
**Box equipments and wears- part 1:
Boxing wears specification**

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Sport Equipments and Facilities (TC 96) and published by the Ethiopian Standards Agency (ESA).

Draft of the standard has been presented by Federal Sport Commission.
Acknowledgment has been made for the organization for its concern to contribute to the effort of national standardization.

Box equipments and wears -part 1:Boxing wears specification

1 Scope

This part of Ethiopian standard specifies requirements for boxing wear made from woven or knitted fabrics (or both).

This standard applies to shoes, vest and shorts used for competition and training of boxing sport . Requirements for boxing pad and punching bags is included in Annex B and C.

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.

ES ISO 105 X12, Tests for color fastness-part -x12:color fastness to rubbing

ES ISO 105-B02, Textiles — Tests for color fastness — Part B02: Color fastness to artificial light: Xenon arc fading lamp test

ES ISO 105-C06, Textiles — Tests for color fastness — Part C06: Color fastness to domestic and commercial laundering

ES ISO 105-C10, Textiles – Tests for color fastness – Part C10: Color fastness to washing with soap or soap and soda

ES ISO 105-E04, Textiles — Tests for color fastness — Part E04: Color fastness to perspiration

ES ISO 2859-1, Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

ES ISO 3998, Textiles — Determination of resistance to certain insect pests

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

ES ISO 12947-1, Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 1: Martindale abrasion testing apparatus

ES ISO 12947-2, Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 2: Determination of specimen breakdown

ES ISO 12947-3, Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 3: Determination of mass loss

ES ISO 12947-4, Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 4: Assessment of appearance change

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

ES ISO 13935-1, Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 1: Determination of maximum force to seam rupture using the strip method

ES ISO 13935-2, Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method

ES ISO 13937-4, Textiles — Tear properties of fabrics — Part 4: Determination of tear force of tongue-shaped test specimens (Double tear test)

ES ISO 13938-1, Textiles — bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension

ES ISO 3071 Textiles — Determination of pH of aqueous extracts

3 Terms and definitions

For the purposes of this standard the following definitions shall apply:

3.1 make

a systematic assembly and attachment of garment component parts

3.2 Trims

Narrow fabric generally used for the purpose of decorating or adorning furnishing fabrics or clothing, but often fulfilling a utilitarian function

4 Requirements

4.1 General requirement

- 4.1.1 Box wear should have aesthetic features such as an attractive appearance and a pleasant look as well as functions that improve user performance provide extra comfort and promote the health of the wearer.
- 4.1.2 The fabric structure shall be woven or knitted in accordance with the description given in ES ISO 7211-1 and ES ISO 8388 respectively.
- 4.1.3 Garments used for boxing shall be lighter, softer, more durable and faster drying.
- 4.1.4 In all competitions, a boxer has to wear a uniform that complies with this standard and the manufacturer guidelines.
- 4.1.5 Men and boy boxers uniform wear shall be a vest and shorts.
- 4.1.6 Women and girl boxers uniform wear shall be a vest and either shorts or a skirt.
- 4.1.7 The length of the shorts shall not be shorter than mid-thigh, shall not cover the knee and shall not be worn above the belt line.
- 4.1.8 The boxing wear shall not have a sticking material including tape and shall be free from defects
- 4.1.9 The punching pad and boxing pad shall comply requirements specified in annex B and C respectively.

4.2 Specific requirement

4.2.1 Woven fabric

The type and structure of the woven fabric shall be as agreed upon between purchaser and supplier. The woven fabric shall comply with the requirements given in Table 1.

Table 1 — Requirements for woven fabric used for boxing wear

1	2	3
Parameter	Requirements	Test method
a) Breaking strength, N, min.	330	ES ISO 13934-1.
b) Seaming properties:		ES ISO 13935-1/-2.
Resistance to opening at seam, N, min	110	
Strength at seams, N, min	165	
c) Tearing strength, , N, min.*	111	ES ISO 13937-4
d) Dimensional changes on laundering, %, max.	3	ES ISO 6330
e) Color fastness to:		
1) Light, rating, min.	5	ES ISO 105 B02
2) Washing, rating, min.		ES ISO 105-C10
Change in color	4	
Staining of adjacent clothes	4	
3) Perspiration, rating, min.		ES ISO 105 E04
Change in color	4	
Staining of adjacent clothes	4	
4) Rubbing rating, min.		ES ISO 105 X12
Dry rubbing	4	
Wet rubbing	3-4	
f) PH of fabric	6-8	ES ISO 3071
g) Abrasion resistance by mass loss, max	5	ES ISO 12947-2

4.2.2 Knitted fabric

The type and structure of the knitted fabric shall be as agreed upon between the purchaser and supplier. The knitted fabric shall comply with the requirements given in Table 2.

Table 2 — Requirements for knitted fabric

Parameters	Requirements	Test method
a) Dimensional changes on laundering, % max.	3	ES ISO 6330
b) Color fastness to		ES ISO 105 B02
1) Light, rating, min.	5	
2) Washing, rating, min.		ES ISO 105-C10
Change in color	4	
Staining of adjacent clothes	4	
3) Perspiration, rating, min.		ES ISO 105-E04
Change in color	4	
Staining of adjacent clothes	3-4	
4) Rubbing rating, min.		ES ISO 105 -X12
Dry rubbing	4	
Wet rubbing	$\frac{3}{4}$	
c) Bursting strength, kPa, min.	600	ES ISO 13938-1&2
d) Abrasion resistance by mass loss, max	5	ES ISO 12947-2
e) PH of fabric	6-8	ES ISO 3071

4.2.3 Boxing socks

4.2.2.1 A Boxing socks shall not be longer than the knee of the boxer.

4.3 Supplementary materials and components

4.3.1 General

The supplementary materials and components shall comply with the relevant requirements

4.4 Color(s) of material(s) and components

4.4.1 The color(s) of boxing wear used for training shall be agreed upon by between the purchaser and the supplier.

4.4.2 The vest and shorts/skirt used for competition shall be in the boxer's respective national colors or in red or blue color according to the boxer's respective corner allocation.

4.5 Style, size designation, garment dimensions and make

4.5.1 The size designations and the garment dimensions shall be such that the garments are comfortable to the wearer and suitable for the end use, and shall be as agreed upon.

4.5.2 The style for box garment shall be the same as figure 1.

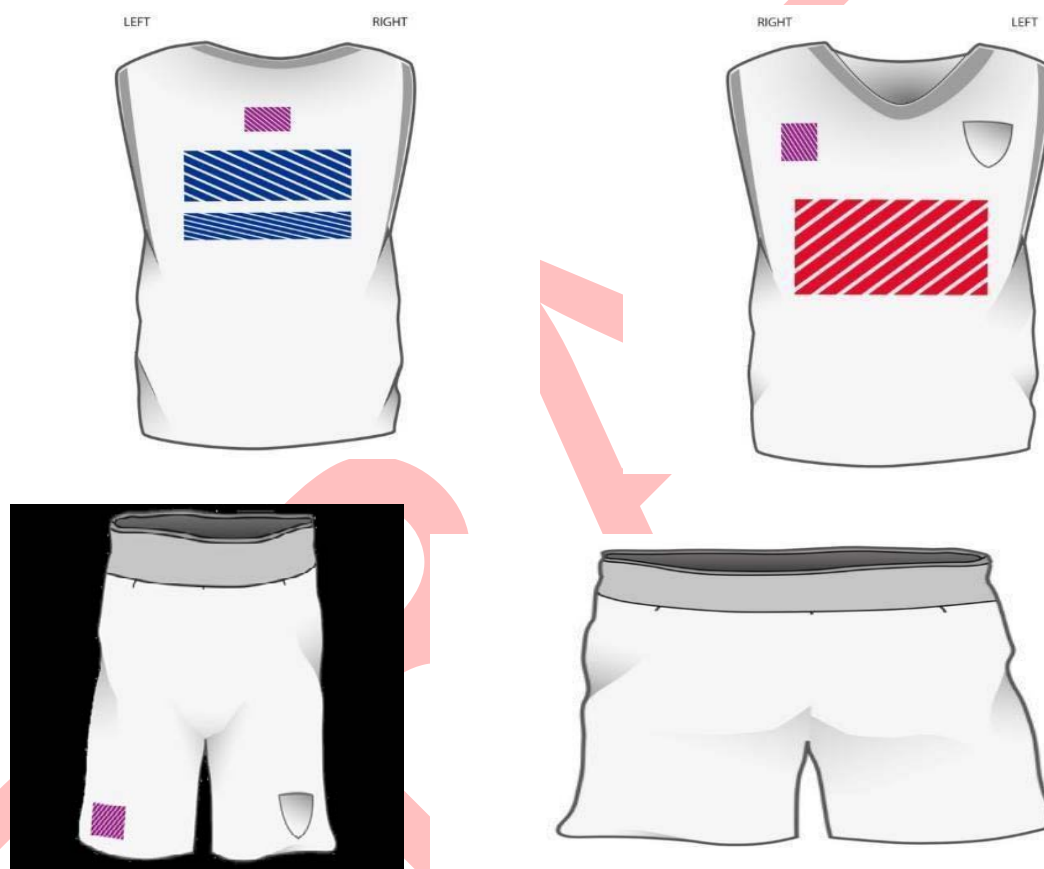


Figure 1: style for boxing wear

5 Sampling

Sampling shall comply with ES ISO 2859-1.

6 Packing, Packaging, care-labeling and marking

6.1 Packing and packaging

6.1.1 Garments shall be delivered in a clean and commercially dry condition, and shall be so packed that they will not be damaged during transportation or in storage.

6.1.2 The garments shall be neatly folded, put into individual plastics envelopes, and then packed for transportation in acceptable boxes or cartons.

6.1.3 Only garments of the same material(s), colour(s) and style and of the same size designation

shall be packed together if ordered in a bulk container (unless quantities ordered are such that the packing of garments in such a manner is not justified).

6.2 Care-labeling

Each garment shall have a woven or printed label that is permanently secured and that provides, in accordance with ES ISO 3758, correct and appropriate care instructions, and that may also bear the markings required in terms of 7.3.1(a) and (b). Printed labels shall comply with the requirements. All care-labels and their markings shall be such that they shall outlast the garments.

6.3 Marking

6.3.1 Garments

Each garment shall have a label securely attached to the garment, in an accessible position. The label shall be legibly and indelibly marked with the following particulars, except that the production- batch identification may be given on a separate label:

- a) The manufacturer's name or trade mark (or both);
- b) The size designation;
- c) The fiber composition of the appropriate outer material
- d) The identification of the production batch.
- e) Country of origin

6.3.2 Containers

Each bulk container shall have a label securely attached to the outside. This label shall provide the following information in legible and indelible marking and shall be visible when the containers are stacked:

- a) The manufacturer's name or trade mark (or both);
- b) The designation of the garments,
- d) The quantity of garments.
- e) Country of origin
- f) Net weight and gross weight of the container

6.3.3 Marking of the size designations

The marking required in terms of 7.3.1(b) and 7.3.2(c) shall be given in accordance with ES ISO 8559-2, except that the size designation.

6.4 Additional marking

When so required, garments or containers (or both) shall bear information additional to that specified in 6.3.

Annex A

(Normative)

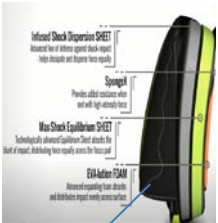
Leather boots for boxing		
Upper	Quality leather (thickness 0.8mm – 1.0mm) (TR grade as per CES 49) Or Microfiber (thickness 0.8mm – 1.0 mm) Or Canvas (thickness 0.8mm – 1.0 mm) or combination of any of the above	Picture 
Insole	Molded Texon board and shank board	
In sock	Full leather with minimum 2mm foam/EVA	
Eyelet	based on upper color and fashion	
Construction	Injection	
Sole	PU soledensity 0.6-0.8gm/cm ³	
Specifications		
- Size available from size shall be 34- 47. - All vamp leather shall be cut from prime areas of hide. - Upper material pH value shall be greater than 3.2 (ES ISO 20344) - Cr (VI) level should be maximum 3mg/Kg. (ES ISO 17075) - Colorfastness to rubbing minimum(dry 100 cycles and wet 20 cycles) 3 gray scale (ES ISO 11640) - No weakness/looseness in material on upper part. (Visual) - Sole bond strength shall be a minimum 4N/mm (ES ISO 17707) - Sole flexing resistance shall be minimum 4mm crack and no spontaneous crack when flexed 30,000 cycles (ES ISO 17708) - Sole materials shall be tested for slip resistance: coefficient of friction, μ 0.3 – 1.25. - For long boot back height should be (Size 42 BH = 190mm and 1mm increase or decrease for one size increase or decrease) - For short boot back height should be (Size 42 BH = 160mm and 1mm increase or decrease for one size increase or decrease) Laces - Laces breaking load, carrier abrasion, lace to lace abrasion and color fastness to rubbing shall be as per standard including laces to have sealed plastic ends and should have right length as per sample. - Breaking load minimum shall be 200N (ES 3747) - Color fastness to water shall be minimum 3 gray scale (ES ISO 105 E 01) - Lace to lace abrasion minimum without breaking run shall be 5000cycles (ES ISO 22774) Sole - Abrasion resistance maximum 250 mm³ (ES ISO 20871)		

Annex B
(Normative Reference)

Punshing bag leather specification		
Upper	High quality upholstery cow leather (thickness 1.2 mm -1.4 mm) (TR grade as per CES 49) Aniline, suede and nubuck	Picture
		
Specifications		
- Upper material pH value shall be greater than 3.2 (ES ISO 4045) - Cr (VI) level should be max 3mg/Kg. (ES ISO 17075) - Colorfastness to rubbing shall be minimum >4 for dry at 500 cycle and 3 to 4 for wet at 250 cycle gray scale (ES ISO 11640) - Tear strength shall be >or = 20N ES ISO 3377-1 and ES ISO 16131		

Annex C

(Normative Reference)

Boxing Pad Specification		
Upper	High quality sheep leather (thickness 0.35 mm - 0.45 mm) (TR grade as per CES 49) Or Microfiber –non leather material (thickness 0.35 mm -0.45 mm) Or Polished polyurethane (thickness 0.35 mm -0.45 mm)	Picture  Leather, microfiber
		 
Specifications		
1. Leather or Microfiber or Polished Polyurethane 2. Infused shock dispersion sheet 3. Maximum shock equilibrium sheet 4. Sponge 5. EVA-Foam For Leather or microfiber • Upper material pH value shall be greater than 3.2 (ES ISO 4045) • Cr (VI) level should be max 3mg/Kg. (ES ISO 17075) • Colorfastness to rubbing minimum shall be >4 for dry at 500 cycle and 3to4 for wet at 250 cycle gray scale (ES ISO 11640) • Tear strength shall be >or = 20N ISO 3377-1 and ISO 16131		
<u>Color</u> shall be red, blue or any other color <u>Shape</u> shall be rectangular or damp bell shaped		

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

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