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For the pressure vent type 935-E /1x0,9 dimension sheet and pressure drop/volume flow diagram are available.

1. Use

Pressure valve 935-E complies with standards

EN ISO 16852:2016	Flame Arresters – Performance requirements, test methods and limits for use
DIN EN 13463 Part 1:2009-07	Non-electrical equipment for potentially explosive atmospheres Basics methods and requirements
DIN EN 13463 Part 5:2004-03	Non-electrical equipment for potentially explosive atmospheres Protection by constructional safety "c"

The general suitability as a deflagration end-of-line flame arrester when used with inflammable gas/air mixtures and vapour/air mixtures of inflammable liquids of explosion group IIB3 (standard gap width $\geq 0,65$ mm) been verified by tests executed at the Institute for Safety Technology IBExU GmbH Freiberg and the results were confirmed by the issued EC prototype test certificate **IBExU14ATEX2109 X**.

On principle, for all cases of use the placement conditions, especially the following limits for the operating pressure and temperature have to be considered:

- permissible operating pressure : atmospheric (0,8bar (absolute) to 1,1bar (absolute))
- permissible operating temperature : -20°C to 60°C
(surface temperature max. 80% of ignition point)

The following valve insert settings are possible :

- Set-pressure for pressure: 2,5 to 50 mbar *) *) factory pre-set default

On delivery of the devices the technical parameter of the flame arrester with stating the EC prototype test certificate number are documented in the works test certificate according to EN 10204. In the declaration of compliance it is referred to the accordance with the harmonized standard EN ISO 16852. The maintenance of the basic safety requirements according to directive 2014/34/EU has been confirmed.

2. Construction


The Vent 935 consists of a cast iron housing (1), equipped with a pressure valve insert (15) and a flame arrester element (2).

The flame arrester itself consists of a covering flange, a star and a metal foil element. The metal foil element has a width of 10 mm and a gap width of 0.9 mm.

For protection against effects of the weather the flame arrester is equipped with a metal sheet cover (21). For emptying of condensate the vent is equipped with a condensate screw (40) with thread M10x1.

The valve insert is pre-set for the customer's specific set-up pressure via weight discs at the manufacturer's end. They can either be equipped with FEP sealing foil or with a valve disc with a metallic sealing surface.

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Approved By:	D. Hennessy	Date: 01.01.14	

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3. Marking

The information for marking the vent is arranged on the nameplate and an additional hazard sign (page 5/5). The following data are indicated:

nameplate

- name and address of the manufacturer
- type (including version number)
- serial number and year of production
- number of the certificate (EC prototype certificate-no.)
- EN number
- specific mark for prevention of explosions in connection with the mark indicating the group of devices II, and the letter "G" (for areas where explosive gas, vapour, air mixtures are available)
- explosion group
- CE mark with the number of the indicated inspection authority, which act during production
- set-up pressure for pressure and vacuum valve
- opening pressure for pressure and vacuum valve
- volume flow at opening pressure

Hazard sign

- **Warning Flame arresters have installation and application limits**
Type designation in accordance with ISO 16852
- sign for type of flame arrester: **DEF** (deflagration)
- ratio L_w/D (distance to ignition source): --- (not applicable)
- burn rate „BC“: **c** (no burn time)
- burn time t_{BT} (only for „BC“ b): --- (not applicable)
- explosion group: **IIB3**
- operational temperature T_0 : **60°C**
- maximum operational pressure p_0 : **atm.** (atmospheric)

The metal foil is marked at the outermost wound element, as follows:

- name of the manufacturer
- gap width
- material number
- direction of winding

example: BS&B- 0,9 – 1.4571 – R


4. Installation

The arrangement and the installation of the vent into the plant shall be done under observance of the rules applicable to the relevant range of use. Especially the instructions for accident prevention have to be observed. A vertical installation position of the vent has to be kept under any circumstances.

A minimum distance of vent outlet to external devices has to be adhered to avoid reduction of volume flow. This minimum distance depends on local circumstances and has to be specified by operator.

The vent is equipped with a flange adapter PN10 Form C or ANSI 150 RF. While flanging be careful that the sealing face is not damaged and that there is no foreign matter or grease between the flanges for no gap to the atmosphere can occur.

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The valve has to be included in the equipotential bonding of the vessel or plant.

To prevent transportation damage, the valve inserts have been secured with transportation safeguards, which must be removed as follows:

- Opening cover (21) by loosening the cylindrical screws (24)
- Loosening of distance nuts (22) and lift up the flame arrester (2)
- Remove transportation guard
- Remove the valve insert (15)
- Remove the marking strap
- Reassemble the valve insert (15) include checking for easy mobility and proper location on the guide bolt(18)
- Install flame arrester (2) and pull hexagon nuts (22) tight
- Swivel in cover (21) and mounting of washer (25) and cylindrical screws (24)

Always regard „Transportation guard“!

5. Maintenance

The maintenance includes a periodic visual control of the flame arrester, especially of the metal foil element with regard to contamination and appearance. The intervals for the maintenance works depend on the operating conditions and how the individual media tend to contamination. They are determined by the operator.

Disassembling of flame arrester element and valve insert:

- Dismounting of cover (21) by loosening the cylindrical screws (24)
- Loosening distance nuts (22) and lift up the flame arrester(2)
- Cleaning as described below
- Lift up valve insert
- Check of valve seat (14) and insert (15) as described below
- Assembling of valve insert, flame arrester element and cover in reverse order as described under 4.

Cleaning / controlling of flame arrester element:

For purposes of cleaning, the flame arrester element must be uninstalled as described above:

In case of minor contamination the flame arrester element shall be blown up with compressed air or hot vapour. In case of major contamination a flushing with a cleaning agent can be carried out. After cleaning all parts which had been wetted by a cleaning agent; shall be blown dry.

During the cleaning works no mechanical modifications may be done on the flame arrester element or on the housing parts of the flame arrester.


On principle, the flame arrester element has to be replaced by a new one, if:

- a fire occurred at the flame arrester element;
- loosening or distortions in the structure of the metal foil elements can be recognized;
- corrosion damages at the metal foil elements have been detected;
- in case of strongly contaminated metal foil element, even after cleaning, a residual contamination of more than 30 % of the free flow cross-section remained.

All works in connection with repair and replacement of components shall be executed only by trained and authorized skilled personnel.

Cleaning / controlling of valve seat and valve insert:

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During maintenance work, valve seats and valve discs have to be checked for contamination and damages as well. Disassembling and re-installing are to be performed as described under 4.

The valve seat must be examined in particular for intactness of the sealing surface. Damages to the valve seat are to be eliminated by expert grinding and smoothing.

Depending on the sealing system in use on the valve inserts, make sure that either the FEP-seal or the metallic sealing surface are not damaged. Damaged valve discs or seals must be replaced by new ones.

It is recommended to hold spare flame arrester elements and the respective seals ready for each vent.

In case of replacement of structural units only original spare parts listed in the spare parts list may be installed to ensure the required safety.

6. Spare part list

Table: Spare part list of 935-E 50/1x0,9

Item No.	Description	Qty.	Material	Order-No.
2	Flame arrester element 1x0,9	1	NSt	FET15415182
15	Pressure valve insert – FEP-sealing *)	1	NSt/FEP	FET15415118
	Pressure valve insert – Metal-seal surface *)	1	NSt	FET15415119
40	Condensate drain	1	NSt	FET992766100
	Condensate screw M10*1	1	NSt	215130500
41	Gasket ring A10*14	1	LM	504580700

Table: Spare part list of 935-E 80/1x0,9

Item No.	Description	Qty.	Material	Order-No.
2	Flame arrester element 1x0,9	1	NSt	FET15416121
15	Pressure valve insert – FEP-sealing *)	1	NSt/FEP	FET15416074
	Pressure valve insert – Metal-seal surface *)	1	NSt	FET15416090
40	Condensate drain	1	NSt	FET992766100
	Condensate screw M10*1	1	NSt	215130500
41	Gasket ring A10*14	1	LM	504580700

* Valve inserts without added weights

Material marks

St ... steel	LM ... light metal	FPM ... Viton	FEP .. Fluoride plastic
NSt ... stainless steel	K ... plastic	NBR ... Perbunan(N)	PTFE .. Fluoride plastic

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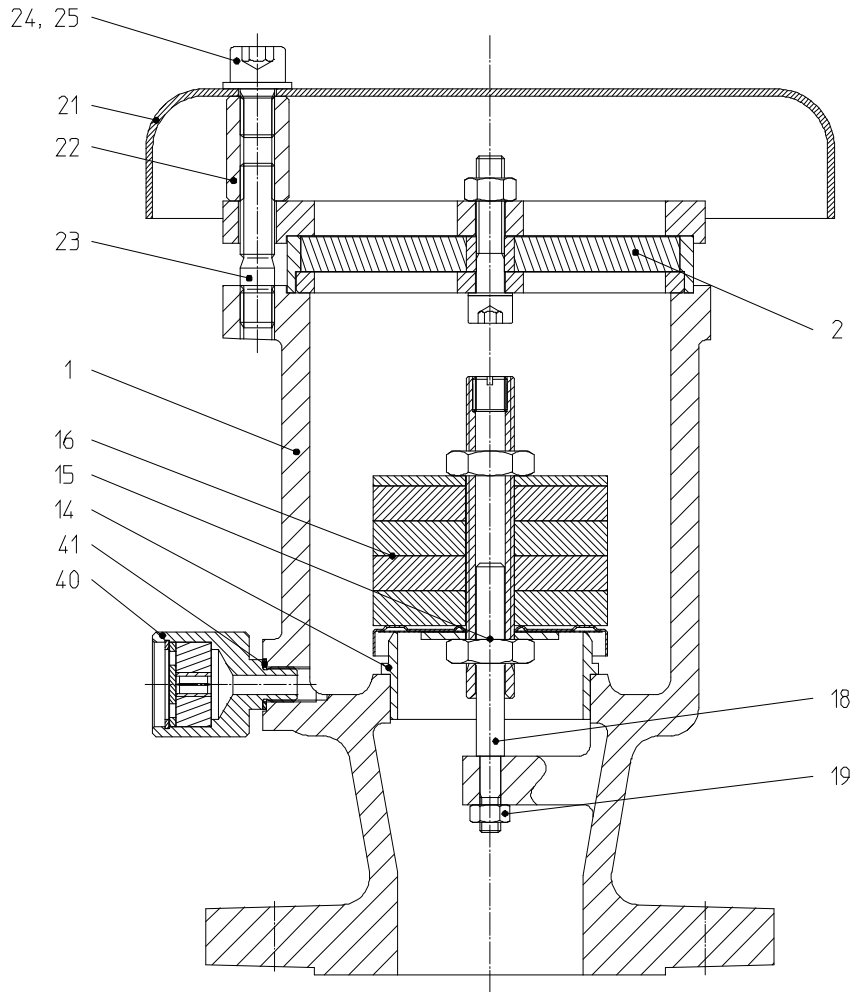


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Assembly drawing 935-E



Hazard sign

Warning		Flame arrester have installation and application limits. Type design in accordance with ISO 16852	
DEF	$L_0/D = \text{---}$	BC: c	$t_{BT} = \text{--- min}$
	Ex G IIB3	$T_0 = 60 \text{ } ^\circ\text{C}$	$p_0 = \text{atm.}$

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