DEAS 1133: 2023

ICS nn.nnn.nn

DRAFT EAST AFRICAN STANDARD

Firefighting vehicle — Specification

EAST AFRICAN COMMUNITY

xxx Edition 2023

Copyright notice

Contents

Page

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 039, *Mechanical engineering and metallurgy*.

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.

Firefighting vehicle — Specification

1 Scope

This Draft East Africa Standard specifies the requirements of major components of the firefighting vehicle commonly referred to as fire engine.

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.

EAS 500: 2008; *Road vehicles inspection code of practice*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

defective
a component that fails in one or more respects to comply with the relevant requirements of this standard

4 Requirements

4.1 Vehicle

4.1.1 The vehicle shall be manufactured in accordance with EAS 500.

4.1.2 The accessories on the vehicle shall be as stipulated in Annex A.

4.2 Vehicle body construction

4.2.1 Cabin

The cabin of the vehicle shall:

a) be made of steel /fibre glass reinforced polyester (GRP);

b) be adequately insulated against noise, vibration and extreme temperatures;

c) have easily accessible brackets or racks for keeping breathing apparatus; and

d) have suitable control box for holding controls, switches within easy reach by the driver and co-driver.

4.2.2 Body

The body of the vehicle shall meet the following requirements:

a) be made of aluminium / aluminium alloy and mounted on the chassis; and

b) be designed to allow maximum accessibility for servicing and inspection.

4.2.3 Working deck

The working deck shall meet the following requirements:

a) the tank roof shall be covered with special sand/plastic coating which will be slip resistant access;

b) a ladder shall be mounted on the vehicles rear; and

c) suitable steps and hand grips shall be provided.

4.2.4 Mudguard

The mudguard shall be made of GRP and light alloy provided with rubber mud flaps.

4.2.5 Storage lockers

The storage lockers shall meet the following requirements:

a) shall be on the sides of the body and shall allow for maximum storage capacity and fast removal of all fire fighting accessories;

b) closure shall be by lockable light alloy roller shutters, which shall be dust and water proof;

c) shall automatically illuminate when it opens; and

d) storage brackets for the equipment shall be provided.

4.2.6 Pump compartment

The pump compartment shall meet the following requirements:

a) shall be situated at the rear of the vehicle;

b) shall be lockable and closed by means of a light aluminium roller shutter and shall automatically illuminate when it opens; and

c) a secondary speaker shall be installed.

4.2.7 Electrical equipment installations

The vehicle shall have the following electrical installations:

a) two spot lights one at the superstructure front and the other at the rear;

b) two high intensity rotating beacons (e.g. halogen lights) shall be mounted in the rear at the working deck. They shall be operated from inside the cabin; and

c) a telescopic light mast, 4x1000 watts flood lights shall be installed with a minimum height of 5 m above ground levels.

4.3 Hose reel

4.3.1 The system shall be equipped with two hose reels for use with water on both sides of the fire engine at the rear side with adjustable output of up to 200l/min at 25-40 bar.

4.3.2 The hose reel shall be fitted with a reliable brake and crank for rewinding of the rubber hose.

4.3.3 The hose reel shall be equipped with a 38 mm diameter and 30m long pressure rubber hose.

4.3.4 The end of the hose shall be fitted with a fog nozzle and a detachable foam extension.

4.4 Water and foam tanks

The water/foam tank shall meet the following requirements:

4.4.1 Water tank shall

The water tank shall meet the following requirements:

a) be made of stainless steel/high quality Glass Reinforced Polyester, baffled;

b) be corrosion resistance;

c) have manhole with quick action cover release and excess pressure safety device; and

d) have tank level indicators.

4.4.2 Foam tank shall

The foam tank shall meet the following requirements:

a) be made of stainless steel/ high quality Glass Reinforced Polyester (GRP);

b) be corrosion proof;

c) Shall have manhole with quick action cover release and excess pressure/vacuum safety device; and

d) have tank level indicators.

4.4.3 The capacity shall be dependent on the axles of the vehicle in accordance with the requirements of the Traffic Act.

4.4.4 The pump fill connection shall have two inlet non-return valves of instantaneous coupling or storz coupling.

4.4.5 The hydrant fill connection shall have a butterfly valve with a 62.5 mm BSP male coupling and a non-return valve on the tank flange. This connection shall be on the left rear pump compartment.

4.5 Chassis

The chassis shall meet the following requirements given in Table 1.

Table 1 — Specifications for chassis

Parameter	Typical example	
Power output	300 kW at 1800 rpm	
Voltage of consumers	24 Volt	
Batteries	2 x 12 Volt / 165 Ah	
Generator	28 Volt 1100 Ampere	
Rotating direction	Counter clockwise	
Performance	270 kW at 1 700 rpm speed	
Torque, Nm	1 500	
Wheel base, mm	4 500 + 1350	
Tyres	Suitable and in good condition	
Powered axle	6 x 4	
Dimensions	Length, mm	9 380
	Width, mm	2 500
	Height, mm	3 600
Ramp angles	Angle of approach	19°
	Ramp angle	20°
	Angle of departure	12°

4.6 Pump

4.6.1 The pump discharge rate shall be a minimum 2,500l/min at 10 bar and a minimum 3500 l/min at 30 bar at water tank suction operation simultaneously. For-small capacity vehicles (≤3000 L-tank capacity) 1500 l/min at 5 bar or below shall be appropriate.

4.6.2 The pump rotation direction shall be clockwise.

4.6.3 The suction connection shall have a 100 mm diameter non-return valve of instantaneous coupling for rapid-fire attack.

4.6.4 Pressure outlets shall be 62.5 mm female couplings in the rear of the pump compartment on the left and right sides.

4.6.5 The drive shall be from the propeller shaft.

4.6.6 An automatic priming pump shall be installed.

4.6.7 The throw range shall be as specified in table 2

Table 2 — Throw range

Minimum discharge rate at 10 bar	Throw range - Horizontally
2400 l/min	60 m water stream
	40 m foam stream

4.7 Control panel

The control panel shall be located at the rear of the engine and shall contain the following:

4.7.1 Water and foam monitor

The water/foam monitor shall meet the following requirements:

a) shall be on top of water tank and shall be equipped with adjustable nozzle and foam barrel;

b) it shall rotate at 360^{o} horizontally adjustable; and

c) it shall also be vertically adjustable at an elevation of +60 ^{0} / -15 ^{0}.

4.7.2 Foam proportioning system

The foam proportioning system shall have a performance of maximum 90 l/min at 3% proportioning rate and maximum 190 l/min at 6% proportioning rate with a viscosity of 10 cSt.

4.7.3 Rapid intervention system

The rapid intervention system shall have the following:

a) friction brake;

b) rewinding by manual cranking;

c) location in the rear left and right pump compartment;

d) performance of 400 l/min at 40 bar; and

e) a 50 m- non-collapsible rubber hose.

4.7.4 Dry powder unit

The dry powder unit shall be ABC type.

5 Finish

5.1 The finish shall be as follows:

a) Superstructure: ─ Fire red

b) Frame:─ Nova grey

c) Rims: ─ Black

d) Bumpers:─ Glossy black

e) Fenders:─ Glossy black

5.2 Protection against rust of the under parts and sub structures shall be with bitumen base coating.

6 Labelling

Warning labels, operational instructions and instrument units shall be provided either in Kiswahili, English, French or in combination.

7 Documentation

The following information shall be provided either in Kiswahili, English, French or in combination:

a) Operation manual, service manual, and parts catalogue for the chassis; and

b) Firefighting accessories catalogue.

Annex A
(normative)

Accessories and other requirements

A full set of accessories as per following list shall be delivered with the vehicle. All items shall be securely mounted in/on heavy duty brackets that will allow for fast removal.

Table A.1 — List of accessories and other requirements

Item	Description	Quantity
1	Rubber lined delivery hoses with suitable coupling	20
2	Screw down stand pipe, key and bar	1
3	Lugged type stand pipe, key and bar	1
4	Hand controlled branches of different sizes	2
5	Diffusers branches	2
6	Collecting breaching	1
7	Dividing breaching	1
8	Elbow nozzle	2
9	Suction hoses	5
10	Suction strainers	1
11	Suction wrenches	2
12	Male female adaptor	1
13	Female to male adaptor	1
14	Two way collecting head	1
15	Mechanical foam generator	1
16	Foam branches	2
17	Foam inductors and pick up tubes	2
18	Breathing apparatus	6
19	Portable search lights	6
20	Rescue lines	2
21	Guide lines for breathing apparatus	2
22	Extension ladder mounted	1
23	Short extension ladder	1
24	Ceiling hooks	2
25	Graphnel hooks	2
26	CO_2 fire extinguishers	1
27	Dry powder fire extinguisher	1
28	General purpose line	1
29	Pairs hose ramps	4
30	Ground monitors	1

Item	Description	Quantity
31	Power generator	1
32	Search light and extension cable	2
33	Soft suction hoses	4
34	Low levels suction strainer	1
35	VHF radio communicator	1
36	Portable VHF radio	6
37	Red tape (for condoning zones)	2
38	Male to male couplings	1
39	Female to male couplings	1
40	Female to female couplings	
41	Blank caps	2
42	Shovels	2
43	Bolt cutters (different sizes)	4
44	Door openers	1
45	20 Kv fireman axes	6
46	Sledge hammers (different sizes)	2
47	Partner cutters	1
48	Mattocks	2
49	Power saw	1
50	10-t air bag	4
51	20-t air bag	4
52	Manual hydraulic power pack	1
53	A complete set of hydraulic rescue spreader and cutter	1
54	Compressed air cylinder 6 litre/ 300 bars for inflation of airbag	1
55	Hydraulic shears	1
56	Fire entry suits. Firemen rescue suits (coat, trouser, boots, helmets, face masks, axes and belts)	6

[a] Additional information should be accessed in ISO 14557 and ISO 4642-2 XXX

Bibliography

KS 2646: 2017, *Portable fire extinguishers and fire blankets — Selection and location part*

ISO 4642-2:2015, *Rubber and plastics hoses, non-collapsible, for fire-fighting service — Part 2: Semi-rigid hoses (and hose assemblies) for pumps and vehicles*

SO 14557:2021, *Fire-fighting hoses — Rubber and plastics suction hoses and hose assemblies*