DEAS 940:2019

ICS 75.160.30

DRAFT EAST AFRICAN STANDARD

Mountable burner for use with liquefied petroleum gas (LPG) — Specification

EAST AFRICAN COMMUNITY

First Edition 2018

Copyright notice

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 038*, Liquefied Petroleum and Natural Gas Equipment and Accessories.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Mountable burner for use with liquefied petroleum gas (LPG) — Specification

1 Scope and field of application

1.1 This Draft East African Standard specifies requirements and tests for mountable burner intended for domestic use with LPG.

1.2 This standard does not cover burners connected to regulators by means of hose pipe connections.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

There are no normative references in this document.

3 Terms and definitions

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

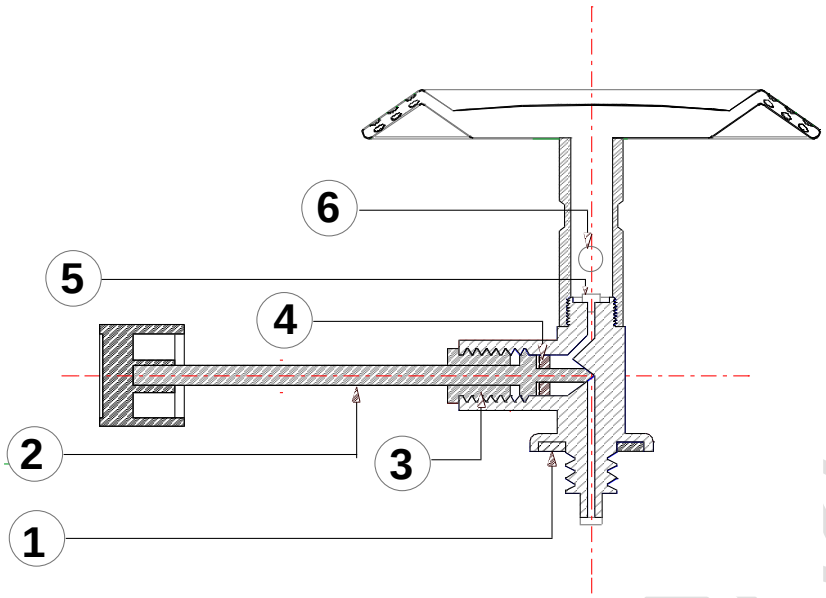
3.1
LPG (Liquefied Petroleum Gas)
pure propane, butane or a mixture of the propane and butane

3.2
jet injector
a brass part with a needle size hole through which gas passes to gain velocity

3.4
mixing chamber
compartment where air and fuel (LPG) mix to form an ignitable and combustible mixture

3.5
operating pressure
pressure at which all the tests of the mountable burner are performed

NOTE The operating pressure range for LPG is 0.5 - 5 bar.



4 Material

The material used in the construction of the burner components shall be:

a) Valve body, adjustment knob shaft, jet injector and screw threads shall be made of brass which shall not be susceptible to season cracking;

b) burner top shall be made of chrome plated mild steel with chrome thickness ranging from 0.02 mm -0.04 mm or stainless steel; and

c) Knob shall be made of perspex or thermoplastic acrylic resins or non-heat conducting metallic alloy. The minimum length of the knob shaft shall be 62 mm when fully closed, having minimum 3mm travel distance between open and closed condition.(see annex C)

5 Construction and maintenance

5.1 Construction

5.1.1 General

a) The parts which are intended to be removable by the user shall be easy to reassemble correctly;

b) Parts of the burner of the same design and capacity shall be interchangeable;

c) The jet injector shall be clearly and permanently marked with an appropriate number for identification purpose and the gas flow rate in g/hr with the corresponding inlet pressure; and

d) There shall be no foreign matter e.g. swarf metal pouring or loose jointing compound in the gas ways;

5.1.2 Jet fixing

5.1.2.1 It shall not be possible to loosen the jet injector without the use of appropriate tools.

5.1.2.2 To prevent the fouling of the jet, all burners shall be provided with a dust trap upstream.

5.1.3 Tap positions

5.1.3.1 Taps having an “off” position shall have positive stops at the “off” and “full on” positions.

5.1.3.2 If a gas knob is used, it shall be of conventional type where anticlockwise turning opens the gas way while the clockwise turning closes it..

5.1.4 Gas control

5.1.4.1 The gas control shall be easy to operate at all temperatures normally attained in use The taps and knobs shall be placed in such a way that they can be operated without the hand being likely to touch hot parts (e.g. globes) of the appliance as illustrated in figure B.1.

5.1.4.2 Gas restrictors like throttle screws shall not be used.

5.1.5 Leakage

Gas ways including the taps, which are in practice held under working pressure, shall be gas-tight when tested under water at 7.5 bar. This shall apply to all positions of the taps at all temperatures normally attained by the appliance in use.

5.1.6 Connection of the cylinder

The dimensions of the connections shall be as follows:

a) M16 x 1.5 male for burner;

b) M16 x 1.5 female for cylinder valve.

5.1.7 Burner valve

The construction of the valve shall be as given in Figure 2.

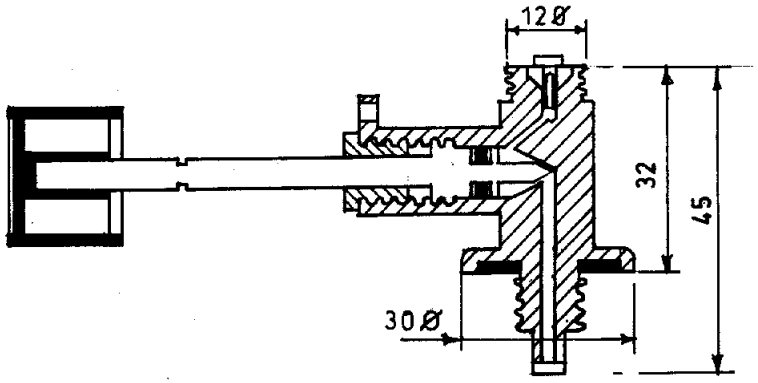


Figure 2 — Typical section of the burner valve

5.1.8 Sealing

The parts of the burner to be in contact with the cylinder, shall be fitted with seal washer made of rubber that is resistant to the effects of LPG

5.2 Maintenance

5.2.1 The appliance, including all the component parts shall be easy to clean and maintain in good working order.

5.2.2 There shall be easy access to accessories and controls for maintenance and adjustments.

6 Performance

When tested in accordance to Annex A, the appliance shall, meet the requirements in 6.1 to 6.4.

6.1 Ignition

Igniting the appliance shall be safe and easy. .

6.2 Flame stability

At the operating pressures of the cylinder, 0.5 - 5 bar, the flame of the appliance shall not be auto-extinguished or light back

6.3 Resistance to draught

There shall be no extinction or lighting-back of the flames when the appliance is placed in a current of air of velocity between 1.8 m/sec and 2.13 m/sec, with the taps fully open at operating pressures.

6.4 Combustion

At all operating pressures up to 0.035 bar the Co/Co_2 ratio shall not exceed 0.02.

6.5 Soot formation

When the appliance is operated for 6 h continuously under operating pressures with the air set for maximum performance, the soot formed on the nozzle shall not impair the safe operation of the appliance.

6.6 Surface temperatures

Surface intended to be handled during the normal operation of the appliance shall not attain temperatures likely to cause discomfort.

7 Packaging and marking

7.1 Packaging

The burner shall be packaged in a way that it is protected from damage during transportation. Each piece of the burner shall be packaged individually'

7.2 Marking

The burner top shall be legibly and indelibly marked with the following information:

a) manufacturer's name or registered trademark;

b) serial number or unique identifier which shall be marched with a corresponding number on the burner valve

c) the gas, which the appliance is designed to operate with;

d) nominal rate of consumption of the appliance in g/hr; and

e) maximum design pressure and operating pressure in bars

f) the country of origin

8 Instructions

Each burner shall be accompanied by an instruction sheet with the following:

a) gas or gases for which the burner is designed to operate with; and

b) safety and handling instructions.

c) drawings / sketch of the burner

d) routine maintenance instruction

Annex A

(normative)

Tests for performance

A.1 The appliance shall be tested under conditions simulating as closely as possible those under which the appliance is designed to operate. During the tests, the initial adjustments of the appliance shall not be altered unless specifically required in the test procedure. The room in which the tests are conducted shall be adequately ventilated but free from perceptible draughts.

A.2 The appliance shall be adjusted and operated in accordance with the instructions on or issued with the appliance. The gas shall be supplied to the appliance through a control valve, adjustable pressure regulator and pressure meter with a pressure gauge on its inlet. Pressure gauges shall be fitted to the inlet of the appliance and to any pressure test point on the appliance.

A.3 Before any tests are done, the appliance shall be operated at its full working temperature for a sufficient period to remove any temporary finish, which interferes with observations.

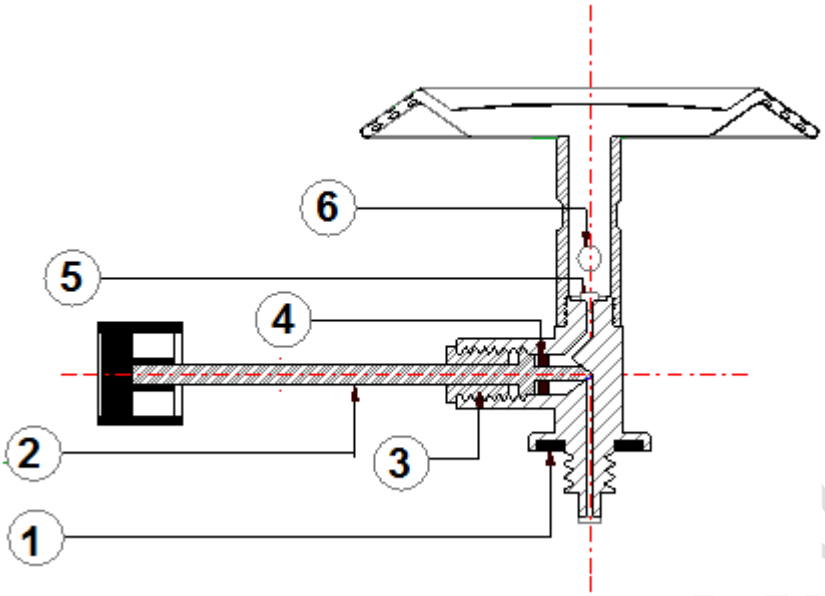
A.4 The gas connections and system up to and including the burners shall be examined for leaks before and after test. The performance test results shall be deemed valid if the system meets the performance requirements given in 6.1 to 6.4 .

The appliance shall be at room temperature of 25 ˚C ± 2 ˚C at the start of each test.

A.5 The net calorific value of gas used shall be taken as 10 900 Kcal/kg for calculation depending on the LPG mixture.

Annex B

Typical section through gas burner



1 — Rubber Washer

2 — Adjustment knob shaft

3 — Screw threads

4 — Rubber seal washer

5 — Jet injector

6 — Mixing tube

Label the knob and the burner top

Figure B.1 — Typical section through gas burner

Bibliography

[1] KS 2505:2013, Mountable burner for use with liquefied petroleum gas — Specification