

# UNITOR

## OPERATING INSTRUCTIONS

### Automatic Flashback Arrestor W-S66AC/W-S66OX

in brass according to ISO 5175, EN 730-1 for fuel gas and oxygen.

BAM certified  
Certification-No.: BAM/ZBF/009/12

#### Operating and fundamental safety recommendations

The safety device has a manufacturers label which indicates any special requirements.

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#### Foreword

These operating instructions should serve to make the correct operation and safe use of the safety device possible. Attention to the instructions aids danger to be avoided, downtime reduced and operational life and certification to be increased.

The operating instructions should be kept in an accessible place within reach at all times. All persons working with the safety device should read and observe the operating instructions. If in doubt contact the

manufacturer. In addition to the specific instructions there may be mandatory regulations or codes of practice regarding the installations or use of the equipment. Any such regulations should be complied with.

All particulars marked **Δ** must be regarded as important safety recommendations.

The safety device meets the requirements of ISO 5175 and EN 730-1 and is tested before despatch for safe function.

#### 1 Description

The safety device consists of a combination various separate safety elements whose functions are described.

##### 1.1 Non-return valve **[NV]**

Prevents the gas flowing in the reverse direction to the normal flow.

##### 1.2 Dirt filter

Protects the safety device from dirt particles.

##### 1.3 Flame arrestor **[FA]**

Prevents the transmission of a flame or flashback from the blowpipe passing through the safety device into the equipment connected upstream.

##### 1.4 Cut-off of gas without flashback **[PV]**

This is caused by extreme back pressure of upstream pressure when equipment is shut off. The symptom is a warning that operating procedures and/or equipment should be checked.

##### 1.5 Temperature sensitive cut-off valve **[TV]**

Cuts off gas supply when the safety device is overheated due to an external flame or a flame returning from downstream.

##### 1.6 Explosion relief valve **[RV]**

Discharges to the atmosphere products of combustion and pressure produced by a flashback.

Opening pressure for fuel gas 7.5-8 bar and for Oxygen and Compressed air 13-14 bar.

#### 2 Operating and fundamental safety recommendations

##### 2.1 Authorised operation

The safety device determines the safety level of an outlet point in a pipeline or a single cylinder system.

**Δ** A safety device which has been used with compressed air may not be subsequently installed in oxygen equipment.

**Δ** A single piece of equipment may be connected to a single safety device.

Check that the safety device has the correct flow capacity for the application.

##### 2.2 Unauthorised operation (examples)

Inappropriate handling and unauthorised operation could result in risk of injury to the operator and other persons as well as damage to the equipment. Some examples:

The safety device may not be used with gases in the liquid phase and are not certified for use in temperatures below minus 20 °C and above 70 °C.

**Δ** A single piece of equipment may be connected to a single safety device.

**Δ** A safety device which has been used with compressed air may not be subsequently installed in oxygen equipment.

**Δ** The explosion relief is not a safety relief valve to protect the equipment from unpermitted pressure increases in the pipeline system.

**Δ** Modification and dismantling of the safety device is not permitted.

#### 3 Marking

The safety device has a manufacturers label which indicates any special requirements!

#### 4 Recommendations for operation, maintenance and repair

##### 4.1 Installation

**Δ** All components coming into contact with oxygen must be oil and fat free to avoid the risk of explosion.

**Δ** Marking of the safety device eg. part number or date of purchase, must not be done with punches or any other method requiring force.

**Δ** Check that all connecting threads and seating surfaces are clean and without damage.

The safety device may only be fitted to clean and tested pipelines.

After repairing a pipeline it must be blown through and re-tested before safety devices can be re-fitted.

An isolation valve should be fitted to the pipeline before each safety device.

Hoses EN 559 should be fitted with suitable hose clips EN 560.

**Δ** The fitting of the safety device is unconnected with the type of blowpipe in use.

**Δ** The connection of two or several working devices (burners) is not allowable.

The safety device fitted to a pipeline supplied from an acetylene generator may only be used together with an approved gas purifier. A dirt filter in the inlet of the

safety device is sufficient in pipelines supplied by acetylene cylinders.

If there is any risk of condensation in a pipeline a moisture separator must be installed.

Wet and dry safety devices should not be installed in the same pipeline wherever possible. When this is impossible to avoid the safety device should be installed in separate parts of the pipeline protected from the entry water.

The safety device is to install at the end of the pipeline - at the beginning of the hose.

With equipment that is built in or connected permanently to the pipeline the safety device should be fitted into the pipeline as close as possible to the blowpipe (avoid the possibility of overheating).

**Δ** After installations all connections should be tested under pressure for leak tightness to atmosphere. Suitable leak protection fluids should be used. Leak protection should not be carried out with a naked flame.

##### 4.2 Commissioning

Pay attention to the operation instructions for the equipment to be connected.

##### 4.3 Breakdowns

###### 4.3.1 No gas flow

Test the isolation valve before the safety device is open.

###### 4.3.2 Red signal lever opens

If the red signal level is open, the pressure cut-off valve is closed and the gasflow is stopped.

The closing of the pressure cut-off valve could have several reasons.

**Δ** The reason is to examine and to eliminate. The lever is not to block !

a) Back feeding of gas due to a faulty blowpipe.

b) Flashback due to insufficient gas flow, check that safety device with sufficient flow has been chosen.

Please check, if a flashback arrestor with an enough high flow is used for the application.

Okay, the flashback arrestor could be plugged by dirt from the distribution pipe or by carbon caused of several flashbacks.

Also water can block the flame arrestor.

The safety device is to repair by the manufacturer.

c) A leak between the ball valve before the flashback arrestor and the non-return valve of the flashback arrestor.

The pressure disappears over the leak in the atmosphere if the ball valve before and behind the flashback arrestor is closed and system was under pressure .

The pressure cut-off valve closes at a pressure difference of max. 1.2 bar between the pressure before the flashback arrestor and the pressure behind the non-return valve. This could be caused by a leak between the ball valve and the flashback arrestor.

**Δ** The flashback arrestor is to release of the pressure and the leak is to eliminate before the flashback arrestor is resetted.

If it is not possible to reset the flashback arrestor, the temperature activated cut-off valve has melted. In that case the flashback arrestor must be replaced.

d) The temperature activated cut-off valve and the gas flow cut-off has operated. If so the Flashback arrestor has served its purpose and will have to be deposed off.

There is nothing to indicate that the temperature activated cut-off valve has operated.

Backburn has stabilised internally or the ambient temperature is to high.

##### 4.4 De-commissioning

In the event of an outlet point not being used for a long time carefully close the isolation valve before the safety device. At the outlet connection fit a threaded blanking plug.

##### 4.5 Maintenance

Annual testing of the non-return valve, leak tightness and flow capacity is recommended.

The test may be carried out by the operator and must be documented.

##### 4.6 Repair

**Δ** Repairs may be only carried out by the manufacturer.