

# General building approval / general type approval

Eine vom Bund und den Ländern gemeinsam  
getragene Anstalt des öffentlichen Rechts

## Zulassungs- und Genehmigungsstelle für Bauprodukte und Bauarten

Date: 31.05.2024 Reference number:  
III56-1.85.1-6/22

**Number:**  
**Z-85.1-27**

### Applicant

**SUEDWIND GmbH**  
Handwerkerstrasse 14  
39057 APPANO (BZ)  
ITALY

### Period of validity

From: **May 31, 2024**  
Until: **May 31, 2029**

### Subject matter of this decision:

**Negative pressure monitor - Independent safety device to ensure safe joint operation of ventilation  
systems and room air-dependent  
Fireplaces**

The above-mentioned subject matter is hereby generally approved/authorized by the building authorities.

This notice comprises ten pages and two annexes.

DIBt

## I GENERAL PROVISIONS

- 1 This decision proves the usability or applicability of the subject matter of the regulation within the meaning of the state building regulations.
- 2 This notice does not replace the permits, approvals and certificates required by law for the implementation of construction projects.
- 3 This decision is issued without prejudice to the rights of third parties, in particular private property rights.
- 4 Copies of this notice must be made available to the user or operator of the regulated item, without prejudice to further provisions in the "Special Provisions". In addition, the user or operator of the regulated item must be informed that this notice must be available at the place of use or application. Copies must also be made available to the authorities involved upon request.
- 5 This notice may only be reproduced in its entirety. Publication of extracts requires the consent of the German Institute for Building Technology. Texts and drawings in advertising material may not contradict this notice; translations must contain the note "Translation of the original German version not checked by the German Institute for Building Technology".
- 6 This decision is revocable. The provisions may be subsequently supplemented and amended, particularly if new technical findings so require.
- 7 This decision refers to the information and documents provided by the applicant. Any changes to these bases are not covered by this decision and must be disclosed to the German Institute for Building Technology immediately.

## II SPECIAL PROVISIONS

### 1 Subject matter and scope of use or application

#### 1.1 Subject of regulation

The subject of the regulation is the air pressure monitor of the "negative pressure monitor" type including the associated pressure measuring device as a safety device for monitoring the differential pressure between the outside atmosphere and the installation room of a room-air-dependent fireplace, hereinafter also referred to as air pressure monitor. (Annexes 1, 2)

The air pressure monitor is constructed in a single-channel computer structure and consists of the following components, which are housed in an impact-resistant plastic housing:

Differential pressure sensor type D6F-PH0505AD3 for measured value acquisition,

Three-way valve for cyclic calibration of the zero point of the differential pressure sensor to compensate for zero point drift,

Microcontroller-supported evaluation and monitoring electronics for measured value processing and evaluation as well as for internal monitoring and self-test functions,

1. Relay, driver stage for control (switching output for supply air device),

2. Relay, driver stage for control,

3. Relay, driver stage for control,

Operating and display device.

The pressure measuring device consists of a silicone air hose in combination with a wind protection box. (Appendix 2)

With the help of the control object including the associated pressure measuring device, it is ensured that critical operating conditions and disturbances are detected and the ventilation system is switched to a safe operating state.

The functionality of the subject matter of the regulation is described in detail in section 2.1.8.

#### 1.2 Area of use and application

Under the conditions specified in this section, the air pressure switch is suitable as Safety device for monitoring the differential pressure between the outside atmosphere and the room air of the installation room of one of the following room air-dependent fireplaces with simultaneous operation of ventilation systems<sup>1</sup> :

• Fireplaces for pellet fuel according to DIN EN 147852 with automatic fuel supply,

• hand-fed fireplaces according to DIN EN 128153.4 , DIN EN 132295.6 and EN 132407,8 .

1	including air extraction devices (such as extractor hoods, exhaust air dryers, etc.)	
2	DIN EN 14785:2007-10 Space heaters burning wood pellets - Requirements and test methods	
3	DIN EN 12815:2005-09 Solid fuel burning cooking stoves - Requirements and tests	
4	Amendment 1: 2008-06	Solid fuel stoves - Requirements and tests, Corrigenda to DIN EN 12815:2005-09
5	EN 13229: 2005-10	Fireplace inserts including open fireplaces for solid fuels - requirements and tests
6	Amendment 1: 2008-06	Fireplace inserts including open fireplaces for solid fuels - Requirements and tests, corrections to DIN EN 13229: 2005-10
7	EN 13240:2005-10	Solid fuel space heaters - requirements and tests
8	Amendment 1: 2008-06	Solid fuel space heaters - Requirements and tests, corrections to DIN EN 13240:2005-10

Since the pressure conditions between the installation room and the room air-dependent fireplace cannot be directly detected, the escape of exhaust gases into the installation room can only be determined to a limited extent using the air pressure monitor.

The air pressure monitor may only be used in units whose room air-dependent fireplace is not connected to multiple exhaust systems.

The air pressure switch may only be operated at an ambient temperature in the range of +0 °C to +50 °C.

Monitoring the differential pressure between the outside atmosphere and the installation room of a room-air-dependent fireplace to prevent exhaust gases from escaping when there is negative pressure in the installation room requires the ventilation and combustion systems to be operated together as intended. Both the combustion air supply to the fireplace and the operational and fire-safe discharge of the fireplace's exhaust gases must be ensured and the fuel recommended by the fireplace manufacturer must be used.

The air pressure monitor does not replace the professional dimensioning and design of the air-conditioning and combustion systems with regard to the necessary combustion air supply and exhaust gas removal in the room air system.

The air pressure switch may only be used where the factory-set settings of the quantities specified in section 3.2 of this approval cannot lead to dangerous exhaust gas emissions (30 ppm CO must not be exceeded), taking into account the local conditions and the technical requirements of the system.

## **2 Provisions for the construction product**

### **2.1 Properties and composition of the air pressure switch including the associated pressure measuring device**

The subject matter of the regulation must correspond to the model used in the approval test, the information in the TÜV SÜD test report no. C 1720-00/23 and the design drawings and representations; the test report, the design drawings and the representations are deposited with the German Institute for Building Technology.

They must be made available to the external supervisory authority by the applicant for the general building inspection approval covered by this decision.

#### **2.1.1 Housing**

The wall-mounted housing with protection class IP 20 is made of impact-resistant plastic and is attached with 4 screws. The housing dimensions must correspond to the information in Appendix 1. The display is located on the front of the housing, on the lower side is the access for the power supply, the switch for turning the device on and off, the NC (Normally Closed) terminal for the ventilation system to be monitored with potential excess exhaust air, the NO (Normally Open) terminal for an optional supply air device, two nipples for attaching air hoses. The hose nipples are marked "Out", "In". The outside air hose must be attached to the "Out" marking.

#### **2.1.2 Differential pressure sensor**

The differential pressure sensor is type D6F-PH0505AD3 and has a thermal sensor element.

The measuring range is 50 Pa with a measurement uncertainty of 0.1 Pa and a permissible overload capacity of 500 Pa.

The measuring range for the differential pressure between the outside atmosphere and the installation room of the room-air-dependent fireplace is 0 to 4 Pa with a maximum increment of 1 Pa.

Technical details of the differential pressure sensor and the results of qualification tests are deposited with the DIBt.

### 2.1.3 Switching output

The switching output of the air pressure switch consists of two relay contacts of relays K1 and K2 connected in series, whose current load is limited to 2.5 A by the fuse F1.

The relay K2 is controlled by port 31 (IQ19) of the microcontroller via the relay driver stage T2. The relay K3 is controlled by port 30 (IQ18) of the microcontroller via the relay driver stage T3.

The switching output for an optionally connected supply air device consists of the relay contact K1. This relay is controlled by port 37 (IQ23) of the microcontroller via the relay driver stage T1.

The power supply for the air pressure monitor is via the plug-in power supply unit type GS06E-1P1J.

### 2.1.4 Three-way valve

The three-way valve for cyclic calibration is a solenoid valve.

### 2.1.5 Evaluation and monitoring electronics

The microcontroller-supported evaluation and monitoring electronics must in particular be able to implement the following functions:

- Protection against unauthorized or unintentional access to security-relevant data,
- If the supply voltage fails, the switching output must not enable the ventilation system to operate.

• If the set limit value for the maximum pressure difference is reached or exceeded for a period longer than the factory-set smoothing time of 150 s, the switching output must be interrupted and the ventilation system switched off.

• After the switching output has been switched off three times within one hour because the set limit value for the maximum pressure difference of 4 Pa has been reached or exceeded, the switching output must be permanently deactivated.

• The interruption of the switching output during the fault must not occur automatically.  
be lifted.

• cyclic calibration of the zero point of the differential pressure sensor (at least every  
15 minutes),

Only in case of device fault, not in case of underpressure: the interruption of the switching output must not be removed independently. Continuous

monitoring of the status of the switching output,

If the interference suppression device is blocked due to incorrect operation, internal errors or line shorts, the switching output must not be released and therefore the ventilation system cannot operate.

An automatic test of the processor and the hardware and software is carried out after the supply voltage is applied and then cyclically every 24 hours.

### 2.1.6 Operating and display device

The air pressure switch can be operated in one operating mode:

• Normal operation and alarm state.

The following are set at the factory:

• Limit value for differential pressure of 4 Pa,

• the smoothing time of 150 s,

subsequent adjustment of the parameters is not provided.

The display shows information about the operating status of the device.

### 2.1.7 Pressure measuring device

The components of the pressure measuring device are a wind protection box and an air hose. (see Appendix 2)

### 2.1.8 How the air pressure switch works

After electrically connecting the air pressure monitor to a 230 V power supply, electrically connecting the ventilation system to be monitored to the air pressure monitor and switching on the air pressure monitor, a functional test is carried out. The monitoring function of the air pressure monitor is then activated and the differential pressure between the outside atmosphere and the room air in the room in which a room-air-dependent fireplace is installed is continuously monitored.

After activation of the differential pressure measurement, the outside air flows through an air hose to the differential pressure switch, which is located inside the building. The air inside the building flows to the pressure switch via an air inlet opening (see Annexes 1, 2).

Taking the smoothing time of 150 s into account prevents the safety device from being triggered if the set differential pressure is exceeded for a short time (e.g. due to gusts of wind). During the smoothing time, the switching output is released, i.e. the connected ventilation system is in operation. If the measured differential pressure exceeds the set limit of 4 Pa beyond the set smoothing time, the switching output is interrupted, i.e. the connected ventilation system is switched off and an error message is displayed. At the same time, the switching output for the optionally connected supply air device is released for pressure equalization. The switching output of the ventilation system with excess exhaust air is only released again when the measured differential pressure has fallen below the set limit.

If the air pressure monitor switches off the switching output three times within an hour because the set limit of 4 Pa is exceeded, the switching output remains permanently deactivated. The air pressure monitor does not switch on automatically. A manual reset is necessary to activate the switching output after permanent deactivation.

Any faults that occur are signaled optically on the air pressure monitor and the switching output of the ventilation system is not released in these situations.

The cyclic calibration of the zero point of the differential pressure sensor takes place every 15 minutes. This also limits incorrect measurements, e.g. due to kinked or disconnected pressure measuring hoses, to this period.

An automatic test of the processor and the hardware and software is carried out after the supply voltage is applied and then cyclically every 24 hours.

## 2.2 Manufacturing, labelling

### 2.2.1 Manufacturing

The air pressure switches including the associated pressure measuring device must be manufactured at the factory.

### 2.2.2 Labelling

The air pressure monitors must be marked by the manufacturer with the conformity mark (Ü mark) in accordance with the conformity mark regulations of the federal states. The marking may only be applied if the requirements of section 2.3 are met.

In addition to the Ü symbol,

• the type designation,

• the manufacturer,

• the year of manufacture and

• the manufacturing plant

• including the decision number Z-85.1-27

be clearly and permanently indicated on the product and the package leaflet.

### 2.2.3 Product-accompanying documents

The manufacturer must include installation and operating instructions with each air pressure monitor (also for the associated pressure measuring device). These instructions must be written in German and understandable. The instructions must contain all the information required so that, when properly installed, operated and maintained, the ventilation and combustion systems equipped with the air pressure monitors can only be operated if the conditions specified in section 3.1.2 are observed.

The manufacturer's instructions and other product-related documentation must not contain any information that contradicts this approval notice.

The manufacturer must include a note in the installation instructions stating that the intended joint operation of the ventilation and combustion systems equipped with the air pressure monitors requires that both the combustion air supply to the fireplace and the operational and fire-safe discharge of the exhaust gases from the fireplace are ensured and that the fuel recommended by the manufacturer of the fireplace is used. It must also be pointed out that the air pressure monitor does not replace the professional dimensioning and design of the air conditioning and combustion systems with regard to the necessary combustion air supply and exhaust gas discharge in the room-air network. Exhaust gas leakage in dangerous quantities must be avoided (30 ppm CO must not be exceeded).

The operator of the air pressure monitor must inform the responsible authorized district chimney sweep (bBSF) about the installation and commissioning of the regulated object.

The product-accompanying documentation relating to the subject matter of the regulation must contain a section addressed to the responsible district chimney sweep (bBSF), which enables him to inspect the subject matter of the regulation.

The operator must be informed that he must retain the documentation accompanying the product and the commissioning report.

## 2.3 Confirmation of conformity

### 2.3.1 General

Confirmation of the conformity of the air pressure monitors including the associated pressure measuring device with the provisions of this general building approval/general type approval must be provided for each manufacturing plant with a certificate of conformity on the basis of in-house production control and regular external monitoring including an initial test of the air pressure monitors including the associated pressure measuring device in accordance with the following provisions.

The manufacturer must provide the declaration of conformity by marking the construction products with the conformity mark (Ü mark) and indicating the intended use.

For the issue of the certificate of conformity and the external monitoring, including the product tests to be carried out in this context, the manufacturer of the regulated object must involve a recognized certification body and a recognized monitoring body.

The certification body must provide the German Institute for Building Technology with a copy of the certificate of conformity it has issued. The German Institute for Building Technology must also be provided with a copy of the initial test report.

### 2.3.2 Factory production control

In-house production control must be set up and carried out in every manufacturing plant. In-house production control is understood to mean the continuous monitoring of production by the manufacturer to ensure that the construction products he manufactures comply with the provisions of the general building inspection approval covered by this decision.

The factory production control must be carried out once per day of production. To this end, at least one piece per series must be checked at least once a day to see whether the air pressure monitors comply with the requirements of Section 2.1 of the special provisions of this approval and are marked in accordance with Section 2.2.2. In particular, the following functional tests must be carried out:

Table 1: Switching functions by simulating real operating conditions

	Simulated operating state	Switching function
1	There is no voltage at the air pressure switch.	Switching output is not enabled
2.1	Reaching or exceeding the pressure difference of 4 Pa for a period longer than 150 s Reaching or	Switching output is not enabled, LED flashes green
2.2	exceeding the pressure difference of 4 Pa three times within one hour	Switching output is not enabled, Indicator light flashes red, manual unlocking required
3	Set differential pressure lower limit: - manual unlocking	Switching output is enabled again

Table 2: Switching functions by simulating faults

	Simulated disturbance	Switching function
1	Differential pressure greater than 4 Pa	Switching output is not enabled
2	caused by kinked or clogged pressure hose	The device goes into "Fault" mode. The switching output is not enabled.

Table 3: Test function

	Pressure measuring device	
1	Visual inspection	Visual inspection for free passage and possible casting defects

Table 4: Further

	Equipment manufacturing	
1	Checking the equipment components for damage and proper assembly	Yes No
2	Protective conductor connection in the device: tested protective conductor connection	Yes No

The results of factory production control must be recorded.

The records must contain at least the following information:

- designation of the construction product or the starting material and the components with regard to the requirements laid down in section 2.1,
- type of control or inspection,
- date of manufacture and testing of the construction product,
- Results of controls and tests and, where applicable, comparison with the requirements,
- Signature of the person responsible for factory production control.



The records must be kept for at least five years and presented to the monitoring body responsible for external monitoring. They must be presented to the German Institute for Building Technology and the responsible supreme building supervisory authority upon request.

If the test result within the scope of the factory production control is unsatisfactory, the manufacturer must immediately take the necessary measures to remedy the defect. Construction products that do not meet the requirements must be handled in such a way that confusion with conforming products is excluded. After the defect has been remedied, the relevant test within the scope of the factory production control must be repeated immediately - as far as technically possible and necessary to prove that the defect has been remedied.

### 2.3.3 External monitoring

In each manufacturing plant, the factory production control must be checked regularly by an external monitoring body, but at least twice a year.

As part of the external monitoring, an initial test of the air pressure switch including the associated pressure measuring device must be carried out.

For both the initial test and the external monitoring, the product properties specified in section 2.1 must be tested on two randomly selected test specimens. The sampling and testing are the responsibility of the recognized monitoring body.

The results of certification and external monitoring must be retained for at least five years. They must be presented by the certification body or monitoring body to the German Institute for Building Technology and the responsible supreme building supervisory authority upon request.

## 3 Provisions for the application of the subject matter

### 3.1 Planning and dimensioning of the combustion and ventilation system equipped with the air pressure switch

#### 3.1.1 Operational requirements

The intended joint operation of the ventilation and combustion system equipped with air pressure monitors including pressure measuring devices requires that both the combustion air supply of the room air-dependent fireplace and the operational and fire-safe discharge of the exhaust gases from the fireplace are ensured and that the fuel recommended by the manufacturer of the fireplace is used.

The supply air side must be dimensioned in such a way that the planned supply air volume flow in the living unit does not result in a negative pressure greater than 4 Pa compared to the outside.

The air pressure monitor is not a substitute for the professional dimensioning and design of the air-conditioning and combustion systems with regard to the necessary combustion air supply and exhaust gas removal in the room air system. Exhaust gas leakage in dangerous quantities must be avoided (30 ppm CO must not be exceeded).

#### 3.1.2 Settings on the device

The factory-set limits on the air pressure monitor are 4 Pa for the differential pressure and a maximum of 150 s for the smoothing time. The differential pressure must be below the limit value.

### 3.2 Design of the combustion and heating systems equipped with the air pressure switch Ventilation system

#### 3.2.1 Installation of air pressure switches

The air pressure monitor including the associated pressure measuring device must be installed by a specialist company authorized by Südwind in accordance with the manufacturer's documentation, unless otherwise specified below. Südwind has the

Specialist companies must be qualified so that they implement the areas of use specified in 1.2 in such a way that, when the air pressure monitor is operated as intended, no exhaust gases can escape in dangerous quantities (30 ppm CO must not be exceeded).

The acceptance and initial commissioning of the installed system must be carried out by the specialist company and documented.

The air pressure switch must be installed in the room where the room-air-dependent fireplace is installed and must be freely accessible with a connection to the outside atmosphere.

When installing the pressure hose in a concealed installation, it must be laid in empty pipes to the air pressure monitor. When laying the pressure hose, particular care must be taken to ensure that there are no kinks or hanging loops. **Declaration**

### 3.2.2 of conformity from the installer

The specialist contractor installing the air pressure monitor including the associated pressure measuring device in accordance with Section 1 must declare in writing to the client (developer) that the safety device installed conforms to the provisions of Sections 3.1 to 3.2.1 for the application of the subject matter of the regulation.

## 4 Terms of use, maintenance and servicing

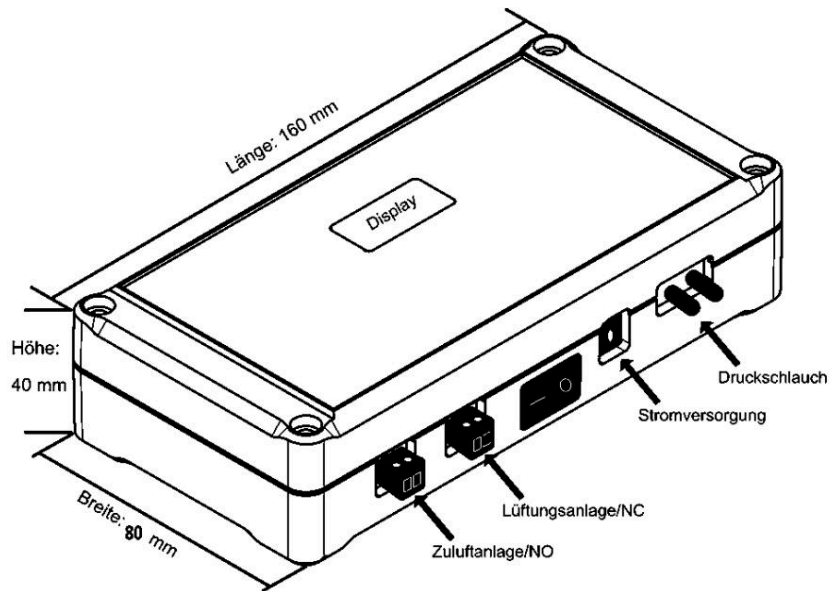
The air pressure monitors including the associated pressure measuring device must be maintained in compliance with the basic maintenance measures in accordance with DIN 310519 in conjunction with DIN EN 1330610 to be maintained in accordance with the manufacturer's instructions.

The operator must carry out a functional test at least once a month in accordance with the manufacturer's instructions.

Ronny Schmidt  
Head of Department

Certified  
cutter

9      DIN31051:2019-06      Basics of maintenance  
10     EN 13306:2018-02      Maintenance terms



Dimensions in [mm]

**Technical data:**

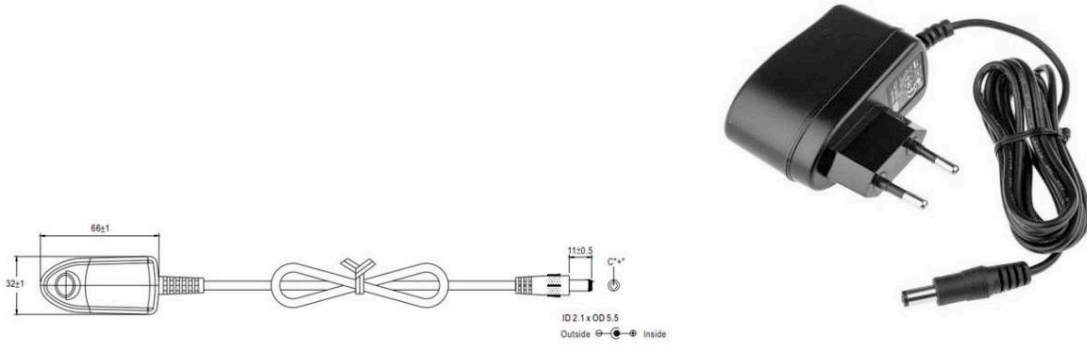
Overload capacity	500 Pa
Supply voltage	230 V AC
Power consumption	< 2W
Ambient temperature range	0-50 °C
Protection class	IP20
TÜV-tested	TÜV Süddeutschland: Test report no. C 1720-00/23

Negative pressure monitor - Independent safety device to ensure safe joint operation of ventilation systems and room air-dependent

Fireplaces  
 Device view air pressure monitor / housing

Attachment 1

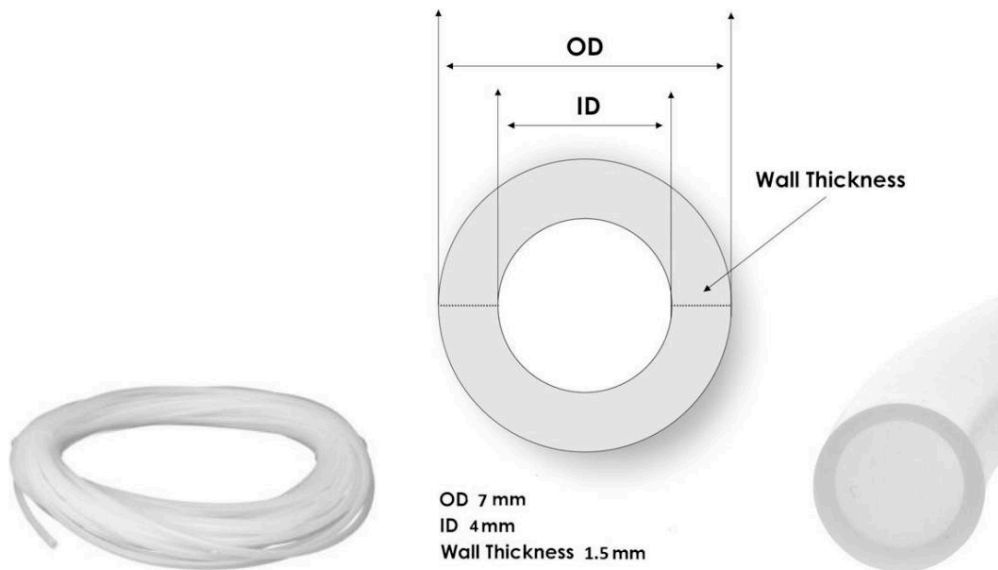
Plug-in power supply type GS06E-1P1J



Windscreen box



Air hose



Dimensions in [mm]

Negative pressure monitor - Independent safety device to ensure safe joint operation of ventilation systems and room air-dependent

Fireplaces  
 Device view air pressure monitor / accessories

Annex 2