**KENYA STANDARD****DKS 2795-3:2018** ICS 59.080.30

**Motorcycle Protective Clothing—Specifications**

Part 3:

**Test method for determination of burst strength**

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**KENYA STANDARDDKS 2795-3:2018**  ICS 59.080.30

**Motorcycle protective clothing-**

**Specifications**

Part 3:

**Test method for determination of burst strength**

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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:

EN 13595-3 2002: Test method for determination of burst strength

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

**KENYA STANDARD DKS 2795-3:2018**

**1 Scope**

This Kenya Standard specifies performance requirements for clothing material and assembly methodology used in the manufacture of professional motorcycle riders jackets, trousers and one-piece or divided suits which are intended to protect the wearer against mechanical injury on metalled road surfaces. It also specifies appropriate test methods whereby conformity against these requirements can be assessed.

**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 2795, protective clothing for professional motorcycle riders –jackets, trousers and one-piece or divided suits Part 1: General requirements

KS ISO 13938-1, Bursting properties of fabrics-part 1: Hydraulic method for determination of bursting strength and bursting distension.

KS ISO 13938-2, Bursting properties of fabrics-part 2: Pneumatic method for determination of bursting strength and bursting distension

**3 Terms and definitions**

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

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 burst strength**

**4.1 Principle**

A circular test specimen and an underlying elastic diaphragm are clamped around their edges over the top of a chamber. The specimen is gradually stretched into a dome shape by forcing fluid into the chamber at a constant rate. The pressure of the fluid at failure of the specimen and the distension, measured in terms of the height of the dome, are recorded.

**4.2 Apparatus and materials**

**4.2.1** A diaphragm bursting test apparatus, similar to KS ISO 13938·and KS ISO 13938·2 (exception clamping device); it consists of:

**4.2.1.1** A rigid chamber filled with fluid and having a circular aperture of diameter equal to, or up to 0,5 mm greater than the diameter of the circular free area (4.2.1.3).

**4.2.1.2** A circular elastic diaphragm mounted over the aperture in the chamber. The diaphragm and its seal with the chamber shall be able to withstand pressures greater than the burst strength of the material being assessed. The modulus of elasticity of the diaphragm shall be clearly smaller than that of the test specimen.

NOTEA value of 5 % of the modulus of the test specimen is recommended.

**4.2.1.3** A means of clamping the test specimen around its edge, above the diaphragm and over the aperture in the chamber (4.2.1.1), leaving a central circular free area of diameter 11 3 mm ± 1 mm.

The design of the clamping system shall ensure that the test specimen does not slip during the test and shall

neither stretch nor compress the central area of the specimen as it is clamped.

NOTE The following has been found to be suitable: six concentric grooves 2,5 mm apart and 1,25 mm deep cut into the lower clamping surface so that the ridges between the grooves have 0,5 mm radius tops. The upper ring is divided into 16 identical segments each of which is clamped against the body with a 25 mm diameter screw. These are tightened with a torque wrench to press the upper ring segments against the lower ring, and to clamp the sample. The complete upper ring has an internal diameter of 113 mm. The upper segments have grooves that interlock with the lower ring ridges.

**4.2.1.4** A means of pumping additional fluid into the chamber (4.2.1.1) at a constant rate to produce a pressure of up to 2 000 kPa.

**4.2.1.5** A method of recording the maximum pressure of the fluid in the chamber during the test to the nearest 25 kPa.

**4.2.1.6** A method of measuring distension of the test specimen, in terms of the height of the dome, in millimetres to the nearest 1 mm.

**4.2.2** A cutting device, such as a press knife, for cutting test specimens of a suitable size for the clamping system (4.2.1.3).

**4.3** Test specimens

**4.3.1** For sheet materials, or for each type of seam and slide fastener present in a garment, at least three specimens shall be tested. All combinations of materials beamed in the garment shall be tested, and the test procedure shall accurately replicate the use of the sheet material(s) in finished garments. Where present, exposed row(s) of topstitching thread shall be cut in samples taken from zones 1 and 2, see KS 13595-1 :2002, annex C.

Use the device (4.2.2) to cut:

-Option 1: Five individual test specimens of a sufficient size to be clamped firmly in the test machine (4.2.1).

-Option 2: A single test specimen which is wide and long enough for at least five areas to be clamped and tested in turn.

**4.3.2** In the case of uncut sheet material, the test positions shall be from a range of locations across the full usable width and length of the material avoiding areas that are within 50 mm of any manufactured edges.

NOTE For a material with a woven structure this should prevent any two specimens containing the same warp or weft threads. Store the test specimens in a standard controlled 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** Ensure that the test machine is reset, with the diaphragm (4.2.1.2) flat and the maximum pressure indicator set to zero.

**4.4.2** Tightly clamp one of the test specimens into the machine (4.2.1); for strong materials a very high clamping force is necessary whereas with weak thin materials care is required to avoid cutting into the specimen. Delicate materials shall be tested with cotton canvas rings placed against the clamping surfaces of the steel rings. A knitted fabric shall be placed over the elastic diaphragm to support it when testing some mesh fabrics and punched leather. A diaphragm correction is made for whatever materials are used for the diaphragm, or are used to support it (see 4.4.5). Set the distension measuring device (4.2.1.6) to zero.

Observe the upper surface of the test specimen and gradually force fluid into the chamber (4.2.1.1) at a constant

rate until either the test specimen fails or the specified maximum burst pressure is reached. If the specimen does

not fail, the value given in this standard shall be exceeded by at least 50 %. The bursting pressu re or 50 % over

pressure is recorded.

If possible use a fluid flow rate which reaches the desired end point of the test in a time of 30 s ± lO s.

Examine the test specimen and record the direction of the failure. If the failure occurred near to or at the clamped

edge of the test specimen or the test specimen slipped in the clamp then discard the results and repeat the test

with another test specimen or at another test position.

Record the maximum pressure of the fluid to the nearest 25 kPa and the distension of the test specimen to the

nearest 1 mm and whether the specimen failed or not.

Release fluid from the chamber until the diaphragm is flat and remove the test specimen.

**4.4.3** Repeat the procedure in 4.4.1 and 4.4.2 for the other four test specimens or test positions.

**4.4.4** Calculate the arithmetic mean of the five maximum distensions, to the nearest 1 mm.

**4.4.5** Fully tighten the clamp without a test specimen but with any additional supporting material and gradually pump fluid into the chamber (4.2.1.1) at a rate similar to that used in 4.4.2 until the diaphragm (4.2.1.2) is distended by the mean bursting distension of the five test specimens calculated in 4.4.4. Record the pressure of the fluid at this distension as *Po.*

Calculate the arithmetic mean of the five maximum pressures, recorded for the test specimen. Subtract the pressure Po from this value to correct for the effect of the modulus of the diaphragm on the burst strength of the test specimens.

**4.5 Test report**

The test report shall include the following information:

a) reference to this Standard,

b) a description of the test specimen including seam type and any fasteners;

c) the bursting distension;

e) a description of the failure and the number of tests associated with each

; f) any deviations corrected arithmetic mean maximum pressure;

d) the mean bursting distension

e) a description of the failure and the number of tests associated with each;

) any deviations from the specified procudure