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شرکت ملی گازایران

مدیریت پژوهش و فنآوری

امورتدوین استانداردها

IGS

مشخصات فنی خرید

آتش خاموش کننده های پودری ۵۰ و ۷۵ کیلوگرمی چرخدار

Powder Extinguishers 50 & 75Kg , Mobile Type

دفترمدیرعامل

شرکت ملی گازایران

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ابلاغ مصوبه هیأت مدیره

مدیر محترم پژوهش و فناوری

باسلام،

به استحضار می‌رساند در جلسه ۱۶۸۲ مورخ ۱۳۹۵/۲/۲۶ هیات مدیره، نامه شماره گ۹/۰۰۰/۱۹۹۷۹مورخ ۹۵/۰۲/۱۹ مدیر پژوهش و فناوری درمورد تصویب نهایی استاندارد تحت عنوان" کپسول‌های خاموش کننده پودری ۵۰ و ۷۵ کیلوگرمی چرخدار" به شماره استاندارد(IGS-M-SF-05(1 مطرح و مورد تصویب قرار گرفت .

این مصوبه در حکم مصوبه مجمع عمومی شرکت‌های تابعه محسوب و برای کلیه شرکت‌های تابعه لازم الاجرا می‌باشد .

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1. Scope

This standard specification covers the minimum requirements for design, material, construction, inspection, testing, marking and packing of rechargeable metal bodied powder mobile extinguishers with a maximum allowed pressure of 30 bar. It applies to mobile fire extinguishers with total mass 50kg & 75 for powder, that are maneuvered by an operator on foot only.
It does not cover fire tests for class C fires, but powder extinguishers are effective on this type of fire.

2. Normative references

In preparation of this specification , the following codes and standards have been referred to or considered .The latest edition of these standards and codes (including amendments) to the extent of specified herein, shall form a part of this specification.

EN 1866-1 (2007) " Mobile fire extinguishers"

EN 1866-2 (2014) " Mobile fire extinguishers"

EN 3-7 (2004) "Portable fire extinguishers – Part 7: Characteristics, performance requirements and test methods"

EN 10204 (2008) " Metallic products – Types of inspection documents"

EN 2 (1992) "Classification of fires"

EN 13445 (2007) ”Unfired pressure vessels "

ISIRI 3434 (1381) "پودرخاموش کننده آتش – ویژگیها و روش آزمون"

IPS-E-SF-180 "Dry Chemical Fire Extinguisher System"

3. Definitions

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

3.1 pressure at maximum operating temperature, P_{Tmax} (Pressure experimentally measured)

Pressure measured in the extinguisher after stabilization during at least 24 h at maximum operating temperature T_{max} (≥ 60 °C) and for cartridge

operated extinguishers, the maximum pressure is the maximum pressure recorded for 0.5 s during a period of 3 min, excluding the first 5 s after release of the propellant gas.

3.2 Maximum allowable pressure, (Maximum declared pressure)
maximum pressure for which the equipment is designed, as specified by the manufacturer and which is in any case greater than or equal to P_{Tmax} .

3.3 Mobile fire extinguisher
Extinguisher that is designed to be transportable and operated by hand that has a total mass of more than 20 kg and which is mounted on wheels.

3.4 Bursting pressure
Maximum pressure measured during a bursting test components of extinguisher .

3.5 T_{max}
Maximum operating temperature, in °C.

3.6 P_{Tmax}
Pressure at maximum operating temperature, in bar.

3.7 T_{min}
Minimum operating temperature, in °C.

4.Components

4.1 Body and fitting of extinguisher
A wheeled fire extinguisher consists of the following components:
- body

- body fittings, which are attached to or screwed to the body, and include the following:

- cylinder for propellant (not applicable for stored pressure extinguishers)
- control device
- hose assembly
- head assembly; this also constitutes the main closure (see 5.7.3.1)
- wheels and a handle
- operating device

4.2 powder of extinguisher
The Dry Chemical Powder specifications (DCP) of extinguisher shall be according to ISIRI 3434:1381

5.Requirements

5.1 Effective range of operating temperatures

5.1.1 General

- Extinguishers shall be able to operate between T_{max} and T_{min}
- T_{max} all extinguishers shall be 60 °C or higher
- T_{min} all powder extinguishers shall be - 20 °C, - 30 °C or lower
- T_{max} and T_{min} claimed by the manufacturer shall be used for the tests

5.1.2 Requirements

After the test described in Annex A.6 , EN 1866-1:2007, the requirements for all extinguishers are as follows:

- they shall operate satisfactorily
- discharge shall commence within 10 s of the opening of the control valve cartridge operated extinguishers shall be activated 30 s prior to opening the control valve
- discharge duration shall be according to Annex A.2 , EN 1866-1:2007 and not be less than the value applicable given in Table 3 and Table 4
- residual charge remaining in the extinguisher after one single and complet discharge including full decompression shall be as given in table 4

5.2 Filling specifications

5.2.1 Nominal charges

Nominal charges of extinguishers shall be equal to one of the values given in the Table 1 depending on to the nature of the extinguishing media.

Table 1 – Nominal charges for extinguishing media

Powder in kg
50 , 75

5.2.2 Filling tolerances

The actual charge of the extinguisher shall be equal to the nominal charge within the tolerances given in
Table 2.

Table 2 – Filling tolerances on nominal charges

Powder in kg
± 2%

5.3 Duration of operation, residual mass and discharge range

5.3.1 Duration of operation

When determined in accordance with, Annex A.2, EN 1866-1:2007 the duration of operation of powder extinguishers shall be as given in Table3.

Table 3 – Duration time for 50 and 75 kg powder extinguishers

Nominal charge in kg	Min .Duration time in S
50	30
75	45

5.3.2 Maximum residual mass

When tested in accordance with Annex A.2, the maximum percentage of residual mass of the extinguishing media shall be less than or equal to the values given in the Table 4.

Table 4 – **Maximum residual mass**

Powder Extinguisher
10% for ABC Powder
15 % for BC powder

Powders are classified according to their potential applications as follows:

ABC Powders: suitable for use on class A, class B or class C fires.
BC Powders: suitable for use on class B or class C fires and which shall also be effective on surface fires of class A materials.
D Powders: suitable for use on class D fires.

The classes of fires are defined as follows:

Class A: fires involving solid materials, usually of an organic nature, in which combustion normally takes place with the formation of glowing embers.

Class B: fires involving liquids or liquefiable solids.

Class C: fires involving gases or materials in contact with energized electrical power.

Class D: fires involving metals.

5.4 Control valve

Extinguishers shall be fitted with a control valve to enable the discharge to be interrupted temporarily. Furthermore, the valve shall be resistant to leakage following the cessation of the emission. This shall be verified in accordance with Annex A .5 EN 1866-1:2007, The difference in pressure shall not be more than 20 %.

The control valve with a nozzle is situated at the end of the hose.

5.5 Hose and coupling

The length of the flexible section of the hose assembly shall be not less than 5 m.

The hose and coupling system shall function throughout the operating temperature range, and coupling systems shall be designed and fitted in such a way that they cannot damage the hose.

5.6 Propelling agent

Only propellants listed in Table 5 or mixtures thereof, shall be used in extinguishers, whether of the stored pressure or cartridge extinguisher type. The maximum water content shall be as specified in Table 5. Tracers may be added to the propellant to facilitate leakage detection, but the content shall not exceed 3 % of the propellant content.

Table 5 – Maximum water content of the propellant

Propellants	
Gases	**Maximum water content % (m/m)**
Air	0,006
Argon	0,006
CO2	0,015
Helium	0,006
Nitrogen	0,006

For the charge of the propellant cartridge, the tolerance shall be + 0% ,5 % in mass for CO2 and for compressed gases + 0% ,5 % in pressure at 20 °C.

5.7 Operation devices

5.7.1 General

With the exception of a safety device to prevent inadvertent activation of the operating mechanism (see 5.7.2), the extinguisher shall have no components which need to be added or removed before use. Where adjustable components are fitted, the extinguishing tests shall be carried out under the least favorable conditions.

Table 6— Maximum force or energy of operation

Type of device	Maximum allowance	
	Force in N	Energy in J
Operating lever and squeeze grip lever	200	-
Valve wheel	300	-
Strike knob	-	2

5.7.2 Safety devices

The operating mechanism shall be provided with a safety device to prevent inadvertent operation. The release of the safety device shall involve an operation distinct from that of the operating mechanism, shall require a force between the limits of 20 N and 100 N and shall in no way affect the operation of the equipment. It shall be possible to determine whether the apparatus has been operated, by means of a safety element, consisting for example of a metal wire and seal. This device shall be so constructed that any unaided manual attempt, using a force or impact equal to twice the relevant value in Table 5 to initiate discharge without first operating the safety device shall not deform or break any part of the mechanism in such a way as to prevent the subsequent discharge of the extinguisher.

5.7.3 Other characteristics

5.7.3.1 Design of the filling opening

Filling opening shall have a minimum diameter of 45 mm;

5.7.3.2 The diameter of the wheels shall be equal to or greater than 280 mm

NOTE: Any additional wheel may be smaller in diameter

5.7.3.3 The width of the tiers shall be ≥ 50 mm, measured at the widest point of each tier.

5.7.3.4 The distance between the handle and the floor, in storage position, shall be between 0,7 m and 1,6 m.

5.7.3.5 The mobile extinguisher shall be equipped with a storage socket for

the nozzle.

5.7.3.6 The hose shall not be damaged when rolled up or stored.

6. Materials

6.1 Materials for bodies

An inspection certificate based on specific inspection in accordance with EN 10204:2008 is required.

6.2 Materials for operating devices and filling caps

The metallic material of any operating devices and filling caps shall be compatible with other products and shall have an appropriate test report such as EN 10204:2008 test report.

6.3 Materials for other components

The materials used for other parts of extinguishers shall be suitable for the

intended use and be compatible with the materials used for the pressure parts.

7. TESTS

7.1 Inspection and tests

All inspection and tests shall be according to EN 1866-1:2007.

7.2 Prototype burst test

If the body is not designed in accordance with EN 13445 one sample shall be subjected to a burst test. Otherwise the test shall be accordance with EN1866-2:2014.

8. Identification

8.1 Color

The colour of the body shall be red RAL 3000 as specified in Farbregister RAL-841-GL.

National regulations may require a zone of colour with an area up to 10 % of the surface area of the extinguisher body to be used to identify the extinguishing agent.

8.2 Marking & Labeling

The marking on the wheeled fire extinguisher (Labeling)shall be in contrasting colors to the back ground both in Persian and English languages in accordance with EN1866-1 :2007.

The marking of the extinguisher shall comprise at least

- Mark of the body manufacturer as registered, for identification

- Serial or batch number
- Year of manufacture, which can be represented by the two last digits;
- Test pressure in bar, with the letters PT before and followed by bar;
- Maximum allowable pressure in bar, with the letters PS before and followed by bar.

The marks specified above shall be applied to the metal of the body by hard stamping, engraving or on a plate permanently attached to the body.

9. Guarantees

Manufacturer shall guarantee by of acceptance the satisfactory performance of the fire extinguishers in accordance with this specification. The manufacturer shall also guarantee to replace without charge any or all parts defective due to faulty material design or poor workmanship for 18 months after shipment.

Datasheet

Manufacturer's Name:

Order No. :

Item	Subject	Requirements	Supplier Offer	Remark
1	Type	Wheeled multipurpose ☐ Dry Chemical Powder ☐		
2	Capacity (Kg)	5 0 ☐ 75 ☐		
3	Fire Class	A.B.C ☐ BC ☐		
4	Shell Design Code	EN 13445 ☐ EN 1866 :2006 ☐		
5	Method of operation	External cartridge ☐		
6	Location of Use	Indoor ☐ Outdoor ☐		
7	Propellant gas	CO_2 ☐ N_2 ☐ Others ☐		
8	Extinguisher agent Type	Bicarbonate sodium & potassium ☐ Monoammonium Phosphate ☐		
9	Operating Temperature (^{O}C)	- 20 to + 60 ☐ - 30 to +60 ☐		

10	Duration Time of Powder Extinguisher(sec 5.3.1)	50 Kg 30s ☐ 75 Kg 45 ☐		
11	Length of hose (M)	Min. 5 ☐		
12	Residual after discharge	≤ 10 % Net weight ☐		
13	Bursting Test	According to EN1866-2 2014 ☐		
14	Max force or energy of operation	Acc. to table 6 ☐		
15	Body & accessories fittings hydrostatic test (bar)	≥30 Acc. to EN 1866-2:2014 ☐		
16	Accessories	Hose ☐ Wheels & handle Cylinder ☐ control device ☐ carriage assembly ☐ Head assembly ☐		
17	Surface protection & painting	Red color paint RAL3000 ☐		
18	Inscriptions Language	English ☐ Persian ☐		
19	Filling opening diameter (mm)	Min. 45 ☐		
20	Wheels Type	Full Rubber ☐		
21	Guarantee	18 Month		
22	Type of powder	ABC ☐ BC ☐		

Continue

Notes :

1 - This data sheet shall be filled, signed and stamped by manufacturer.
2- Any deviation from this standard specification shall clearly specified by manufacturer.

Deviations

Authorized Signature :