	FLAME ARRESTER 931-B 1/2(3/8)-4x0,2/D INSTRUCTIONS FOR OPERATING AND MAINTENANCE	REV 1.0
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For the flame arrester type 931-B-1/2(3/8)-4x0,2/D catalogue data sheets as „Dimension sheet“, „Technical data“ and „Pressure drop/volume flow charts“, are available including the technical data, constructions and dimensions.

1. Use

The flame arrester type 931-B-1/2(3/8)-4x0,2/D complies with the standard EN ISO 16852:2016 - „Flame Arresters – Performance requirements, test methods and limits for use“.

The general suitability as a detonation flame arrester for stable detonation when used with inflammable gas/air mixture and vapour/air mixture of inflammable liquid of the explosion group IIC (normal gap width < 0,50 mm) has been verified by tests executed at the Institute for Safety Technology IBExU Freiberg. The results of it were confirmed by the issued EC prototype test certificate **IBExU14ATEX2087 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:

maximal permissible operating pressure : 1,1 bar (absolute)

maximal permissible operating temperature : 60°C

The technical parameter of the flame arrester are documented in the works test certificate according to EN 10204 with the delivery of the device.

In the declaration of compliance it is referred to the accordance with the draft of the harmonised standard EN ISO 16852:2016. The maintenance of the basic safety requirements according to directive 2014/34/EU has been confirmed.

The following documents are considered as an integral part of the instruction for operation and maintenance:

Test certificate EN 10204

Declaration of compliance

2. Construction

The flame arrester consists of a housing (1) with a cover (2) which is fastened by a retaining ring (3).

The outer sealing is carried out by O-ring (12).

In the housing itself there are the flame arresting elements consisting of four metal foil elements (4) and (5) with different directions of winding. The metal foil elements are kept on a distance by a star (6) and a pad (7) and are connected to each other by the screw (9) with a hexagon nut (10). The hexagon nut is secured against loosening by a lock washer (11) and additional to that by an adhesive in the thread.

The inlet and outlet nozzles of the flame arrester have to be locked by means of sealing plug (15) for the protection against impurities and moisture during the transport.

Beside the standard version the housing (1) is equipped with an additional fastening thread M30x1,5 in a further version.

3. Marking

The informations for marking the flame arrester are arranged on the nameplate (sheet 4/5).

The following data are indicated :

- Name and address of the manufacturer
- Type
- Serial number and year of production

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- Number of the certificate (EC prototype test certificate-No.)
- Stock number
- EN-number
- The specific mark for prevention of explosions in connection with the mark referring to the group of devices II, and the letter „G“ (for areas where explosive gas-, vapour, air mixtures are present)
- Explosion group
- The CE mark with the number of the indicated inspection authority, which acts during production observation

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

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

Example : BS&B-0,2-1.4571-R

The marking of the parts tested on leak proofness and strength is done by stamping.

4. Installation

The arrangement and the installation of the flame arrester shall be carried out under observance of the applicable rules, especially the instructions for accident prevention have to be maintained.

Before installation into pipe line the sealing plug shall be removed.

The flame arrester shall only be installed in pipelines whose nominal widths are smaller or equal the connection nominal width of the flame arrester.

The connection of the flame arrester of the type 931-B-Rp1/2(3/8)-4x0,2/D into the pipe line is carried out independently from the direction of the starting flame (bi-directional flame arrester).

A vertical as well as a horizontal mounting position is permitted.

The standard flame arrester can be mounted into the plant by a tube clip (outer diameter 45) which is attached to the housing.

The version with an outer diameter M30x1,5 can be mounted through this thread.


The flame arrester is equipped with a pipe internal thread Rp according to ISO 7-1 alternatively BSP according to BS 21 or with tapered internal thread NPTF according to ANSI B1.20.3. For the joint pipe line the suitable tapered outer pipe thread is recommended. If necessary a sealant in the thread may be used (see table1).

For relieving the mounting and dismantling of the flame arrester using a suitable tube fitting is practical.

Table 1: Connecting thread and width across flat 931-B 1/2(3/8)

Cylindrical internal thread of the flame arrester	Rp (BSP) 3/8	Rp (BSP) 1/2	NPTF 3/8	NPTF 1/2
Tapered outer thread of the pipe line	R 3/8	R 1/2	NPTF 3/8	NPTF 1/2
Width across flat	SW 24			
Fastening screw thread (at special design)	M30x1,5			

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The flame arrester should be installed without stress preferably.

There should be always a leak test before putting the plant into operation.

The proving pressures of the flame arrester according to the test certificate EN 10204 must not be exceeded.

5. Maintenance

The maintenance is restricted to a periodical visual examination of the flame arrester, especially of the metal foil elements with regard to contamination and appearance and the cleaning of minor contamination of the metal foil elements.

For this purpose the flame arrester shall be dismantled by taking out the inleading and outleading tubes.

Under any circumstances the flame arrester must not be dismantled on one's own or the retaining ring (3) removed or loosened!

The retaining ring shall be checked on outer mechanical damages and correct position.

Furthermore, the firm position of the screw joints pos. (9) to (11) (tightening torque 6 Nm) shall be checked by means of an Allen wrench.

The contamination level of the outer metal foil element is to be estimated through the connecting threads by lightening with a torch.

In the case of minor contamination the metal foil elements shall be blown out against the operating flow with compressed air or hot vapour.

The periods of the maintenance works depend on the operating conditions and the trend to contamination of each media and shall be defined by the operator.

During the cleaning works no mechanical changes shall be carried out on the flame arrester or its equipment.

For the flame arrester no spare parts will be provided.

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

a fire occurred on the flame arrester element

the housing (1), the cover (2) or the retaining ring (3) show visible mechanical damages

the metal foil elements are visibly strongly contaminated

corrosion damages at the metal foil element have been detected

All works in connection with checking and cleaning of the flame arrester shall be executed only by trained and authorised skilled personnel.

The external leak-proofness of all pressure loaded thread joints shall be checked.

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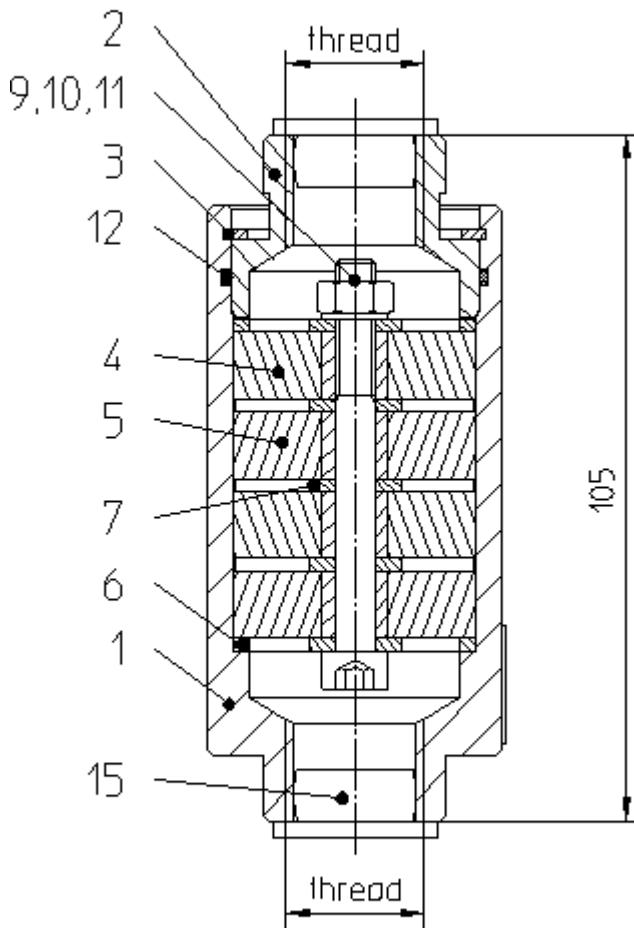
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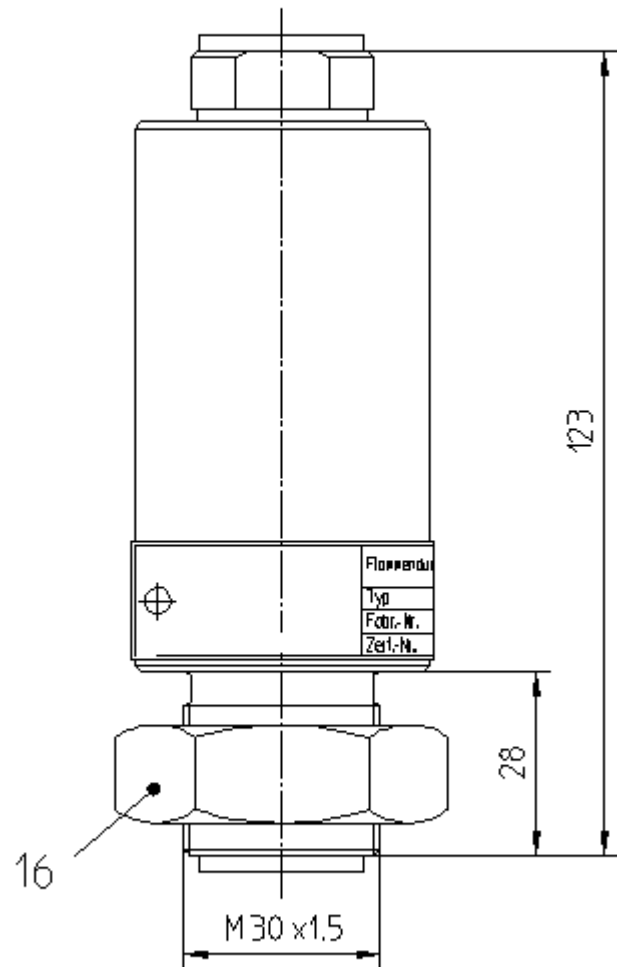
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Assembly Drawing

Standard version



Version with additional fixing thread



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Table 2 : Components list 931-B 1/2(3/8)-4x0,2/D

Pos.	No.	Designation	Material
1	1	Housing	1.4571
2	1	Cover	1.4571
3	1	Retaining ring	1.4122
4	2	Metal foil element, RMG 0,2-1.4571-R	1.4571
5	2	Metal foil element, RMG 0,2-1.4571-L	1.4571
6	2	Star	1.4571
7	3	Pad	1.4571
9	1	Cylinder head screw	A4
10	1	Hexagon nut	A4
11	1	Locking washer	stainless-steel
12	1	O-ring	elastomer
15	2	Sealing plug	PE
16	1	Hexagon nut M30x1,5	A2

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