to comply with a gauge length of 20 cm.

**A 1.2** Determine the top strap attachment strength as the seam tensile strength of the specimen in accordance with KS ISO 13935-1.

#### A 2 Bottom strap attachment strength

**A2.1** Extract and mount a specimen, with the bottom strap (webbing) fixed at the top jaw and the bag fabric part fixed at the bottom jaw of a tensile testing machine ensuring that the bottom strap (webbing) attachment seam is clear from the bottom jaw line and the length of the specimen is at least 30 cm to comply with a gauge length of 20cm.

**A 2.2** Determine the bottom strap (webbing) attachment strength as the seam tensile strength of the specimen in accordance with KS ISO 13935-1.

For top strap and bottom strap (webbing) attachment strength test, see Figure A.1.

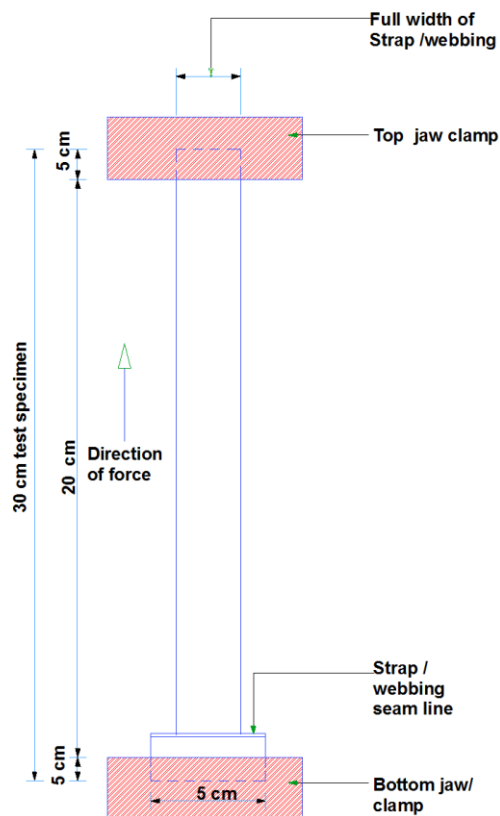


Figure A.1 — Top strap and bottom strap (webbing) attachment strength test

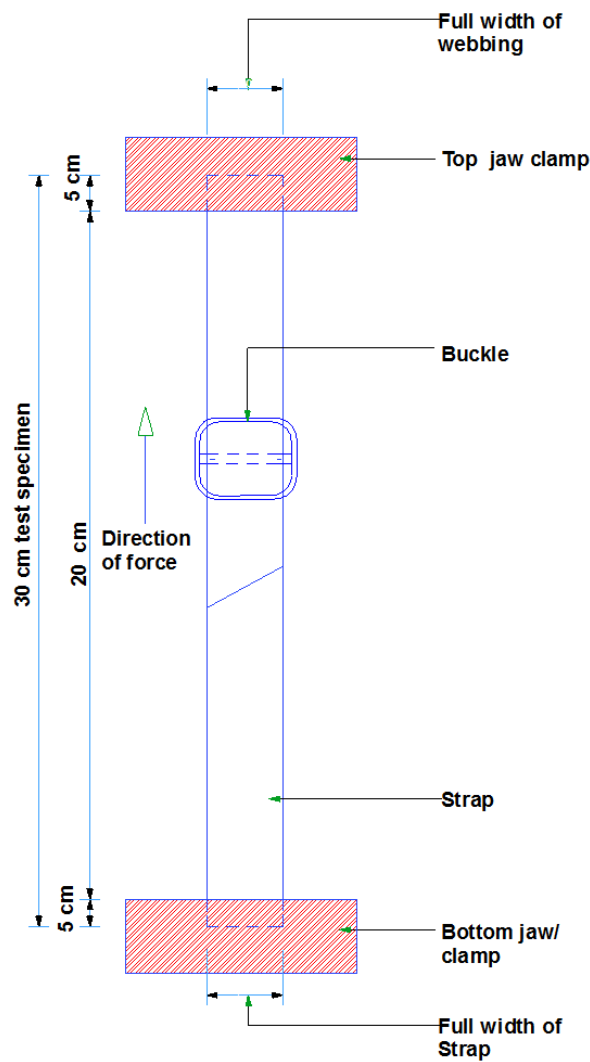
### A 3 Joint strength of strap assembly

**A 3.1** Fasten the Top strap and bottom strap (webbing) by means of the buckle provided with the bag strap assembly.

**A 3.2** Ensure that the length of the joint assembly is at least 30 cm and extract the test specimen by cutting from both ends of the strap assembly to facilitate the tensile test.

**A 3.3** Determine the joint strength of the strap assembly as the tensile strength tested in accordance with KS ISO 13935-1.

For top strap, bottom strap (webbing) and buckle assembly see Figure A.2.



**Figure A.2 — Strap assembly joint strength test**

## **Annex B**

(normative)

### **Determination of dimensions**

#### **B.1 Determine the bag dimensions**

Determine the bag dimensions shall be as specified in B.2, B.3.and B.4 by use of a steel rule. Ensure that the area to be measured is free from creases and folds

For details See Figures B.1 to B.3.

#### **B.2 Bag dimensions**

**B.2.1** Height

**B.2.2** Top width

**B.2.3** Bottom width

**B.2.4** Back to Front

**B.2.5** Piping

#### **B.3 Face pocket**

**B.3.1** Height

**B.3.2** Top width

**B.3.3** Bottom width

#### **B.4 Top handle**

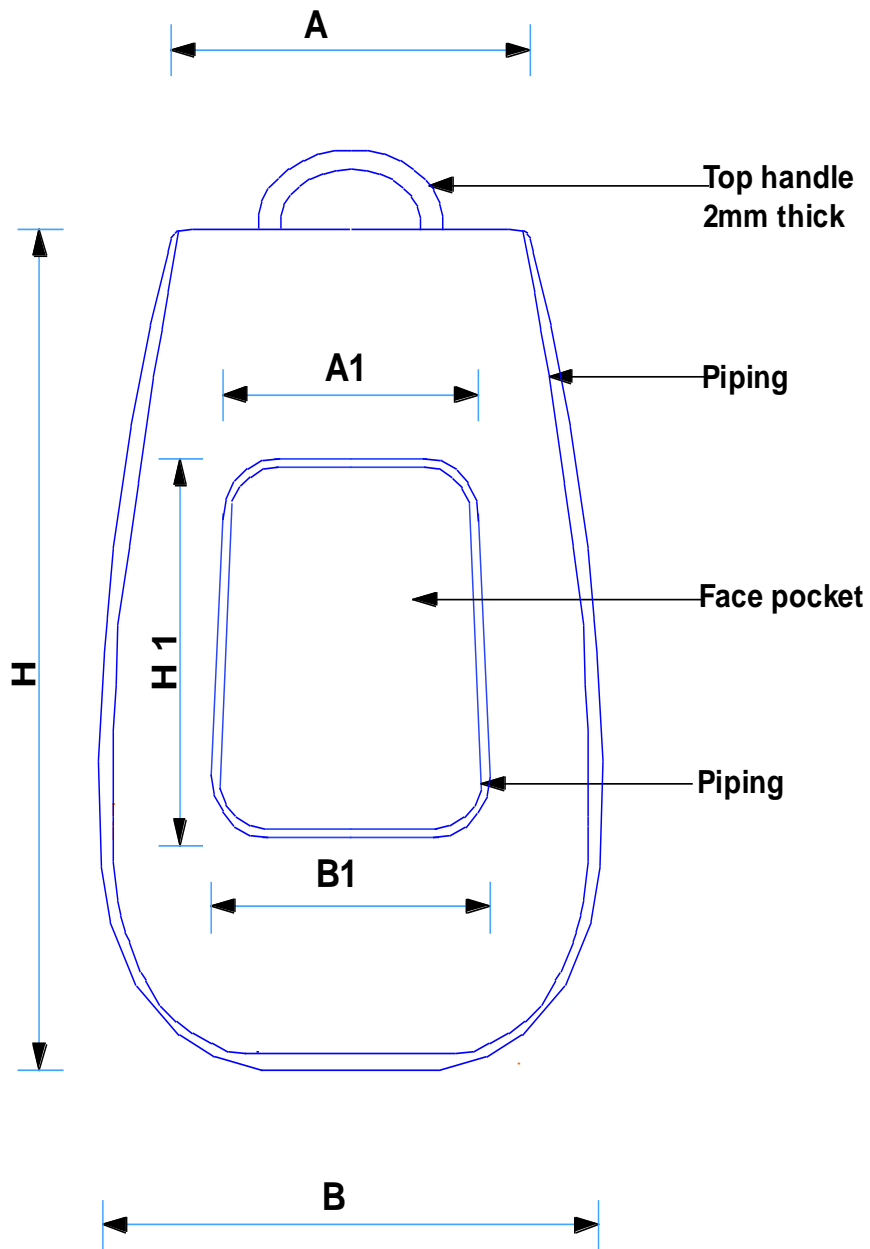
**B.4.1** Height

**B.4.2** Span

#### **B.5 Straps, webbings and buckles**

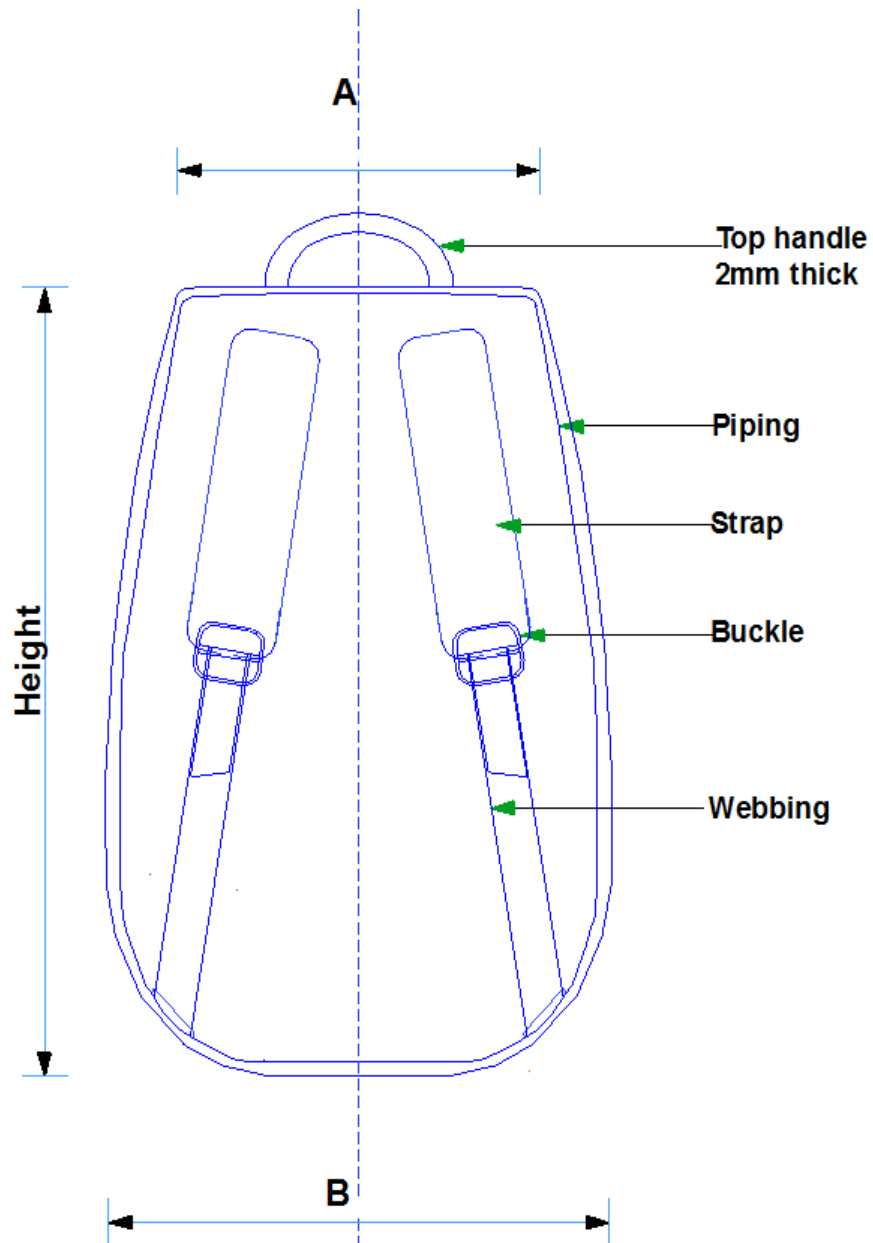
**B.5.1** Width

**B.5.2** Height



## FRONT VIEW

Figure B.1 Front view of back pack type of bag



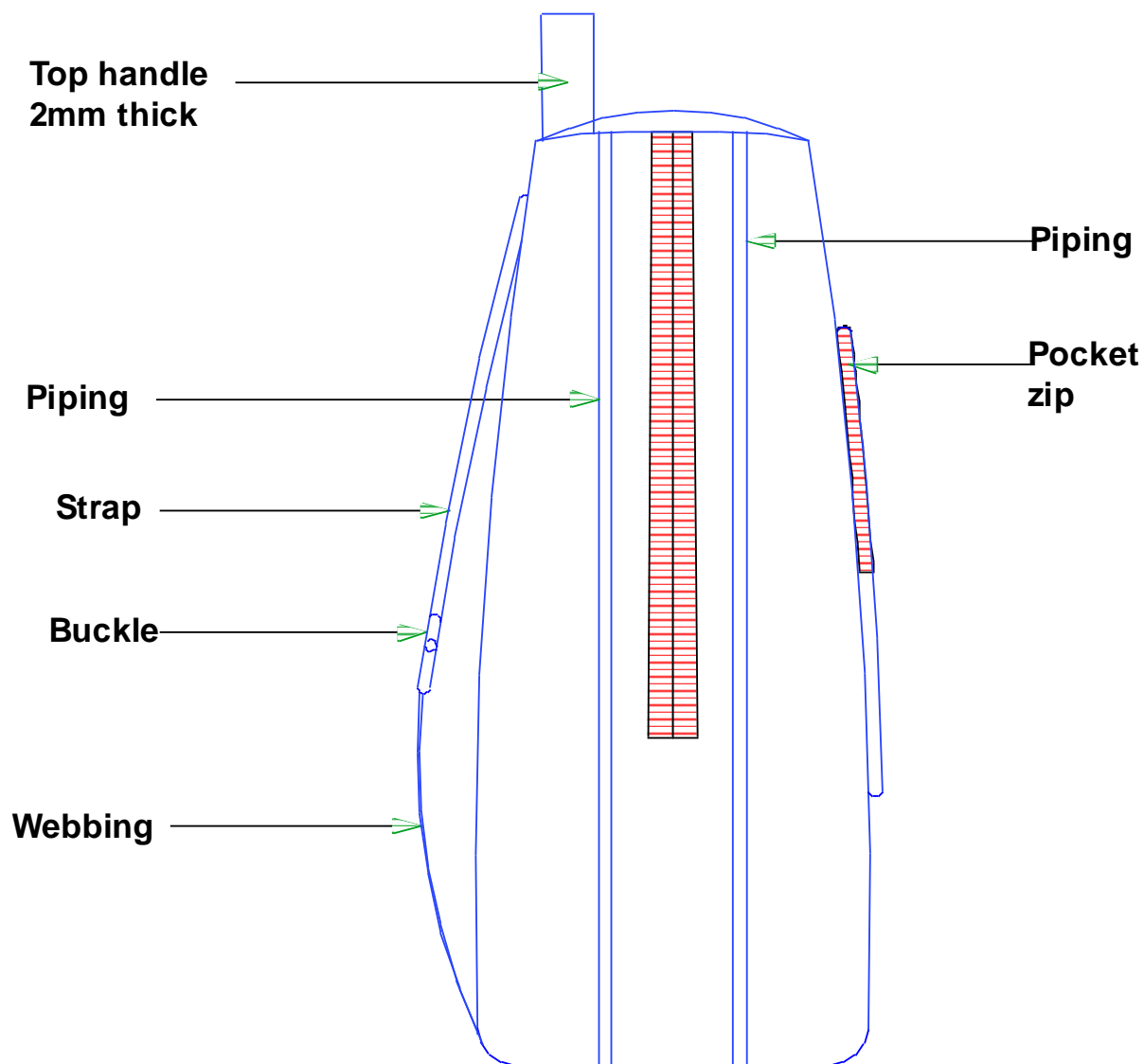
### REAR VIEW

Figure B.2 Rear view of back pack type of bag

Key to figures B.1 and B.2

A		A1		B		B1		H	H1	
Bag width	Top	Face top width	Pocket top width	Bag width	Top	Face Bottom width	Pocket Bottom width	Bag Height	Face Height	Pocket Height





## SIDE VIEW

Figure B.3 — Side view of back pack type of bag

## **Annex C**

(normative)

### **Determination of stitches per cm**

Count the number of stitches along a seam length of known distance in centimetres and determine the number of stitches per centimetre

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**Annex D**  
(normative)  
**Drop test**

**D1 Procedure**

A back pack type bag of specified dimensions (see Table F1) is loaded with relevant learning materials of mass as given in Table F1 collated with the size of bag. The loaded bag is dropped from the edge of a bench, 1-metre-high, to a flat floor. The drop test is repeated 10 times. After the test, the tested bag is examined; the stitches and seams shall not open and the straps, webbings and buckles shall not give way or come off the stitched tacks

**Table F1 — bag dimensions related to carrying capacity in kg**

Category of size	Dimensions of bag in cm				capacity in kg
	Height	Top Width	Bottom Width	Back to Front	
1	28	18	23	8	2
2	28-31	18-20	23-25	8-9	3
3	31-37	20-24	25-28	9-11	5
4	37-44	24-28	28-32	11-13	7
5	44-55	28-34	32-36	13-15	10
6	Above 55	Above 34	Above 36	Above 15	15