

Road vehicles — Fuel filters — Specification

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Road vehicles — Fuel filters — Specification

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DKS 334:2020

Foreword

This Kenya Standard was prepared by the Road Vehicles Technical Committee under the supervision of the Standards Projects Committee and is in accordance with the procedures of the Kenya Bureau of Standards.

This standard covers performance requirements for fuel filters.

Taking into consideration the views of consumers, it was felt necessary to revise this standard to improve the quality of fuel filters used in Kenya.

In the preparation of this standard, reference was made to the following document:

ISO 4020, Road vehicles — Fuel filters for diesel engines — Test methods.

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

Road vehicles — Fuel filters — Specification

1 Scope

This Kenya Standard specifies materials, performance requirements, and methods of test for road vehicles fuel filters.

2 Normative references

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

KS ISO 4020, *Road Vehicles — Fuel filters for diesel engines — Test methods*

3 Materials

3.1 The filter shall be capable of withstanding normal mechanical stresses encountered in service. The use of dissimilar metals likely to cause corrosion shall be avoided.

3.2 The filtering media shall be impregnated fuel filter paper with a maximum pore size of 1.5 microns, wire gauze, felt material, reinforced impregnated paper (with wire gauze) or any other appropriate material that meets the performance requirements specified in this standard as per the particular type of application. The media shall not disintegrate in performance for the specified service period.

3.3 The filter casing may be made of plastic, but if made of sheet metal alloy, it shall be protected against corrosion.

3.4 The filter shall be free from any leaks.

3.5 All materials used for the construction of the filter shall be free from corrosion.

3.6 All seals shall be of rubber (e.g. nitril rubber) non-reactive with fuel and with a minimum Shore A hardness of 65 International Rubber Hardness degrees.

3.7 All gaskets required for mounting the filter element shall have a minimum Shore A hardness of 45 International Rubber Hardness degrees.

3.8 The threaded end plate may be made of galvanized steel sheet or any other non-corrosive material and shall be strong enough to hold engine pressures.

3.9 The compression spring shall be made of spring steel.

3.10 Any adhesive used to bond the filter parts shall be bonded epoxy-based adhesives or equivalent that shall be non-reactive to fuels and shall give a strong bond able to resist mechanical stress encountered in performance.

4 Tests

4.1 Pressure drop test

When tested as described in 6.3 of KS ISO 4020, the pressure drop across the filter shall not exceed the Original Equipment Manufacturer (OEM) specification.

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4.2 Particle retention test

When tested as described in 6.4 of KS ISO 4020, the percentage particle retention shall be not less than 90 %.

4.3 Burst test for complete filter

When tested as described in 6.7 of KS ISO 4020, the burst pressure of the complete filter shall be not less than 1.45 Mpa.

4.4 Pulsating pressure fatigue test

When tested as described in 6.8 of KS ISO 4020, the filter shall withstand 50 000 cycles without failure.

4.5 Bubble test

When tested as described in Annex A of this standard, the volume of escaped air shall not exceed 200 cm³ per minute.

5 Marking

5.1 The filter and filter packaging shall be legibly and indelibly marked on the outer casing with the following:

- a) Manufacturers' name and/or registered trade mark;
- b) Country of origin;
- c) Manufacturers' part number.

5.2 Additional markings indicated on the filter or package shall necessitate additional verifications that the filters comply with the claims indicated.

Annex A (normative)

Bubble test

A.1 The test liquid shall be straight mineral oil at a temperature of $23\text{ °C} \pm 5\text{ °C}$ and kinematic viscosity between $4\text{ mm}^2/\text{s}$ and $6\text{ mm}^2/\text{s}$.

A.2 Other equipment shall be as in Figure A.1.

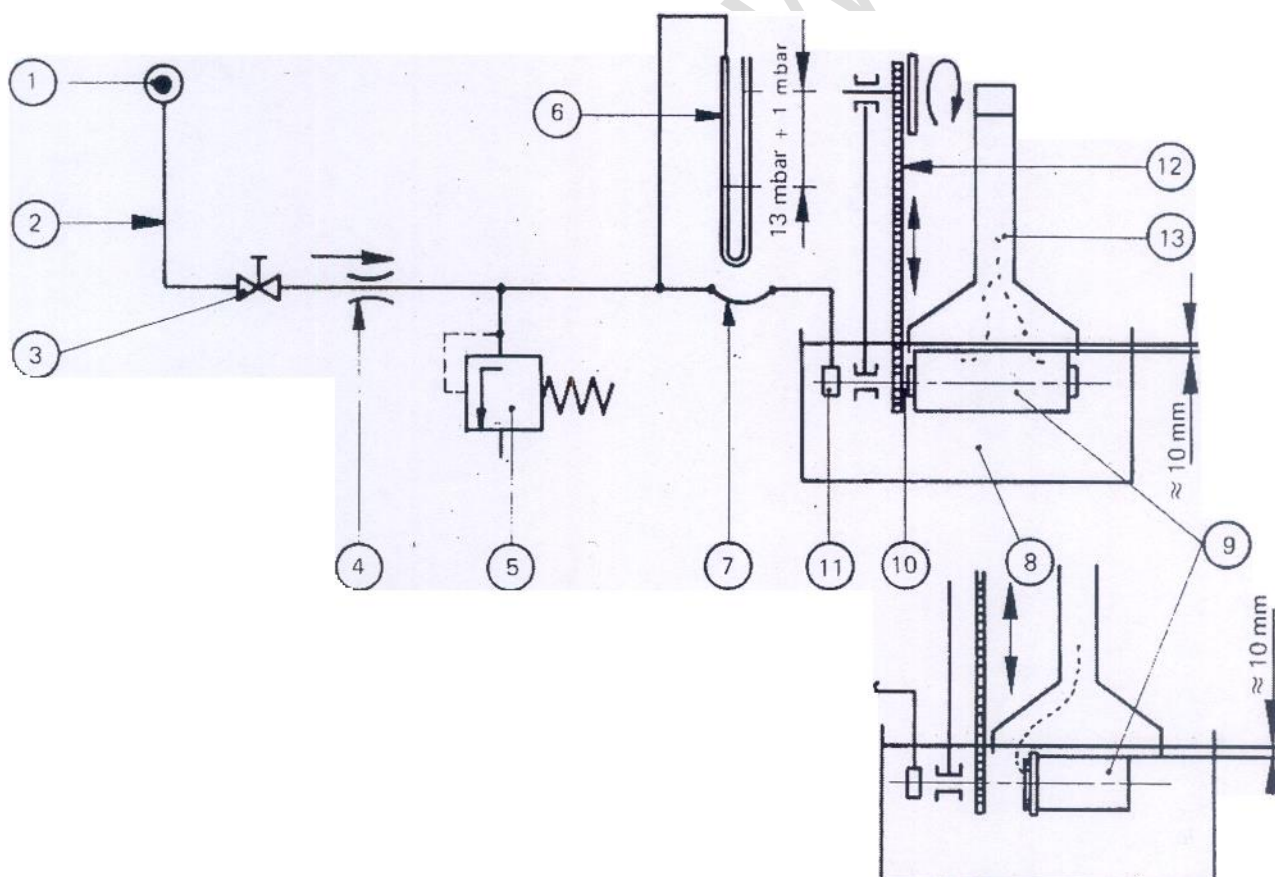
A.3 Procedure

Before mounting the filter element to be tested (9) (Figure A.1) on the rotating axle, immerse it in the test liquid sufficiently long to completely wet the filter medium, and drain off the surplus liquid.

A.3.1 Mount the filter element on the rotating axle (10) and immerse it in the tank (8).

A.3.2 Open the stopcock (3) and adjust the constant pressure device (5) to indicate a pressure of $1.3\text{ kPa} \pm 0.1\text{ kPa}$ on the liquid manometer (6).

A.3.3 Turn the filter element at approximately 10 min^{-1} on the rotating axle. The volume of air escaping in one minute shall be measured.



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TEST COMPONENTS

- ① Connection to compressed air line; air must be dry
- ② Connection pipe, of metal, nominal internal diameter 4 mm to 6 mm
- ③ Stopcock
- ④ Needle valve (fixed throttle)
- ⑤ Constant-pressure device, adjustable
- ⑥ Manometer, adapted to the measuring range
- ⑦ Flexible hose, nominal diameter 4 mm to 6 mm
- ⑧ Tank, minimum capacity 20 L
- ⑨ Filter element to be tested 4 mm to 6 mm
- ⑩ Rotating axle
- ⑪ Rotary fitting
- ⑫ Device for rotation of filter element
- ⑬ Bubble trap, capacity approximately 1 L, with graduated scale, accuracy of reading 1 cm³

OTHER EQUIPMENT

Stop-watch

Figure A.1 — Bubble test