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УП 001

Добровольная сертификация

# POWDER FIRE EXTINGUISHING MODULE
# MPP (N)-24-I-GE-U2
# Passport and
# Manual instructions

## 1 PURPOSE

1.1 Powder fire extinguishing module MPP(N)-24-I-GE-U2 (hereinafter referred to as the MPP) is intended for automatic smothering fires, Class A (solids), B (liquids), C (gases) and E (electric equipment under voltage regardless of the breakdown voltage of fire extinguishing powder).

1.2 The MPP is not designed to extinguish the ignition of substances that can burn without air access.

1.3 The MPP in the number stated according to the requirements, items 8.14, 8.15, 8.24 NPB88-2001, is intended to extinguish both the local and volume fire in the room.

1.4 The MPP can be made in normal version at operating temperatures of minus 50°C to plus 50°C or in special version at operating temperatures of minus 50°C to plus 90°C. The MPP is allowed to operate at relative humidity 95%.

1.5 The MPP is a reused-product.

1.6 Examples of the MPP marking (model) records when ordered:

MPP(N)-24-I-GE-U2, ТУ 4854-008-54572789-04 in normal version at temperatures of minus 50°C to plus 50°C;

MPP(N-T)-24-I-GE-U2, ТУ 4854-008-54572789-04 in special version at temperatures of minus 50°C to plus 90°C.

## 2 TECHNICAL CHARACTERISTICS

2.1 Technical characteristics of the MPP are given in Table 1.

Table 1

| Name | Value |
|---|---|
| 1 Case capacity, lit | $24_{-1..2}$ |
| 2 Dimension, mm, not more than:<br>- diameter<br>- length | <br>245<br>870 |
| 3 Total weight of the MPP, kg, not more than | 37 |
| 4 Fire extinguishing powder ISTO-1 weight, TU 2149-001-54572789-00, kg | $22_{-1}$ |
| 5 MPP fast action (time from the moment of sending impulse to a triggering element of the MPP to the moment of ejecting extinguishing powder out of the module), s | of 5 to 10 |
| 6 Operating time (time of ejecting extinguishing powder), s, not more than | 1 |

Table 1 to be continued

| Name | Value |
|---|---|
| 7 Fire extinguishing ability of the MPP installed with a nozzle down in the room at the height 1m above the floor at the tilt angle of the module axis 20° relative to the horizontal (See Table 2): | |
| 11.1 Surface area (S) to be protected for fires, Class A, $m^2$ | 75 |
| 11.2 Surface area (S) to be protected for fires, Class B, $m^2$ | 58 |
| 11.3 Volume (V) to be protected for fires, Class A, $m^3$ | 250 |
| 8 Fire extinguishing ability of the MPP installed nozzle down in the room at the height 1m above the floor at the tilt angle of the module axis 5° relative to the horizontal in the square channel 2.2×2.2 m: | |
| 8.1 Surface area (S) to be protected for fires, Class A, $m^2$ | 70 |
| 8.2 Volume (V) to be protected for fires, Class A, $m^3$ | 155 |
| 8.3 Channel length to be protected (L), m | 32 |
| 9 Fire extinguishing ability of the MPP at local fire extinguishing at the open area or in the room validated by simultaneous smothering of one model fire site, rank 233B*), and two fires, rank 5B*), if the MPP is installed at a height 1m above the floor surface at a distance (L) from nozzle-sprayer to the center of the surface area to be protected of 12 to 18m **) : | |
| 9.1 Surface (S) to be protected, $m^2$ | 13.7 |
| 10 Circuit characteristics of electric triggering unit: | |
| - safe current of testing circuit, A, not more than | 0.03 |
| - operating current, A, not less than: | |
| a) normal version of the MPP | 0.12 |
| b) special version of the MPP | 0.15 |
| - power supply unit voltage, V, not less than: | |
| a) normal version of the MPP | 1.9 |
| b) special version of the MPP | 2.4 |
| - electric resistance, Ohm | 8…16 |
| 11 Irregularity coefficient of spraying powder K1 (NPB 88-2001) | 1 |

NOTES: *) According to NPB 67-98 model fire sites, ranks 233B and 5B, are the surfaces of burning petrol (benzine) as circles with diameter 3.05m and 0.42m, having surface area (S) 7.32 $m^2$ and 0.16 $m^2$, respectively;

**) Tilt angle of the MPP axis installed with nozzle down relative to the horizontal should be: α =3˚ at L =18m; α =4˚ at L =15m; α =5˚ at L=12m.

## 3 COMPLETENESS OF SET

3.1 The MPP set to be supplied consists of:

a) The module MPP TU 4854-008-54572789-04 –1 item;

b) Passport and Manual instructions - 1 copy.

## 4 DESIGN AND OPERATION PRINCIPLE

4.1 The MPP design

4.1.1 The MPP (See Figure 1) consists of a case **1** where fire extinguishing powder (OP) **2** and cold gas source (CGS) **3** with electric triggering element **4** are placed. In the front part of the case there is a nozzle-sprayer **5**, the output hole of it is closed by membrane **6**. The module has grounding clamp **7.** On the side surface of the case there are four threaded axles **8** to fasten supports that adjust the tilt angle of the MPP and position it on the fixture. The procedure of assembling the MPP with supports and placing on the fixture is described in Annex B.

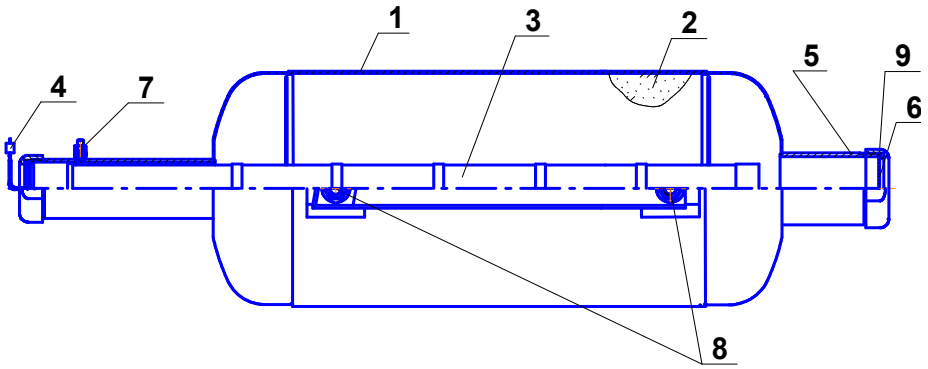


Figure 1

4.1.2 The MPP actuates with the help of current impulse that can be generated by:

- receiving/control, fire alarm, and safeguard devices;
- manual start button;
- self-contained signaling/triggering devices (for example, signaling/triggering independent automatic device for fire extinguishing setups USPAA-1 TU 4371-032-00226827-99, signaling/triggering device USP-101 TU 4371-004-21326303-96).

4.2 Operation

4.2.1 After sending electric pulse to the outputs of the triggering unit **4**, the CGS **3** generates gas which makes OP **2** loose and creates pressure inside the MPP case to rupture membrane **6** and eject through nozzle-sprayer **5** the jet of OP into the zone of burning.

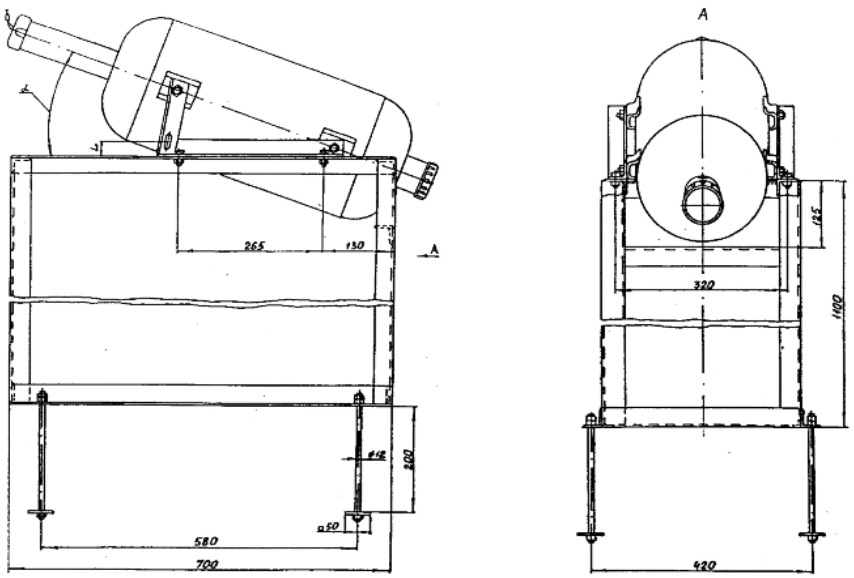


Figure B.1

The alterations not given in the present passport and not affecting the principal technical characteristics, dimension and connecting sizes can be introduced into the module design.



## 5 SAFETY MEASURES

5.1 The staff who was allowed to operate the MPP should study this Passport and observe its requirements.

5.2 It is not allowed:

- keeping the MPP near heat sources;
- effecting rainfalls, direct sunlight, aggressive media, moisture;
- shocking the case and the CGS;
- dropping from the height more than 2 m;
- dismantling the MPP, except for maintenance work according to Section 7 of the present Passport;
- using the MPP with the case damaged (dents, cracks, through holes).

5.3 Before connecting the module, the output ends of the triggering unit should be closed by twisting not less than twice and sealed. Connect the MPP only after its grounding. The outputs of the triggering unit of the normal version MPP should be placed separately into fluoroplastic tubes with inner diameter 2…5 mm. Electric safety while assembling the MPP should be provided by meeting the requirements PUE, PTE, PTB and PZSE

5.4 Loading, reloading, certification and technical maintenance should be carried out in the rooms specially equipped and designed for it at the MPP factory-manufacturer or stations of maintenance having the license of the State fire fighting service.

5.5 After detecting the module defects (dents, cracks, through holes) during the operation or after its service life, the module should be sent to the factory-manufacturer for utilization.

5.6 While operating the module is fire- and explosion-proof.

5.7 Fire extinguishing powder has no harmful effect on the body and clothes of people, does not cause damage to property and is easy-to-remove. Extinguishing powder waste utilization should be made according to the instruction: Utilization and Regeneration of Fire Extinguishing Powders M:VNIIPO, 1988.

5.8 The bearing construction, the MPP is fastened to, should sustain the impulse load from the module kick at the moment of OP ejecting equal to 6000N.

## 6 PREPARATION OF THE MPP TO OPERATION, LAYOUT AND MOUNTING

6.1 Unpack the MPP, and examine the integrity of case and membrane.

6.2 Installation and fastening of the MPP should be made according to Annex B.

6.3 Layout of modules in the rooms protected should be defined in accordance with NPB 88-2001.

6.4 The configuration of powder spraying and the area image, where smothering is achieved, are given in Figures 2, 3, and in Table 2. Surface configuration at local fire extinguishing is shown in Figure 4.

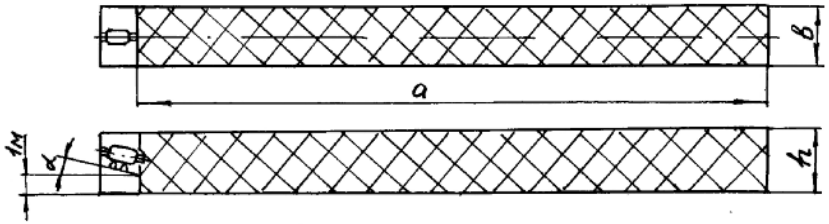


Figure 2 – Image of the area where smothering fire Class A is achieved

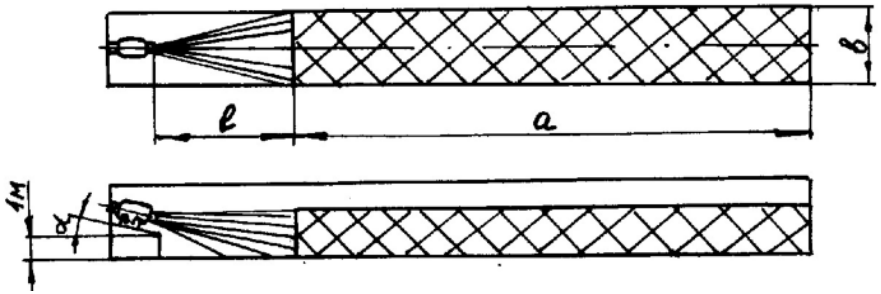


Figure 3 – Image of the area where smothering fire Class B is achieved

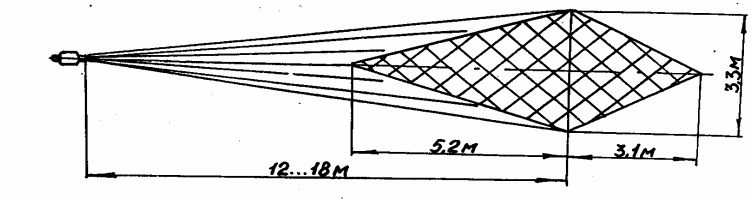


Figure 4 – Scaling image of the area protected at local fire extinguishing



## ANNEX B
(obligatory)

### Technical requirements for assembly and installation of the MPP

B.1 Assembly and installation of the MPP at the object to be protected is made with regard to the height of its positioning above the floor 1m and tilt angle of 2 to 20° according to the Passport requirements, also with regard to impulse load from the module kick at the moment of OP ejecting that equals to 6000N.

B.2 The layout of the MPP, dimension and connecting sizes of the fixture intended to install the module are given in Figure B.1.

B.3 The fixture is a seamless welded construction where steel angle bar 50×50×4, GOST 8509-86, is used as a material. The fixture is fastened to the floor with four anchor bolts M12 embedded in concrete not less than 200mm deep.

B.4 The MPP with the supports mounted is fastened to the fixture by four bolts M12, their position is shown in Figure B.1.

B.5 The tilt angle (α) 20° should be set in accordance with Figure B.1. The tilt angle (α) of 0 to 5° should be set by fastening the MPP axles in the groove of the rear vertical angle bars of the bracket supports providing the size (L) according to Table B.1.

To provide the fixing of the nut with spring washer in the groove, an extra flat washer (supplied as spares) is to be set between the groove and spring washer.

Table B.1

| Tilt angle (α), degree | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Size (L), mm | 18 | 23 | 28 | 33 | 38 | 44 |

B.6 All nuts should be tightened hard onto spring washers, GOST 6402-70.

## ANNEX A
(obligatory)

Table A.1 - Information about reloading, recertification

| Date | Work to do | Executive (company, name) | Signature and company stamp |
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Table 2

| Parameters | Class A | | Class B |
|---|---|---|---|
| α, degree | 20 | 5 | 20 |
| S, $m^2$ | 75 | 70 | 58 |
| V, $m^3$ | 250 | 155 | - |
| à, m | 23.5 | 32.0 | 18.0 |
| â, m | 3.2 | 2.2 | 3.2 |
| h, m | 3.32 | 2.2 | - |
| ℓ, m | 0 | 0 | 4.5 |

## 7 MAINTENANCE

7.1 Special technical maintenance is not required. Examine the integrity of the disk (membrane) closing the MPP nozzle-sprayer and the MPP grounding available **once a quarter**. If the disk (membrane) is not intact (damage, holes of puncture, cracks), replace the module.

7.2 Reloading after operating the MPP should be carried out by the MPP factory-manufacturer or at special stations for reloading powder fire extinguishers.

7.3 While reloading and assembling the MPP after its operation, it is necessary to replace the CGS-24(M)-01 CIAB 066614.022.000-04 TU (pos. 3, Figure 1), fill in the MPP case with fire extinguishing powder and place the disk (membrane) **6** (Figure 1) made according to the drawing (Figure 5), Sheet АМцН2-0.5 GOST 21631-76. After placing the membrane, tighten the nut **9** (See Figure 1) under force (150±10) N·m.

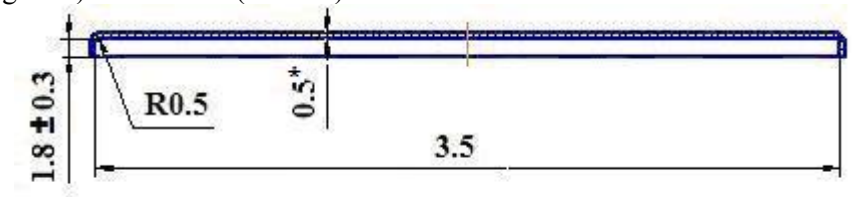


Figure 5

7.4 Record the results of tests and reloading on the MPP and in its Passport (See Annex A).

## 8 STORAGE AND TRANSPORTATION

8.1 The MPP transportation and storage conditions should meet the requirements of OG-4 GOST 15150-69.

8.2 The MPP transportation in the factory packing at temperatures of minus 50°C to plus 50°C is allowed by all kinds of transport according to the rules of transporting the goods by this kind of transport and taking into account transport conditions – harsh environment (G), GOST 23170-78.

8.3 When stored and transported the MPP, conditions preventing them from mechanical damage, direct sunlight, rainfalls and aggressive media should be provided.

## 9 WARRANTY

9.1 The factory-manufacturer guarantees the correspondence of the MPP to the requirements of technical conditions if the Customer observes operation, transportation and storage conditions stated in the present Passport.

9.2 Service life is stated to be:

- 10 years for MPP(N)-24-I-GE-U2,
- 5 years for MPP(N-T)-24-I-GE-U2

and is estimated from the date of accepting the MPP by Quality Department of the factory-manufacturer.

9.3 Guaranteed MPP service life is stated from the date of the MPP sale:

- 2 years for MPP(N)-24-I-GE-U2,
- 1 year for MPP(N-T)-24-I-GE-U2

9.4 The factory-manufacturer is not responsible for:

- misoperation if the owner does not observe operation rules;
- negligent storage and transportation of the MPP;
- passport loss;
- after performing certification, reloading the MPP under item 7.2 if they were not carried out at the factory-manufacturer;
- expiration of the service life stated from the date of accepting the MPP by Quality Department of the factory-manufacturer.



## 10 CERTIFICATE OF ACCEPTANCE AND SALE

The fire extinguishing module

☐ MPP(N)-24-I-GE-U2 ☐ MPP(N-T)-24-I-GE-U2

(tick off the necessary)

corresponds to the requirements of ТУ 4854-008-54572789-04 and is considered to be fit for use.

Batch No _____

Manufacturing date_____
(month, year)

Signature and Inspector stamp _____

Sold _____
(name of the Seller)

Sale date _____

Shop stamp