

## SYSTEMS AND PARTS

### EXPLOSION SUPPRESSION FLASH

#### Background

There are various techniques available to protect process installations against the consequences of gas and dust explosions. In the past, "explosion venting" was one of the most commonly used protection methods. The side effects of this technique, however, are increasingly becoming a burden for the modern process industry: installation restrictions, production loss with accompanying damage (by fire) and the cost of putting the entire system back into service.

#### Product

The FLASH explosion suppression system is a flexible, modular system consisting of the following:

- ▶ Explosion detectors triggered by static pressure, an increase in pressure, optical monitoring (UV, IR, UV/IR, ...) or a combination of all of these
- ▶ A multifunctional modular control unit
- ▶ Ultra-fast powder extinguishers in different sizes and with various types of connection flanges depending on the application.

This modular design makes it possible to assemble the optimal configuration, both technical and commercial, for each application.

The following applies to all configurations:

- ▶ No pressure vessels!
- ▶ Driven by gas generators with a very long life (up to ten years!!)
- ▶ A revolutionary communication protocol between the various components makes system faults due to EMC radiation on the wiring nearly impossible!
- ▶ High quality electrical connections due to the use of cables with moulded connectors (worldwide standard available)
- ▶ Reduced installation, operating and maintenance costs.

The control unit works with all equipment supplied by Stuvex, including fast closing valves, which is very beneficial.

For more details on the detection and the control unit, we refer to their respective datasheets.



Type: EAB10E-700



Type: EAB10V-700/EAB10E-700



Type: MP10 3E-700

## Functioning

The detector continuously monitors the volume to be protected. In the case of a pressure increase or optical detection (depending on the system configuration and settings), the detector will send a signal to the control unit, which in turn will trigger the gas generators of the extinguishing agent bottles.

Then, within a few milliseconds, the huge amount of gas necessary to inject the extinguishing powder into the installation is produced. The powder kit, the extinguishing agent bottle and the gas generator itself are completely pressure free under normal working conditions.

The injection of the extinguishing powder extinguishes the flame front. In addition, there is always enough extinguishing powder provided to make the entire volume inert so that no secondary explosion can occur. For this reason, the process (and certainly the blowers) must be stopped immediately after Flash explosion suppression system is triggered, in order not to exhaust the extinguishing powder. If this cannot be guaranteed, cut off valves must be installed or supporting measures (such as steam injection) must be taken.

## System design

The Flash explosion suppression system is available in various configurations, adapted to the customer's needs. Thus, in addition to the standard solution with the necessary flanges (in normal or stainless steel) simply welded to the equipment, specific solutions also exist for the following:

- ▶ Hygienic applications (pharmacy, (baby) food production...), where special attention is given to those materials that come into contact with the product: the surfaces are smooth, without gaps,...
- ▶ Processes with CIP cleaning, both automatic and manual, up to 300 bar
- ▶ Fast installation methods making use of the HPL system, which allow normal installation times to be cut in half
- ▶ Weld-free installation methods that make use of the HPL system, which makes prior cleaning of the installation unnecessary
- ▶ Vibrating process parts (e.g. fluid bed)
- ▶ A combination of the above possibilities.

Many of these solutions are, or have been, developed in consultation with the customer. You will find additional information in the "Specific industrial solutions" sheets.

## Intended use

**This product is a certified ATEX safety system.**

Consequently, any application must be based on the instructions contained in the ATEX certificate, the product specifications and the user manual.

Depending on model, the system is suitable for installation in Ex zones 1, 2, 21, 22.

## Technical specifications

For more details on this product, we refer to the technical datasheet.



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## EXPLOSION SUPPRESSION FLASH

### EXTINGUISHING AGENT BOTTLE (EAB)

The Flash system consists of a control unit, detectors and extinguishing agent bottles. For the control unit and detector specifications, we refer to the respective technical datasheets.

The extinguishing agent bottle contains a powder kit filled with extinguishing powder. This is injected into the installation with the help of a gas generator, mounted on the cover of the extinguishing agent bottle.

The gas generator contains a long-lasting pyrotechnical mixture. By igniting this mixture, the gas generator produces a large amount of non-toxic gas. Under normal circumstances, the gas generator is totally pressure free. Only in the case of triggering, is there a pressure increase for a very short duration. For this reason, (European) legislation on pressure vessels does not apply to the gas generator.

In normal, moderate climatic conditions, the gas generator has a life of 10 years. ADR class 1 (explosive substances) classification does not apply to the gas generator.

The powder kit is completely pressure free and hermetically sealed, which means that in principle the powder has an unlimited life. The extinguishing powder used is sodium bicarbonate, food approved. It is injected into the process through a telescopic spreader. A silicone blow-off cap is mounted on this spreader that seals the EAB off from the process. For hygienic applications and applications with CIP under high pressure (up to 300 bar) or with aggressive detergents, an isolating system based on a stainless steel membrane is used (see also the datasheets "Specific industrial solutions").

The EAB is hinge mounted on the installation. The EAB's cover is also hinge mounted. This greatly simplifies inspection and maintenance. After activation, only the powder kit and the gas generator are replaced, not the EAB.

### Single Point extinguisher - version with elbow:

**Type:**

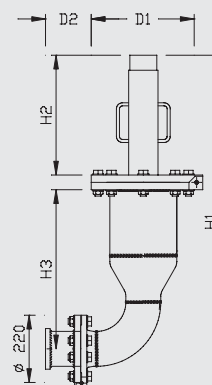
|              |              |               |
|--------------|--------------|---------------|
| EAB10E-700cc | EAB20E-700cc | EAB20E-1300cc |
|--------------|--------------|---------------|

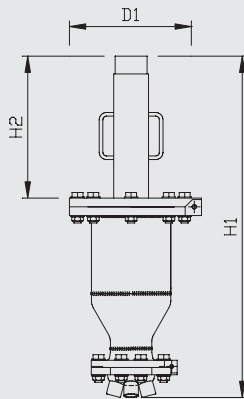
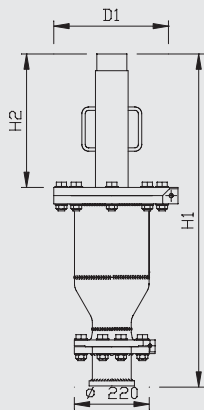
**Welding flange for standard applications:**

|               |   |
|---------------|---|
| Borehole:     | Ø 125 mm  |
| Material:     | carbon steel (with weldable primer), SS304, SS316 |
| Installation: | hinges underside                                  |

| Type          | Weight (kg) |       |       |
|---------------|-------------|-------|-------|
|               | GG(1)       | PK(2) | Other |
| EAB10E-700cc  | 16.5        | 11.5  | 47    |
| EAB20E-700cc  | 16.5        | 22    | 61    |
| EAB20E-1300cc | (31)*       | 22    | 61    |

| Type          | Dimensions (mm) |        |     |     |     |
|---------------|-----------------|--------|-----|-----|-----|
|               | H1              | H2     | H3  | D1  | D2  |
| EAB10E-700cc  | 1038            | 345    | 521 | 365 | 150 |
| EAB20E-700cc  | 1328            | 345    | 811 | 365 | 150 |
| EAB20E-1300cc | (1383)*         | (400)* | 811 | 365 | 150 |





### Single Point extinguisher - vertical version:

**Type:**

EAB10V-700cc      EAB20V-700cc      EAB20V-1300cc

**Welding flange for standard applications:**

Borehole:      Ø 125 mm

Material:      carbon steel (with weldable primer), SS304, SS316

| Type          | Weight (kg) |       |       |
|---------------|-------------|-------|-------|
|               | GG(1)       | PK(2) | Other |
| EAB10V-700cc  | 16.5        | 11.5  | 46    |
| EAB20V-700cc  | 16.5        | 22    | 60    |
| EAB20V-1300cc | (31)*       | 22    | 60    |

| Type          | Dimensions (mm) |        |     |
|---------------|-----------------|--------|-----|
|               | H1              | H2     | D1  |
| EAB10V-700cc  | 927             | 345    | 365 |
| EAB20V-700cc  | 1217            | 345    | 365 |
| EAB20V-1300cc | (1272)*         | (400)* | 365 |

### Multi Point extinguisher:

**Type:**

MP10 2E-700cc    MP10 3E-700cc    MP20 2E-700cc  
MP20 3E-700cc    MP20 4E-700cc

**Welding nipple for standard applications:**

Borehole:      Ø 25.4 mm

Material:      carbon steel (with weldable primer), SS304, SS316

Installation:      thread away from the process (for mounting hoses)

Maximum bending radius  
of the flexible hoses:      300 mm

Welding flanges:      carbon steel, SS304, SS316

| Type          | Weight (kg) |       |       |
|---------------|-------------|-------|-------|
|               | GG(1)       | PK(2) | Other |
| MP10 2E-700cc | 16.5        | 11.5  | 48    |
| MP10 3E-700cc | 16.5        | 11.5  | 50    |
| MP20 2E-700cc | 16.5        | 22    | 62    |
| MP20 3E-700cc | 16.5        | 22    | 64    |
| MP20 4E-700cc | 16.5        | 22    | 66    |

| Type          | Dimensions (mm) |     |     |
|---------------|-----------------|-----|-----|
|               | H1              | H2  | D1  |
| MP10 2E-700cc | 900             | 345 | 365 |
| MP10 3E-700cc | 900             | 345 | 365 |
| MP20 2E-700cc | 1190            | 345 | 365 |
| MP20 3E-700cc | 1190            | 345 | 365 |
| MP20 4E-700cc | 1190            | 345 | 365 |

(1) GG = gas generator

(2) PK = powder kit

\* Provisional measurements, contact StuvEx for additional information.

