**KENYA STANDARDDKS 2795-4:2018**  **ICS 59.080.30**

**Motorcycle Protective Clothing—Specifications**

Part 4:

**Test method for determination of impact cut resistance**

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**Motorcycle protective clothing—**

**Specifications**

Part 4:

**Test method for determination of impact cut resistance**

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**FOREWARD**

The only protection a motorcyclist involved in a road traffic accident has against injury is the clothing he or she is wearing at the time. Motorcyclists' clothing is generally worn as an extension of normal clothing, providing Protection against ambient conditions of wind, water and cold, but motorcycle clothing performing the requirements of this standard also provides some protection from injury in the event of an accident. It is intended not to hinder a rider from controlling his machine. It should be of an acceptable appearance to the wearer.

This Kenya Standard is primarily concerned with the protection provided by clothing against injury in accidents.

During the preparation of this standard, reference was made to the following documents:

BS EN 13595-4 2002: Test method for determination of impact cut resistance

Acknowledgement is hereby made for the assistance derived from this source.

KENYA STANDARD DKS 2795-4:2018

**1 Scope**

This Standard specifies performance requirements for clothing material and assembly methodology utilised in the manufacture of professional motorcycle riders jackets, trousers and one-piece and divided suits which are intended to protect the wearer against mechanical injury on metalled road surfaces.

This Standard specifies appropriate test method for the determination of impact cut resistance.

**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.

EN 412 : 1993,Protective aprons for use with hand knives

KS 2795 Protective clothing for Professional motorcycle riders-jackets, trousers and one piece or divided suits

Part 1: General requirements

**3 Terms and definitions**

For the purposes of this Kenya Standard, the following terms and definitions apply.

3.1 professional rider a person who is employed to provide or contracts to perform for reward, the services requiring the riding of a motorcycle

Examples are:

a) the delivery of letters, packets or other small freight;

b) the transport of passengers by motorcycle; c) emergency medical treatment;

d) vehicle breakdown support.

**4 Determination of impact cut resistance**

**4.1 Principle**

A test specimen is mounted over a rectangular hole so that it is under a predefined tension. An impact striker of fixed mass, with a sharp blade fitted to its lower surface, is dropped vertically from a predetermined height onto the specimen over the centre of the hole. The maximum penetration of the blade through the material is measured.

**4.2 Apparatus**

4.2.1 A test apparatus as described in 4.1 of EN 412:1993 with the following modifications:

4.2.1.1 A blade holding block with a mass of 110 g ± 2 g including the blade.

4.2.1 .2 A circular wood or plastic specimen support block of diameter 125 mm ± 5 mm and thickness 80 mm ± 20 mm with a rectangular hole of width 5 mm ± 0,5 mm, length 30 mm ± 1 mm through its full thickness and at its centre. The block shall be positioned so that the vertical back of the test blade enters the rectangular hole 7,5 mm ± 0,5 mm from one of its shorter ends with the blade equidistant from the sides of the hole.

NOTE The flesh simulating plastic mass referred to in EN 412 is not required.

4.2.1.3 A quick release mechanism for supporting the blade holding block (4.2.1.1) at a position above the top surface of the test specimen so that the speed of the block at impact of the blade with the specimen is:

|  |  |  |
| --- | --- | --- |
| Method | Speed  (m/s) | Free fall drop height  (mm) |
| 1st | 2,0 ± 0,2200 |  |
| 2nd | 2,8 ±0,2400 |  |

4.2.2 A piece of reference fabric at least 0,4 m x 0,2 m with the following characteristics:

* Fabric warp and weft: cotton m open end fibres;
* linear mass warp and weft: 161 tex;
* twist warp; double twist S 280 Um ; single yarn Z 500 Um
* twist weft; same as warp;
* warp: 18 threads per 10 mm;
* weft: 11 threads per 10 mm; -crimp warp: 29 %;
* Crimp weft: 4 %; -tensile strength in warp: 1 400 N
* tensile strength in weft: 1 000 N; -mass per unit area: 540 glm 2
* thickness: 1,2 mm.

NOTE This fabric is the same as that used in the blade cut resistance test of EN 388:1994. It is made by Cotlamtis,P. O. Box ,59930 La Chapelle d'Armentieres, France, and is avaitabte after verification under reference LEM 6 from I'lnstitut Textile de France, Avenue Guy de Collogue, P. O. Box 60, 69132 Ecully, CEDEX, France. This information is given for the convenience of the user of this Standard and does not constitute any endorsement

Equivalent products may be used if they can be shown to lead to the same result.

4.2.3 A device for measuring distances of up to 50 mm to the nearest 0,1 mm, for example a vernier calliper.

**4.3 Preparation of test specimens**

Take a specimen (220 ± 20) mm x (220 ± 20) mm from each different construction of the clothing assembly. For

particular constructions only available in smaller dimensions, use the largest specimen available and adjust the position of the tensioning weights as appropriate. For sheet materials, a specimen (220 ± 20) mm x (220 ± 20) mm shall be taken and the test procedure shall accurately replicate the use of the material(s) in finished garments.

Mark on the test specimen the six required impact points; including any points in the test area likely toprovide the lowest level of protection.

Store the test specimen and reference fabric (4.2.2) in an environment of 23 °C ± 2 °C and 50 % ± 5 % relative humidity for at least 24 h before testing and either carry out the test in this atmosphere or immediately after it has been removed.

**4.4 Procedure**

**4.4.1** The reference fabric (4.2.2) is folded in half to produce a double thickness comprising two layers of canvas with the warps running in the same direction, with the test specimens (4.3) not folded, but tested as submitted, to produce an assembly approximately 200 mm x 200 mm, and follow the procedure described in 4.4.2 to make six cuts into this assembly at 450 to the warp.

**4.4.2** Use the device (4.2.3) to measure the thickness of the assembly to be tested and record this value as [ 1.0] to the nearest 0,1 mm.

Place the test assembly over the mounting block (4.2 .1.2) and clamp it as described in EN 412 so that the longer edges of the rectangular hole in the block are aligned with the required test direction.

Gently lower the block until the tip of the blade is almost in contact with the upper surface of the test specimen and check that the blade is aligned with the required impact point.

From this position, raise the blade holding block (4.2.1.1) by the drop height required to ensure an impact speed of

* Method 1: 2,0 mls ± 0,2 mls (zone 3 and zone 4 test specimens, see EN 13595-1 :2002, annex C)
* Method 2: 2,8 mls ± 0,2 m/s(Reference fabric 4.4.2, zone 1 and zone 2 specimens, see EN 13595·1 :2002,annex C)

Adjust the quick release mechanism (4.2.1.3) to clamp the blade holding block in this position.Activate the quick release mechanism to drop the blade holding block onto the test specimen.

Mark the blade at a point level with the upper surface of the specimen and remove the blade from the specimen

Use the device (4.2.3) to measure to the nearest 0,1 mm the distance between the marked point and the tip of the blade and record this value as L, . Calculate the blade penetration through the specimen Lp using the formula: Lp= L,-Lo

Repeat this procedure a further five times for the remaining test sites identified in 4.3. In the case of woven materials, such as the reference fabric (4.2.2), two cuts shall be made parallel to the warp direction of the material, two parallel to the weft direction of the material and two parallel to the bias direction. In the case of other materials the cuts shall be at 60 degrees to each other.

Calculate the mean of the six Lp blade penetration values.

**4.4.3** If the test assembly is two thickness of reference fabric (4.2.2) and the mean blade penetration is not in the range 14 mm ± 1,5 mm, repeat the procedure in 4.4.2 using either a freshly sharpened blade or blunted blade as appropriate.

**4.5 Test report**

The test report shall include the following information:

a) reference to this Standard

b) a description of the test specimens or the garment from which they were taken;

c) for each impact:

1) a description of the impact position on the test specimen;

2) the impact velocity of the blade

3) the blade penetration recorded.

d) the mean blade penetration;

e) any deviations from the specified procedure, such as alternative test sites or orientations.