

## 1. General Information

**ARMATURENBAU GmbH** is certified according to **DIN ISO 9001**.

The following described protection system is therefore constructed and manufactured according to the latest knowledge and is subject to strict quality criteria. Should there, however, arise any reason for complaint, please return the device with a detailed description of the defect.

## 2. Safety Instructions

Please read these operating instructions before putting into operation.

- ➔ Please regard relevant national and international safety instructions exactly (ATEX 137, ExVo, BertSichV etc.).



When disregarding the corresponding instructions, considerable injuries and damage to property may occur.

- ➔ Only qualified personnel is allowed to work with this device.



Please do never manipulate this device! Otherwise you will lose your warranty!

- ➔ Repairs may only be carried out by the manufacturer.

## 3. Description of the Protection System

The deflagrationvolume protection device model "Adapt FS" (see page 3 for versions and installation options) avoids a flame penetration at deflagrations of potentially explosive vapor-air- resp. gas-air mixtures of explosion groups IIA, IIB and IIC in an upstreamed volume (e.g. pressure measuring instruments, chemical seals or similar).

The protection consists of a welded stainless steel cannula as flame arrester. The vapor-air- resp. gas-air mixtures can flow through the cannula with a maximum internal diameter of 0.6 mm (0.024") and at least 23 mm (0.91") length, but a flame penetration is avoided.

## 4. Requirements to Explosion Control

Flame penetration protected at deflagration of flammable gases and liquids according to EC Type Examination Certificate / Approval PTB 99 ATEX 4023 X.

## 5. EC Type Examination Certificate / Approval

The deflagrationvolume protection device model "Adapt FS" corresponds as non-electrical equipment for potentially explosive areas with the harmonised norm

### EN 12874 " Flame Penetration Protection".

The deflagrationvolume protection model "Adapt" FS" corresponds to explosion protection type

### IIG IIC (PTB 99 ATEX 4023 X)

and fulfils the requirements to explosion control, like described below 4.

The corresponding labelling according to ATEX 94/9/ EG is made at a suitable position of the instrument.

## 6. Special Conditions for a secure Usage

For the secure usage of the deflagrationvolume protection model "Adapt FS" the following conditions have to be followed resp. given:

- ➔ The max. volume (firing volume) of the (pressure-resistant) device, that is going to be mounted, may account a maximum of 0.2 l.
- ➔ The maximum length of the tube of the unprotected side between the possible ignition source (device) and the protection may not exceed  $3 \times DN = 45 \text{ mm (1.77")}$  at the screw-adapter.
- ➔ The tube of the unprotected side may not exceed DN 15 (G 1/2") at the screw adapter.
- ➔ The flammable gases resp. fluids that occur in the factory, belong to explosion group IIA, IIB or IIC with a norm gap width of  $\geq 0.29 \text{ mm (0.01")}$ .
- ➔ The operating pressure has to be between 0.8 bar abs.\* (0.055 psi) and 1.1 bar (0.076 psi).
- ➔ The operating temperature has to be between  $-20 \text{ °C (-4 °F)}$  and  $60 \text{ °C (140 °F)}$ .
- ➔ To fulfil the requirements for the zone separation, the technical density of the connection between the process connection of the measuring instrument and the connection piece on the machine side have to be guaranteed. The connection has to be protected against accidental loosening. The plant operator is responsible for the necessary steps.

## 7. Storing

The deflagrationvolume protection devices or measuring instruments with integrated deflagration-volume protection have to be stored in their original



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packing and protected against external influences, until they are mounted.

After an eventual short-time withdrawal of an instrument, (e.g. for examination) it has to be put back carefully in its original packing for further storing.

Please contact the manufacturer in case of obscurities or insecurities.

\* atmospherical conditions

Atmospherical conditions conceive the condition, in which the pressure has fallen down in zone 0-system, that a flame could go back against the flow rate.

By pressing > 1.1 bar (0.076 psi) abs. (beyond the functional area of the "Adapt FS") exists an additional security, if the emergent gas-air mixture makes a flashback improbable because of the high pressure.

## 8. Mounting

The mounting of deflagrationvolume protection devices or measuring instruments with integrated deflagrationvolume protection devices should only be carried out by qualified personnel.

The connections have to be leak-proof.

For this you have to regard the appropriate national and international safety instructions (see 2. Safety Instructions) exactly.

Suitable sealings, made of material which is resistant against the medium, have to be used for the connections in every case.

For the sealing of pressure measurement connections with cylindrical thread spigots, flat sealings according to EN 837-1 or profile packings resp. lens-shaped sealings at appropriate high pressure connections have to be inserted at the sealing surface.

## 9. Maintenance and Repair

Pressure measuring instruments are in general maintenance-free.

Repairs may only be carried out by the manufacturer.



The qualification approvals of Adapt FS will be omitted at any change of them.



The manufacturer's declaration of Adapt FS will expire at any change of devices with integrated Adapt FS.

Before returning the devices for repair, the wetted parts have to be cleaned accurately, especially when a dangerous medium has been used.

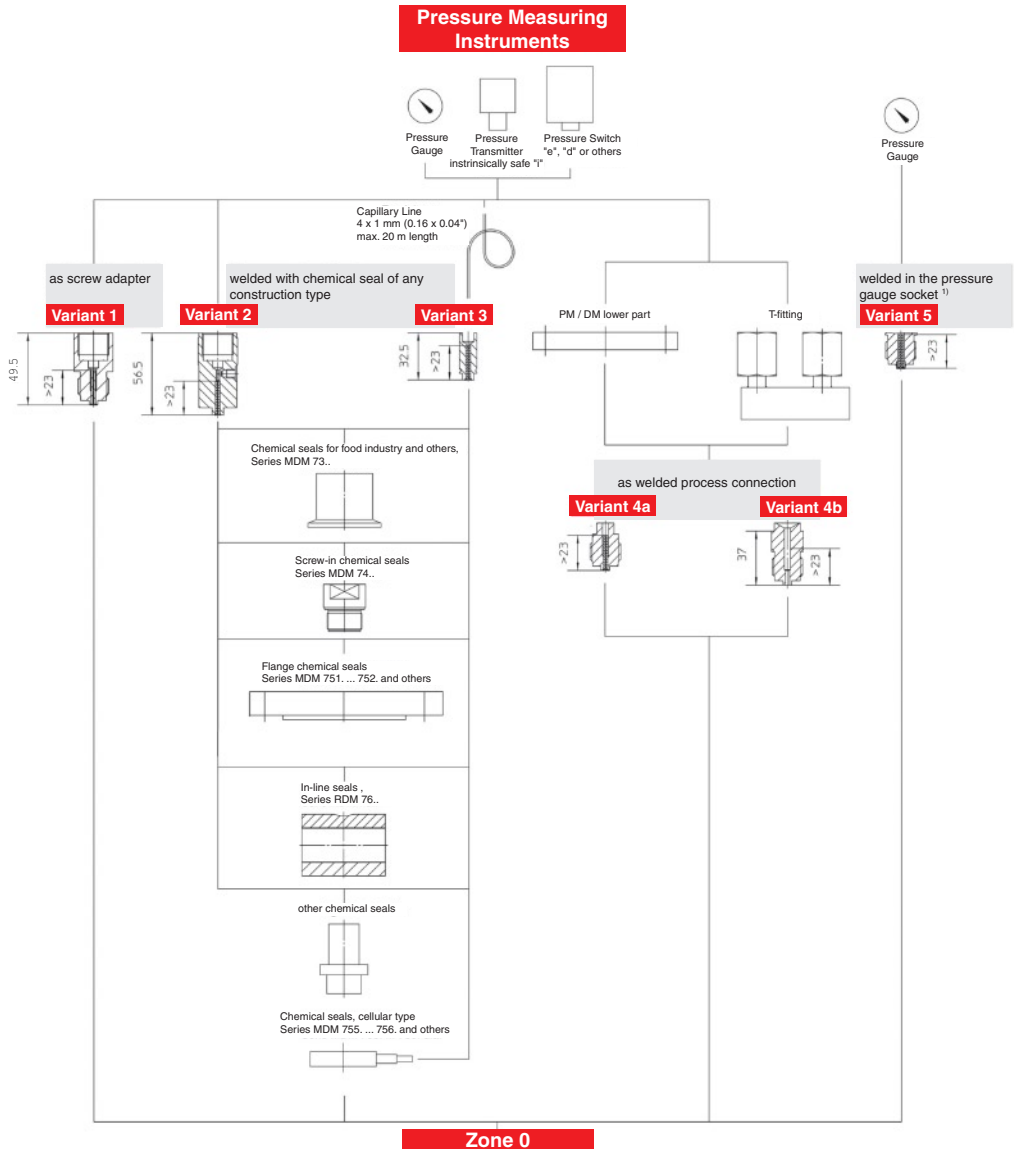
A description of the medium resp. a contamination declaration has to be enclosed to the repair order.

## 10. Disposal



Please assist in protecting the environment and dispose resp. recycle the used materials according to the valid disposal regulations.

## Variants and Installation Options



### ATTENTION, applied to all variants:

Volume behind flame penetration protection Adapt FS < 0.2 l.

To fulfil the requirements to the zone separation, the technical density of the connections between the process connection and the machine side of the process connection have to be secured. The connection has to be protected reliably against accidental loosening. The necessary steps are in the plant operator's area of accountability.

<sup>1)</sup> at process connection G ½ B and M 20 x 1.5, others upon request