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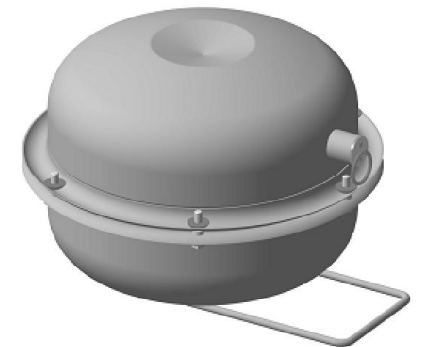
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ГОСТ Р ИСО 9001



**POWDER FIRE-EXTINGUISHING MODULE
MPP(N)-5-I-GE-U2
Passport and
Manual instructions**



1 PURPOSE

1.1 Powder fire-extinguishing module MPP(N)-5-I-GE-U2 (hereinafter referred to as the MPP) is intended for smothering fires, Class A (solids), B (liquids), C (gases) and E (electrical equipment under tension without taking into account the value of firefighting powder discharge voltage) in automatic or manual mode.

MPP can be equipped with electronic activation device during the usage of which a module obtains a function of self-activation and can be used as an autonomous powder fire-extinguishing mean.

1.2 MPP can be equipped with a starting launching device and applied after manual launching from the device for fire-extinguishing with the help of module set on the floor into fire area directly without any mounting in any module orientation (on upper or bottom module frame surface).

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

1.4 The MPP is intended to extinguish both the local seats of fire and fires on square and in volume in the room.

1.5 The MPP can be performed in normal version with operating temperatures of minus 50°C to plus 50°C, in special version at operating temperatures of minus 60°C to plus 90°C, or in wide temperature operation range of minus 60°C to plus 125°C. MPP operation is allowed under relative humidity not more than 95% when temperature is 25°C.

1.6 The MPP is a reused-product.

1.7 The fire extinguishing powder is ejected by the gas generated with a cold gas source according to SIAV 066614.025.000 TU.

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

- MPP (N)-5-I-GE-U2 TU 4854-018-54572789-09 in normal version at temperature range of operating of minus 50°C to plus 50°C;
- MPP (N-T)-5-I-GE-U2 TU 4854-018-54572789-09 in special version at temperature range of operating of minus 60°C to plus 90°C;
- MPP (N-T1)-5-I-GE-U2 TU 4854-018-54572789-09 in special version at temperature range of operating of minus 60°C to plus 125°C;
- MPP (N-R)-5-I-GE-U2 TU 4854-018-54572789-09 – of manual launch in normal version at temperature range of operating of minus 50°C to plus 50°C.

2 TECHNICAL CHARACTERISTICS

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

Table 1

Name	Value
1 Case capacity, lit	4.7±0.2

ANNEX A (obligatory)

THE RESULTS OF TECHNICAL MAINTENANCE
Table A.1 - Information about reloading, reexamination

Date	Work to do	Executive (company, name)	Executive's signature and stamp

The alterations not given in the present passport and not affecting the principal technical characteristics, dimension and connecting

10 CERTIFICATE OF ACCEPTANCE AND SALE

The fire-extinguishing module

MPP(N)-5-I-GE-U2 MPP(N-T)-5-I-GE-U2

MPP(N-T1)-5-I-GE-U2 MPP(N-R)-5-I-GE-U2

(tick off the necessary)

corresponds to the requirements of TU 4854-018-54572789-09 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

Table 1 to be continued			
2 Dimension for MPP (N)-5-I-GE-U2, MPP (N-T)-5-I-GE-U2, mm, not more than:			
diameter			280
- height (with installation bracket)			210
for MPP (N-R)-5-I-GE-U2:			
- diameter			280
- height			190
- width			300
3 Total weight of the MPP, kg, not more than			8.2
4 Fire extinguishing powder ISTO-1 weight, TU 2149-001-54572789-00, kg			4.4±0.2
5 MPP fast action (time from the moment of sending impulse to a triggering element of the MPP to the moment of extinguishing powder ejecting out of the module), sec.			
MPP(N)-5-I-GE-U2, MPP(N-T)-5-I-GE-U2:			of 3 to 10
MPP(N-R)-5-I-GE-U2:			of 10 to 20
6 Operating time (time of ejecting extinguishing powder), sec., not more than			not more than 1
7 Pressure of membrane rupture, MPa			2.2...2.4
8 Firefighting ability of MPP			
8.1 For ceiling-mounted MPP:			
8.1.1*) Protected square (S, m ²) and volume (V, m ³) in the room for fires class A in case of fire-extinguishing from the height (H, m)	H	S	V
	1	78	78
	2	50	100
	2.5	40	100
8.1.2 Protected volume in the room with 6 m ceiling height for fires class A, m ³			100
8.1.3 Protected square (S, m ²) and volume (V, m ³) of section in the room or in channel with 3 m width, 2.8 m height and 12 m length for fires class A	S	V	
	36	100	
8.1.4*) Protected volume in the room with ceiling height of 2 m up to 4 m for fires class B, m ³			40
8.1.5 Protected square (S, m ²) and volume (V, m ³) of section in the room or in channel with 1.2 m width, 2.8 m height and 8 m length for fires class B	S	V	
	9.6	27	
8.1.6*) Protected volume in the room with ceiling height of 1 m for fires class B, m ³	S	V	
	31	31	

Table 1 to be continued			
8.2 For MPP mounted on the floor or set on the floor without mounting			
8.2.1*) Protected square (S, m ²) and volume (V, m ³) in the room with ceiling height (H) for fires class A	H	S	V
	1	78	78
	2	50	100
	2.5	40	100
8.2.2 Protected square in the room with ceiling height more than 2.5 m for fires class A, m ²	40		
8.2.3 Protected square (S, m ²) and volume (V, m ³) of section in the room or in channel with 3 m width, 2.8 m height and 12 m length for fires class A	S	V	
	36	100	
8.2.4*) Protected square in the room with ceiling height more than 2 m for fires class B, m ²	20		
8.2.5*) Protected volume in the room with ceiling height of 2 up to 4 m for fires class B, m ²	27		
8.2.6*) Protected square (S, m ²) and volume (V, m ³) in the room with 1 m ceiling height for fires class B	S	V	
	31	31	
8.2.7 Protected square (S, m ²) and volume (V, m ³) of section in the room or in channel with 1.2 m width, 2.8 m height and 8 m length for fires class B	S	V	
	9.6	27	
8.3 For wall-mounted MPP:			
8.3.1 Protected square (S, m ²) and volume (V, m ³) of section in the room or in channel with 3 m width, 2.8 m height and 12 m length for fires class A	S	V	
	36	100	
8.3.2*) Protected volume in the room with ceiling height of 2 up to 4 m for fires class B, m ²	27		
8.3.3 Protected square (S, m ²) and volume (V, m ³) of section in the room or in channel with 1.2 m width, 2.8 m height and 8 m length for fires class B	S	V	
	9.6	27	
9 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	0.15		
b) special version of the MPP	0.2		
- electric resistance, Ohm	8...16		

9.5.1 Actuate CGS in premises equipped with supply-and-exhaust ventilation. For this purpose CGS is placed in a clamp, connected to a direct current power source, which is correspondent to p. 9 or p. 10 of Table 1. The launch is made distantly without any people inside.

9.5.2 After launching make sure that the premises are ventilated till safe concentration or enter using isolating protective breath means, draw CGS from the clamp using thermo protective gloves, and then utilize according to the requirements of p. 5.9.

10 WARRANTY

10.1 The factory-manufacturer guarantees the correspondence of the MPP to the requirements of technical conditions if the Customer observes operation, transportation and storage conditions.

10.2 Service life is stated to be:

- not more than 10 years for MPP (N)-5-I-GE-U2;
MPP (N-R)-5-I-GE-U2;
- not more than 5 years for MPP (N-T)-5-I-GE-U2;
MPP (N-T1)-5-I-GE-U2,

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

10.3 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 MPP reloading according to paragraph 7.2 if it was 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.

7.4 To restore a manual launching device after MPP operation it is necessary to lift rod **2** through hole **1** (see Figure 5) in device foundation and to fasten it with pin **3**. To lift rod **2** it is necessary to use edgeless stick 1.5...2 mm in diameter. Cover upper part of activation unit with plug **10** (see Figure 2) after restoration.

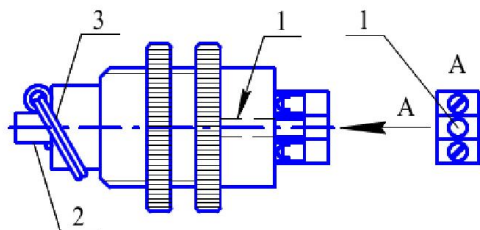


Figure 5

7.5 After MPP checking and reloading notes are made on MPP case (with a label or ticket fastening) and in MPP manual (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 MPP UTILIZATION AFTER FIXED SERVICE LIFE EXPIRATION

9.1 Utilization works should be made by MPP factory-manufacturer or in organizations having a license for this kind of activity.

9.2 Disassemble MPP.

9.3 MPP frame utilization is made by means of taking to scrap metal.

9.4 Firefighting powder utilization is made according to paragraph 5.8 requirements.

9.5 CGS utilization should be made according to the following instructions.

Table 1 to be continued	
10 Circuit characteristics of electric triggering unit for MPP(N-T1)-5 modification: - safe current of testing circuit, A, not more than - operating current, A, not less than: - electric resistance, Ohm	0.2 0.6 2...5
10 Irregularity coefficient of spraying powder K1 (SP 5.13130.2009)	1.0

NOTES: *) – firefighting ability of MPP mounted on floor or set on the floor without mounting, or mounted at the ceiling in the room with ceiling height H is calculated according to formula: - for fires class A: - in the range of 1-2 m. height: $S = 78 - 28 \cdot (H - 1)$, $V = 78 + 12 \cdot (H - 1)$; - in the range of 2-2.5 m. height: $S = 50 - 20 \cdot (H - 2)$; - for fires class B in the range of 1-2 m. height: $S = 31 - 11 \cdot (H - 1)$, $V = 31 - 4 \cdot (H - 1)$ (for MPP mounted on floor or set on the floor without mounting) $V = 31 + 9 \cdot (H - 1)$ (for ceiling-mounted MPP).	
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3 COMPLETENESS OF SET

3.1 The MPP set to be supplied consists of:

- The module MPP TU 4854-018-54572789-09 – 1 item;
- Passport and Manual instructions - 1 copy;
- MPP package – 1 item.

4 DESIGN AND OPERATION PRINCIPLE

4.1 The MPP (N)-5-I-GE-U2, MPP (N-T)-5-I-GE-U2 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. The nozzle hole for OP ejecting from the case is closed by membrane **5**. From the nozzle hole side the case **1** is connected with a reflector

6. A nozzle-spray 7 for OP ejecting is annular slot between the case 1 and the reflector 6. The module has grounding clamp 8. A flange 9 is installed on the reflector in which screw contact clamp 10 is located for connection of wire ends of electric triggering unit and lead-in circuit of activation device. The MPP is fitted with bracket 11 to fasten to the ceiling, to the wall and to the floor.

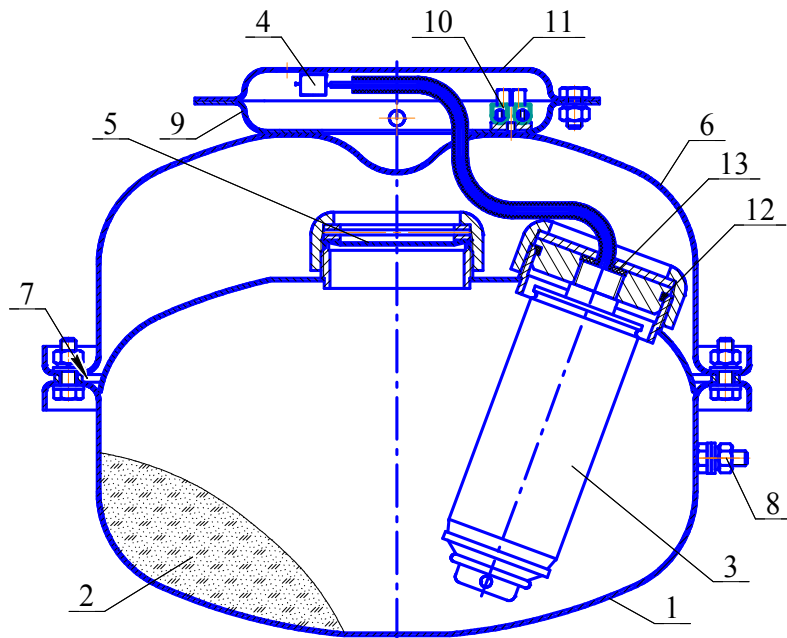


Figure 1

4.1.2 The MPP actuates by means of current impulse that can be generated by:

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

4.2 MPP (N-R)-5-I-GE-U2 design

4.2.1 The MPP (See Figure 2) consists of a case 1 where fire extinguishing powder (OP) 2 and cold gas source (CGS) 3 with electric triggering element 4 are placed. The nozzle hole for OP ejecting from the case is closed by membrane 5. From the nozzle hole side the case 1 is connected with a reflector

Table 4

Wall-mounted MPP fire-extinguishing parameters

Parameters	Fires class B	
H, m	2	4
S, m²	-	-
V, m³	27	27
a, m	3.0	2.2
B, m	4.5	3.07
The channel 3 m wide, 2.8 m high, and 12 m long for fires class A		
The channel 1.2 m wide, 2.8 m high, and 8 m long for fires class B		

7 MAINTENANCE

7.1 Special technical maintenance is not required. Examine the integrity of MPP case by external examination once a quarter. In case of its crippling (dents, cracks, through holes), replace the module. Additionally for MPP(N)-5-I-GE-U2 and MPP(N-T)-5-I-GE-U2 the grounding availability is examined. For MPP(N-R)-5-I-GE-U2 the presence of plug 10 and pin 9 on manual launching device 8 according to Figure 2.

7.2 Reloading after MPP actuation should be carried out by the MPP factory-manufacturer or at special stations.

7.3 The delivery set for MPP reloading:

- CGS-5(M)-01 SIAV 066614.025.000 TU for MPP(N)-5-I-GE-U2; CGS-5(M)-02 SIAV 066614.025.000 TU for MPP(N-T)-5-I-GE-U2, or CGS-5(M)-06 SIAV 066614.025.000 TU for MPP(N-T1)-5-I-GE-U2 (see item 3 on Figure 1); CGS-5(M)-05 SIAV 066614.025.000 TU for MPP(N-R)-5-I-GE-U2 (see item 3 on Figure 2) – 1 item;
- rubber ring 020-026-36 GOST 9833-73 (see item 12 on Figures 1,2) – 1 item;
- fire-extinguishing powder ISTO-1 TU 2149-001-54572789-00 (see item 2 on Figures 1, 2) – 4.4 kg;
- membrane of SIAV 634233.006.003 drawing (see item 5 on Figures 1, 2) – 1 item.

Reloading works after MPP actuation should be held only for MPP without any case defects (dents, cracks, through holes).

behind the wall of building or room. In case of MPP locating into the seat of fire at the open area it is necessary to move away from the MPP at a distance not less than 10 m.

6.3 Configuration of firefighting powder dispersion

6.3.1 Configuration of powder dispersion and the image of the area where extinguishing is achieved are shown in Figure 4 and in Tables 2...4.

Table 2

Ceiling-mounted MPP fire-extinguishing parameters

Parameters	Fires class A				Fires class B		
	1	2	2.5	6	1	2	4
H, m	1	2	2.5	6	1	2	4
S, m ²	78	50	40	-	31	-	-
V, m ³	78	100	100	100	31	40	40
a, m	6.2	7.07	6.33	4.08	5.0	4.47	3.16
B, m	12.6	7.07	6.33	4.08	6.2	4.47	3.16
The channel 3 m wide, 2.8 m high, and 12 m long for fires class A							
The channel 1.2 m wide, 2.8 m high, and 8 m long for fires class B							

Table 3

Fire-extinguishing parameters of MPP mounted on a floor or set on the floor without mounting

Parameters	Fires class A				Fires class B			
	1	2	2.5	>2.5	1	2	4	>2
H, m	1	2	2.5	>2.5	1	2	4	>2
S, m ²	78	50	40	40	31	-	-	20
V, m ³	78	100	100	-	31	27	27	-
a, m	6.2	7.07	6.33	6.33	5.0	3.67	2.6	4.47
B, m	12.6	7.07	6.33	6.33	6.2	3.67	2.6	4.47
The channel 3 m wide, 2.8 m high, and 12 m long for fires class A								
The channel 1.2 m wide, 2.8 m high, and 8 m long for fires class B								

6. A nozzle-spray 7 for OP ejecting is annular slot between the case 1 and the reflector 6. A manual launching device 8 is installed on the reflector which has a pin 9 for MPP actuation covered with plug 10. The MPP is furnished with handle 11 for module carrying and module placing into burning zone.

4.2.2 The MPP actuates by means of current impulse that is generated by the launching device 8. A manual launching device works without power supply sources, the operation principle is mechano-electrical one.

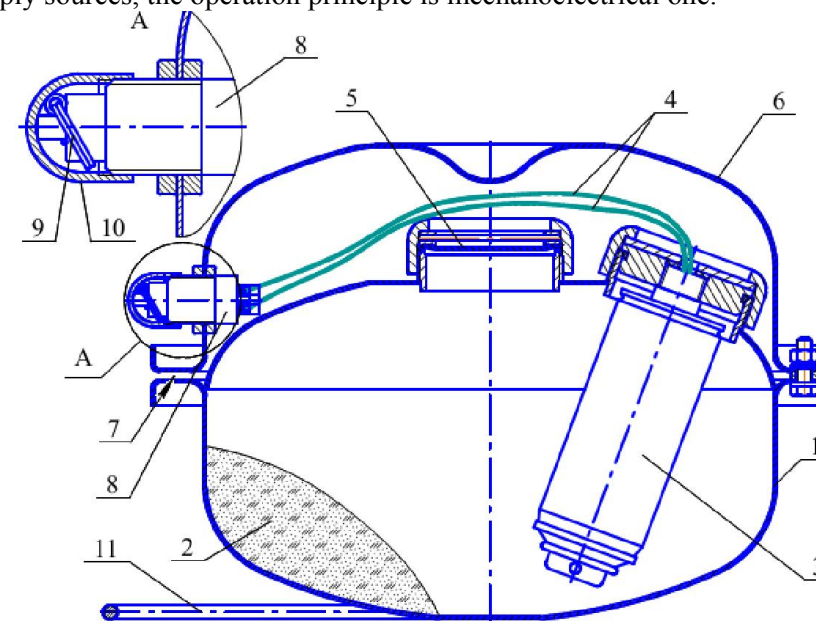


Figure 2

4.3 MPP operation principle

4.3.1 After sending electric pulse to the outputs of the triggering unit 4, the CGS 3 (see Figures 1, 2) generates gas which fluffs OP 2 and creates pressure inside the MPP case to rupture membrane 5 and eject through nozzle-sprayer 7 the jet of OP into the burning area.

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 and installing the MPP near heat sources;
- effecting rainfalls, direct sunlight, aggressive media, and moisture on the MPP;

- 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 damaged case (dents, cracks, through holes);
- performing of any fire tests without experimental works program concordance or in case of absence of company-manufacturer representative.

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. Electric safety while assembling the MPP should be provided by meeting the requirements PUE, PTE, PTB and PZSE.

5.4 It is prohibited during MPP (N-R)-5-I-GE-U2 operation:

- MPP storage without plug **10** (see Figure 2);
- To extract pin **9** except in the case of necessity to launch MPP when prompt fire extinguishing according to paragraph 6.2.

5.5 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 in organizations having a license for such kind of activity.

5.6 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 or utilized according to p. 9.

5.7 While operating the module is fire- and explosion-safe.

5.8 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. After MPP actuation to remove the combustion products and fire extinguishing powder in the air it is necessary to use general ventilation. It is allowed to apply mobile ventilations sets for this purpose. The powder fell is removed by vacuum cleaner, dry rag followed by wet cleaning. Extinguishing powder waste utilization should be made according to the instruction: "Utilization and Regeneration of Fire Extinguishing Powders", Moscow: VNIPO, 1988.

5.9 CGS utilization after actuation should be made by means of device taking to scrap metal.

5.10 The bearing construction, the MPP is fastened to, should sustain the impulse load from the module kickback at the moment of OP ejecting.

6 PREPARATION OF THE MPP TO OPERATION, LAYOUT AND MOUNTING

6.1 MPP (N)-5-I-GE-U2, MPP (N-T)-5-I-GE-U2

6.1.1 Unpack the MPP, and examine the integrity of case.

6.1.2 Fasten the bracket **11** (see Figure 1) to the ceiling, to the wall, to the floor or to other bearing surface. Positions of holes in the bracket intended to fasten the MPP are given in Figures 3.

6.1.3 Connect the MPP with the bracket and fasten with nuts.

6.1.4 The number of modules in premises protected should be defined in accordance with section 9 SP 5.13130.2009.

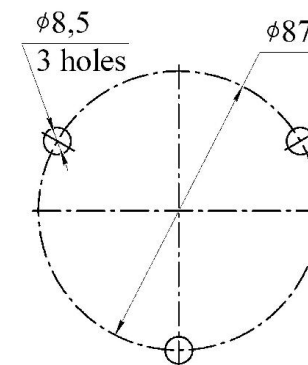


Figure 3

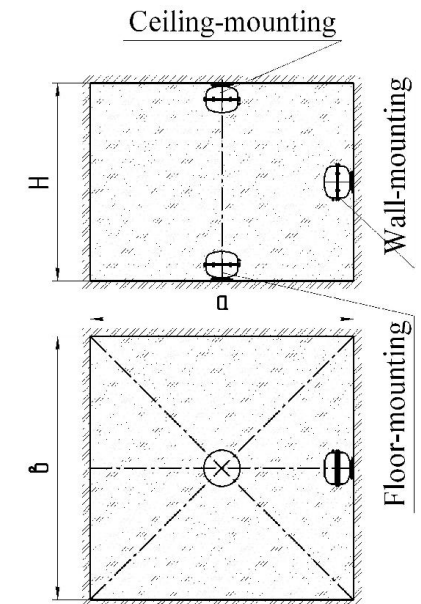


Figure 4

6.2 MPP (N-R)-5-I-GE-U2

6.2.1 MPP is recommended for usage by operative subdivisions of fire brigades, locomotive crews, voluntary fire brigades, safety departments of enterprises and storehouses, and individuals trained for their operating and safety measures. MPP is recommended to use as a primary fire-extinguishing mean during fire-extinguishing and fire-localization in the room or into the open area, especially in case of complicated access or threat for human's life.

6.2.2 Take the MPP by the handle **11** (see Figure 2); remove plug **9** with a free hand from manual launching device **8** and extract pin **10**.

6.2.3 Promptly (not longer than in 4 sec after the pin extracting) move MPP in any available way to a fire zone.

Attention! In case of MPP relocating through doorway or window aperture into the closed space it is necessary to move away from aperture