POWDER FIRE EXTINGUISHER MODULE MPH-10ST

FUNCTIONAL DESCRIPTION AND OPERATING INSTRUCTIONS

Version 10/2025

TUNGUS
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1. Determination, general and possible applications

The powder fire extinguishing modules of the MPH-10(st) series (automatic) can be mounted on the ceiling or on the wall. The fire extinguishing modules are used in fires of classes A (solid), B (fluid) and C (gaseous).

The MPH series can be equipped with an electronic, autonomous start (e.g. a sensor). This activates the device automatically when the corresponding temperature is reached on the additional, external thermal sensor TPS-01.

1.1 The MPH module cannot be used in fires that burn without oxygen supply, e.g. magnesium etc.

1.2 With the MPH module, local fires but also surface fires can be fought and extinguished.

1.3 In the standard version, the MPH module can be used in the temperature range between – 50°C to + 60°C, but there are also a special version for a higher temperature range from -60°C to +90°C available.

1.4 The MPH modules are designed for use up to a relative humidity of 95%.

1.5 The MPH modules can be used for several areas and requirements can be used.

1.6 Inside the module, a gas generator provides the necessary pressure build-up to allow the extinguishing powder to escape under pressure in the event of use. (GSP-4).

1.7 Examples of the designation of different MPH modules:

- MPH-10(st) Standard version Temperature range -50°C to +50°C
- MPH(T)-10(st) Special version Temperature range -60°C to +90°C

The MPH modules are only put under pressure by the triggering of the gas generator and are pressurefree until then. After the gas generator is triggered, the pressure builds up in the the pressure in the module and the membrane is, after reaching the intended pressure of approx. 2.5 bar, cut out and ejected by the pressure. This enables the extinguishing powder to escape explosively. After the powder from the module has leaked, it is again depressured .

2. Technical data MPH-10(st) series

Table 1

Parameter	Value		
1. Pressure vessel volume (l)	9,2±0,5		
2. Dimensions, (mm): **- Height (with installed holder)** **- Lenght** **- Width**	 ≤ 310 ≤ 396 ≤ 305		
3. Total weight MPH (kg)	≤20		
4. Weight of extinguishing powder SAPP100	9,5±0,3		
5. Activation time MPH (s)	3 - 10		
6. Erasure time (s)	≤ 1		
7. Pressure when opening the membrane, MPa	2,0 – 2,2		
8. Protective surface (S) and volume (V) from height (H) when ceiling-mounted*	*H, m*	*S, m²*	*V, m³*
8.1. For class A fires	2,5	80	240
	6	80	240
	16	65	169
8.2. For class B fires	2,5	36	53
	6	36	53
	16	12	53
9. Extinguishing capacity MPH when installed with the module axis angled at 20° to the horizontal plane with the atomizer insert pointing downwards	*H, m*	*S, m²*	*V, m³*
9.1. Class A fires	1	65	216
9.2. Channel length (average 2.2*2.2m), m	1	43	-
10. Maximum degree of model fire source class B when extinguishing in open terrain	12	233B**	
	16	89B**	
11. MPH extinguishing capability for local object protection	*H, m*	*S, m²*	*V, m³*
11.1 For Class A fires when installed with the module axis angled at 70° from the horizontal plane and the atomizer insert pointing downwards.	16	6	54
11.2 For Class B fires during remote extinguishing: 11 m when installed with the module axis at an angle of 0 to 10° relative to the horizontal plane, with the nozzle directed downward.	-	24	48
11.3 Protection area for local extinguishing of Class A, B, C, E fires: with the module axis at an angle of 3°, nozzle directed downward, and at a distance of up to 12 m from the center of the protected object to the MPH.	1	14	-
12. Properties of cold gas generator: **12.1 Properties of electrical ignition element:**			
- Safe flow of the control chain, A	0,03-0,05		
- Activation current, not less than, standard version, A	0,2-0,35		
- Activation current, not less than, special version, A	0,2-0,35		
- Electrical resistance (ohm)	8-16		
- Isolation resistance of electrical anger (MOhm)	> 100		
12.2 Burning time (s)	23±2		
12.3 Initiation time (ms)	810±30		

12.4 Total weight (g)	330±20
12.5 Total weight after activation (g)	120±10
13. Coefficient of the dissimulation/uniformity of the extinguishing powder, K1	1,0

** According to EN 3-7:2004+A1:2007

3. Package contents:

3.1 The packaging of the MPH module contains:

- Module with bracket
- Operating instructions

4. Type of construction and functional principle

4.1 MPH (Figure 1. and Figure 2.) consists of the pressure body 1 , which includes: extinguishing powder (HP) 2 and cold gas generator (GSP) 3 with electric fuse 4 . On the other side of the hood is the atomizer insert 5 , as well as the outlet, which closes with a membrane 6 . The module is equipped with a grounding terminal 7 . The upper part of the MPH s equipped with a holder for the ceiling 8., or for the wall 9.

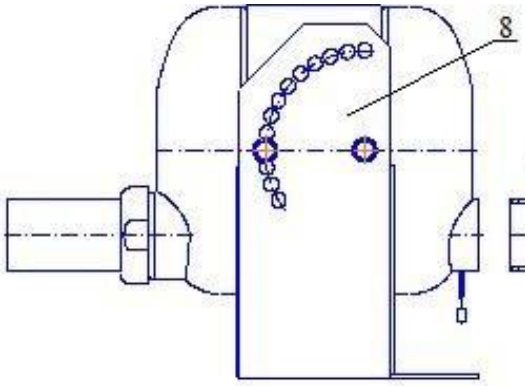

Figure 1

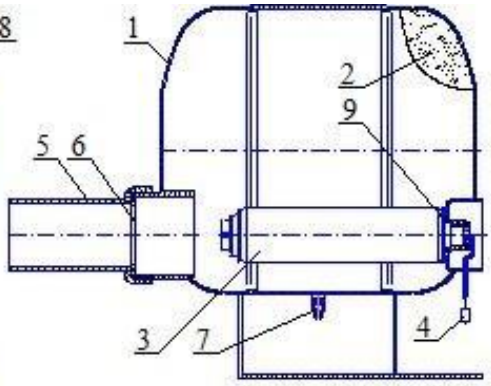

Figure 2

Principle of operation:

After receiving the pulse on the electrical output switch 4 GSP 3 spreads generated gas with the help of the gas generator HP 2 and creates the necessary pressure inside the pressure body MPH for the opening of the membrane 6 and emission of the extinguishing powder 5 .

4.2 The MPH is activated by an electrical impulse which can be triggered by:

- Electronic control (e.g. fire alarm control center)
- Manual triggering by a switch
- Electronic activation component, thermal sensor TPS-01

4.3 After receipt of an electrical impulse to the electrical output switch 4GSP 3 (Figure 1,2), the gas generator is activated and generates a cold gas that puts the interior of the container under pressure. As soon as the necessary pressure is present, the membrane opens 6 and the extinguishing powder comes out of the module through the atomizer 5.

5. Certainty

5.1 Persons authorized to operate the MPH module must know the contents of this operating manual and follow the instructions.

5.2 Please avoid:

- The storage of the MPH module near strong heat sources
- An environment with direct rain, direct sunlight, aggressive environment and strong humidity
- Strong shocks on the pressure body and GSP
- The fall of the MPH module from a height of more than 2 m
- The disassembly of the MPH module, with the exception of work on the technical supply in with point 7 of these operating instructions
- The use of the MPH module after damage to the hood / pressure body (visible dents, cracks, holes).

5.3 Before mounting the module, the outputs of the electrical controllers must be closed and secured by rotating the cable.

In the case of electrical installation, the country's safety regulations must be observed during electrical work.

5.4 Refill / filling and technical maintenance of the MPH modules may only be carried out by specialized personnel. The manufacturer and licensed companies are able to carry out this work.

5.5 In case of defects in the MPH modules (damage, cracks, holes, etc.) send the corresponding module for maintenance back to your sales partner.

5.6 During use, the module is fire and explosion-proof.

5.7 The extinguishing powder is harmless to people, animals, technology / electronics and the environment. It is easily removable. After activation of the MPH module, the corresponding rooms must be well ventilated. Residues of the extinguishing powder can be absorbed with a

commercially available vacuum cleaner, if necessary additionally cleaned with dry or damp cloths. Dispose of the resulting substances in accordance with your local disposal regulations.

If you have any questions, please contact your sales partner.

5.8 The disposal of the steel parts (i.e. of the pressure vessel) after one use takes place as a scrap fraction.

5.9 Mount the MPH module on a resilient substrate that is strong enough to withstand the impulse load when activated.

6. Preparation and assembly

6.1 After opening the package, check the MPH module for damage to the housing and the membrane.

6.2 Suspension 8 can be mounted under the ceiling (Figure 1) or suspension 9 (Figure 2) can be attached to the wall. Please mark the places for attaching the suspension as on the (picture 3) and on the wall acc. (Figure 4).

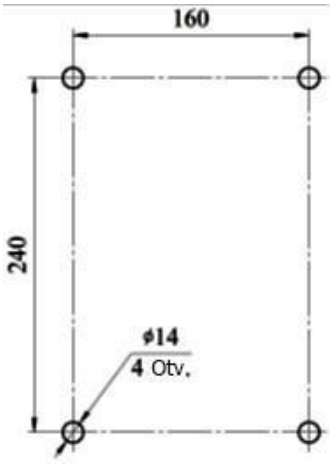

Figure 3

6.3 Use suitable screw connections to fasten the MPH modules. If you have any questions, please contact your sales partner.

6.4 The necessary amount of modules in the areas to be protected is calculated by the local conditions and calculated with the data in Table 1. If you are unsure, contact the manufacturer or your sales partner.

6.5 The protection for sub-areas of surfaces in rooms or installations at heights (H) up to 3.5 m, local protection surfaces (S) under 7.32 m2 , at heights of 3.5 m up to 7 m where the

surface to be protected represents a circle, is calculated according to the formula: **S=7,32-0,8·(H-3,5).**

6.6 The configuration of the powder propagation and the representation of the erasing surfaces shown in the following figures 4, 5, 6, 7 and tables 2 and 3.

Table 2. MPH installed in a room or duct at a height of 1 m from the floor with an axial angle of 20 degrees.

Parameters	Class A	Class B
S, m^2	65	43
V, m^3	216	-
a, m	20,3	13,5
в, ,m	3,2	3,2
h, m	3,32	-
l, m	2,3	4,5

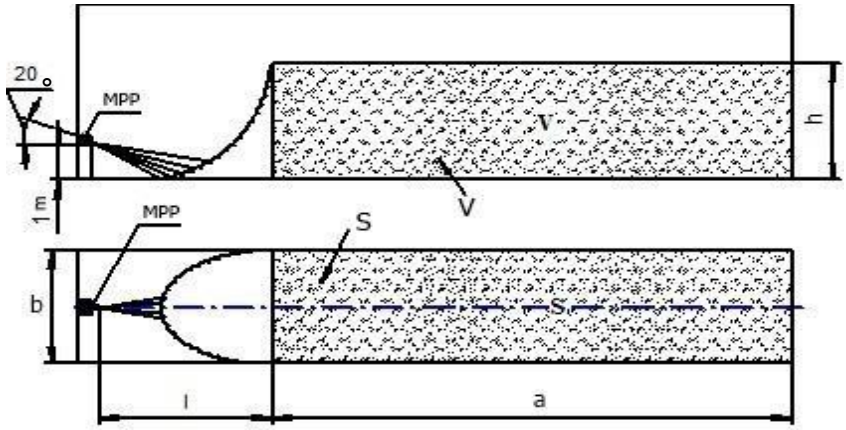

Figure 4. In room or duct at a height of 1m with an axis angle of 20 degrees and the atomizer insert pointing downwards.

Table 3. Vertical mounting

Parameters	Class A		Klasse B			
	Protective area and volume		Schutzfläche		Schutzvolumen *)	
H, m	2,5; 6	16	2,5; 6	16	2,5	5,89…16
S, m^2	80	65	36	12	-	-
V, m^3	240	169	-	-	53	53
a, m	8,94	8,06	6,0	3,46	4,6	3,0
b, m	8,94	8,06	6,0	3,46	4,6	3,0
h, m	3	2,6	-	-	2,5	5,9
*Bei Brandlöschung Klasse B mit Höhe ab 2,5 bis 5,9m, Schutzvolumen 53m3 ist bestimmt für Decken, bei Instalation höher als 5,89m sind die Parameter des Schutzobjektes in der letzten Spalte der Tabelle.						

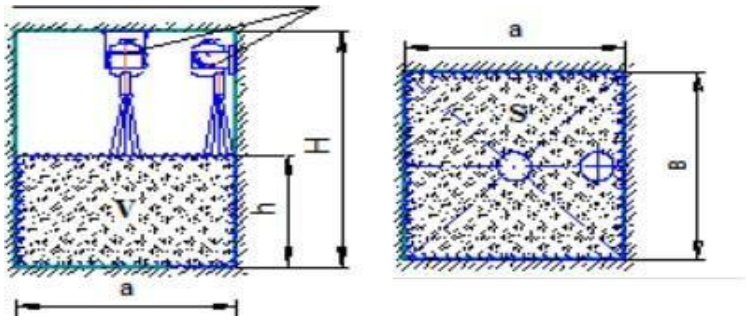

Figure 5.

6.7 MPH installed at an angle, for local protection of objects with shadow areas for Class A fires.

Installation on shelves:

- ✓ Powder flow angle 20°;
- ✓ Module installation at least 15% higher than the object to be protected. Object width no greater than 6m per module.
- ✓ Object depth no greater than 2m, maximum protected volume 54m3.

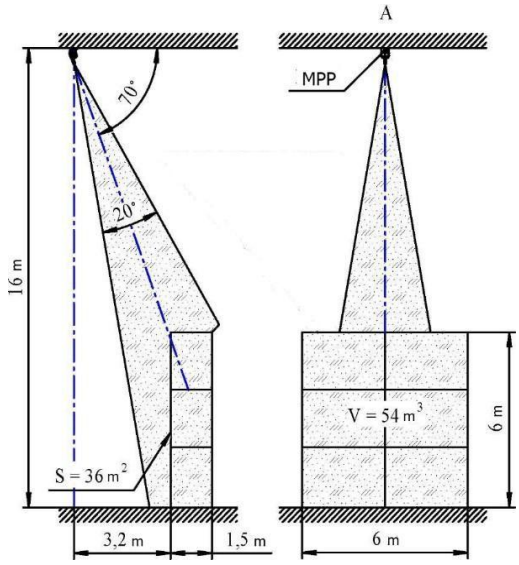

Figure 6. MPH installation on shelves for class A fires.

6.8 MPH installed at distances up to 11m with axis angle 0 to 10 degrees for local object protection with extinguishing shadow in Class B fires

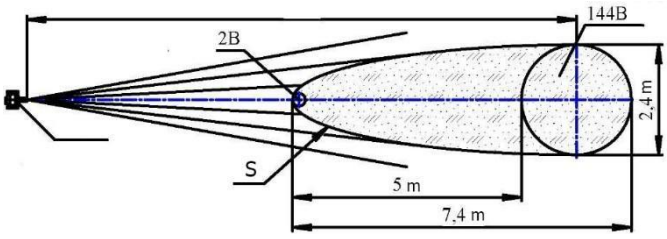

Figure 7. MPH Installation in 1m height with with 3˚ axis angle

7. Technical maintenance

7.1 Special technical maintenance during the specified period of use is not indicated. However, it is recommended to check the density of the membrane every quarter. A visual check is usually sufficient here. In case of damage to the membrane (holes, cracks) it is necessary to replace the module.

7.2 Checks and maintenance carried out are shown on stickers / labels on the pressure vessel of the MPH module and logged in the maintenance booklet.

8. Transport and storage

8.1 The transport and storage of the MPH modules should be in the original packaging of the manufacturer at temperatures of - 50°C to + 50° C.

8.2 When transporting and storing the MPH modules, please avoid mechanical influences and damage, massive moisture, direct sunlight and contact with aggressive substances (i.e. chemicals).

9. Disposal of the MPH modules after the guaranteed service life

The disposal of the MPH modules should be carried out by the manufacturer or licensed companies.

10. Manufacturer's warranty

10.1 The manufacturer guarantees compliance with all above mentioned points, the proper storage, the professional assembly, the regularly recurring (view) inspections as well as the proper use of the modules as follows:

- 12 years of operation with MPH standard version
- 5 years operating time at MPH special version.

The warranty begins after the delivery of the modules. If the modules are mounted by a specialist company. The warranty period begins after the assembly and the joint acceptance with the customer on site, but no later than two months after the delivery of the goods.

10.2 The manufacturer is not responsible for:

- Incorrect operation of the MPH modules

- Improper storage and transport of the MPH modules
- Failure to observe the technical description and operating instructions
- Changes of the modules by an unauthorized company
- Use of the modules after the warranty period.

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