

**PK-I-R EI30S / EI60S / EI90S / EI120S  
Round Fire Damper  
&  
PK-I-S EI90S / EI120S  
Square Fire Damper**



**GB** Installation, Operation and Maintenance Instructions

## Introduction

Installation, operation and maintenance manual concerns round fire damper type PK-I-R EI60S, EI90S, EI120S and square fire damper type PK-I-S EI90S, EI120S, manufactured by Imos - Systemair. It consists of basic information and recommendations concerning the design, installation, start-up and operation, which shall be obeyed to ensure the proper fail-free operation of the unit.

The key to proper and safe operating of the unit is to read this manual thoroughly, use the damper according to guidelines given in it and follow all safety requirements.

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## Warning

Some edges of the fire damper parts can be sharp – that's why there is necessary to put on the gloves when installing and working with the damper.

In order to avoid electrical shock, fire or other damage that might occur in connection with faulty use and operation of the unit, it is important to consider the following:

- The system must be installed according to the mounting instructions.
- Insulate mains supply before service or cleaning of components.
- Maintenance must be performed according to the instructions.

## Operation - General information

IMOS – Systemair fire damper is defined as a closure air duct preventing spread of fire in the place of duct penetration through the fire separating construction. In case of fire the fire damper stops the fire, smoke and heat from spreading through the duct for specified time.

- PK-I fire damper units are designed to be imbedded into the horizontal or vertical rigid fire partition walls or vertical flexible fire partition walls.
- All units as standard are electrical actuator or manual actuator driven.
- Accessories such as flanges and communication units can be provided separately on demand
- Accessories are supplied non mounted and separately to be mounted on site by installers.
- Optional extras as switches and electromagnets are mounted into the fire damper and therefore must be indicated in the purchase order.

Fire damper is used in premises where it is protected against outside weather conditions, in ducts distributing air without any other mechanical or chemical additives in following operation conditions:

- Maximum air speed of 12 m/s
- Maximum relative humidity of 90 %
- Temperature range from -20 to +65°C

In terms of noise are the IMOS-Systemair fire dampers passive. You can hear some increased noise only when closing or opening the damper in case of revisal or fire (and it takes less than 20 seconds).

**Note:** Assembly accesories can be ordered together with fire dampers.

During the installation of the cover plates, proper sealant and gasket must be used to avoid any leakages at the duct connection.

Electrical actuator driven fire damper can close the damper blade on demand of Building Management System or signal received from electro-thermal fuse. As standard all electrical actuator fitted fire dampers are equipped with thermoelectric fuse, which when reaching or exceeds temperature of 72 °C with tolerance  $\pm 1,5$  °C, releases actuator and closes the damper blade to safe position within 60 seconds. Manual actuator driven fire dampers can close the damper blade on demand of BMS system, physically by pulling the lever or by breaking thermal fuse. As standard all manual actuator fitted fire dampers are equipped with thermo fuse, which when reaching or exceeds temperature of 72 °C with tolerance  $\pm 1,5$  °C, releases actuator and closes the damper blade to safe position immediately.

## 1 Installation manual

- All connecting ducts to the fire damper must be supported or suspended in such way that the duct weight would not lean on damper or damper flanges. Furthermore the damper should not bare any weight from the above or surrounding construction of the wall; this can result in distortion of the casing and ultimately malfunction of the fire damper.
- Damper actuator can be located on any side of the wall, however it must be positioned in such way that there is easy access provided for inspection or service.
- Spacing between the fire dampers must be a minimum of 200 mm.
- Space between the wall and the fire damper must be at least 75 mm.
- Fire damper is embedded into fire partition construction in such way that when the damper blade is in closed position, the blade will be situated within the wall.
- Damper can be embedded in the wall or in the ceiling with min. thickness of  $110 \pm 10$  mm according to STN EN 1366-2.
- All dampers can be installed with blade in horizontal or vertical position.

### 1.1 Building the PK-I in the rigid wall, with gypsum mixture or concrete

#### 1.1.1 Round fire damper

1. Make a round hole for installation with no less then  $\varnothing d + 60$  mm.
2. Insert the fire damper in the middle of the opening so the fire dampers bracket is resting against the wall and the blade is inside the wall. Use the bendable bracket to mount the fire damper with a suitable M8 screw.
3. Fill the entire opening with gypsum mixture or concrete. Clean the damper if necessary after the installation.
4. Once the fire damper is properly secured into the wall, cover plates made of calcium silicate can be used to close the opening. Use fire resistant mastic to seal bigger gaps.
5. Check fire damper functionality. (See Operating manual)

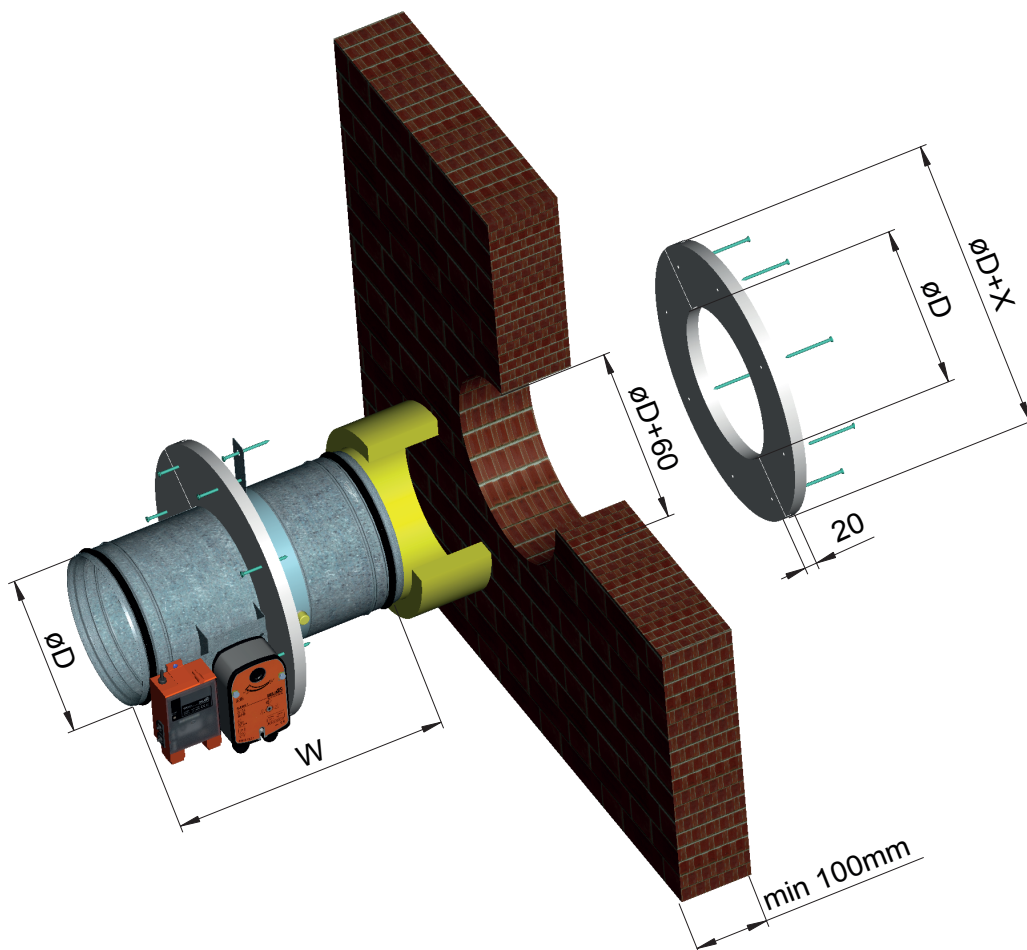


Fig. 1 Installation of round fire damper with gypsum mixture or concrete

### 1.1.2 Square fire damper

1. Make a square hole for installation with no less than  $L + 160$  mm and  $H + 160$  mm
2. Insert the fire damper in the middle of the opening so the fire damper's bracket is resting against the wall and the blade is inside the wall. Use the bendable bracket to mount the fire damper with a suitable M8 screw.
3. Fill the entire opening with gypsum mixture or concrete. Clean the damper if necessary after the installation.
4. Once the fire damper is properly secured into the wall, cover plates made of calcium silicate can be used to close the opening. Use fire resistant mastic to seal bigger gaps.
5. Check fire damper functionality. (See Operating manual)

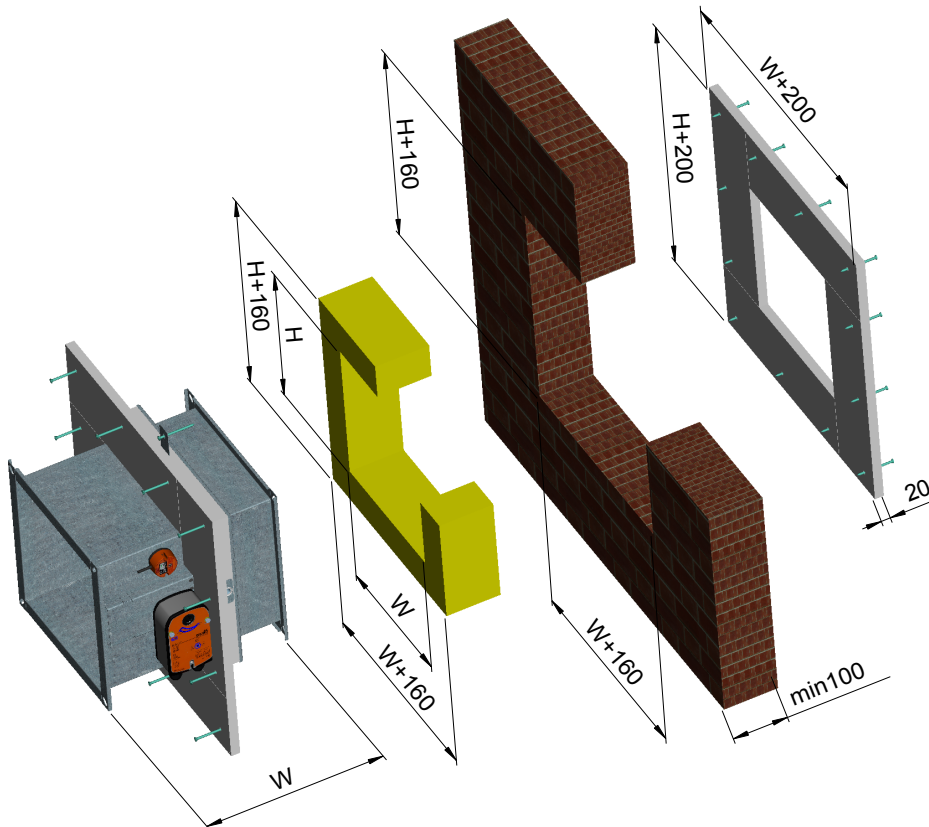


Fig. 2 Installation of square fire damper with gypsum mixture or concrete

## 1.2 Building the PK-I in the rigid or flexible wall using mineral wool

### 1.2.1 Round fire damper

1. Make a round hole for installation with no less than  $\text{Ød} + 60$  mm.
2. The opening must be reinforced with metal frame in flexible wall. The frame consisting of metal anchors should have minimum length of 70 mm to accommodate a screw with a diameter of no less than 5mm.
3. Insert the fire damper in the middle of the opening so the fire damper's bracket is resting against the wall and the closed blade is inside the wall. Use the bendable bracket to mount the fire damper with a suitable M8 screw.
4. Fill the entire opening with mineral wool with a min. density of 80 – 100 kg/m<sup>3</sup>. Clean the damper if necessary after the installation.
5. Once the fire damper is properly secured into the wall, cover plates made of calcium silicate must be used to close the opening. Use fire resistant mastic to seal bigger gaps.
6. Check fire damper functionality. (See Operating manual)

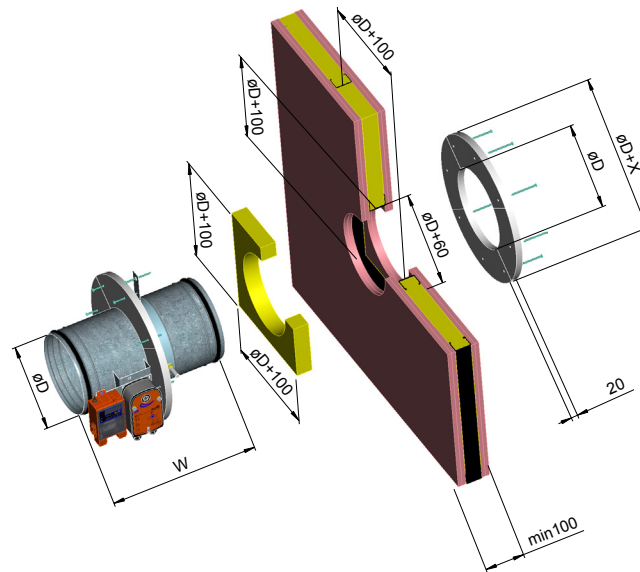


Fig. 3 Installation of round fire damper with mineral wool

## 1.2.2 Square fire damper

1. Make a square hole for installation with no less than  $L + 160$  mm and  $H + 160$  mm
2. The opening must be reinforced with metal frame in flexible wall. The frame consisting of metal anchors should have minimum length of 70 mm to accommodate a screw with a diameter of no less than 5mm.
3. Insert the fire damper in the middle of the opening so the fire damper's bracket is resting against the wall and the closed blade is inside the wall. Use the bendable bracket to mount the fire damper with a suitable M8 screw.
4. Fill the entire opening with mineral wool with a min. density of 80 – 100 kg/m<sup>3</sup>. Clean the damper if necessary after the installation.
5. Once the fire damper is properly secured into the wall, cover plates made of calcium silicate must be used to close the opening. Use fire resistant mastic to seal bigger gaps.
6. Check fire damper functionality. (See Operating manual)

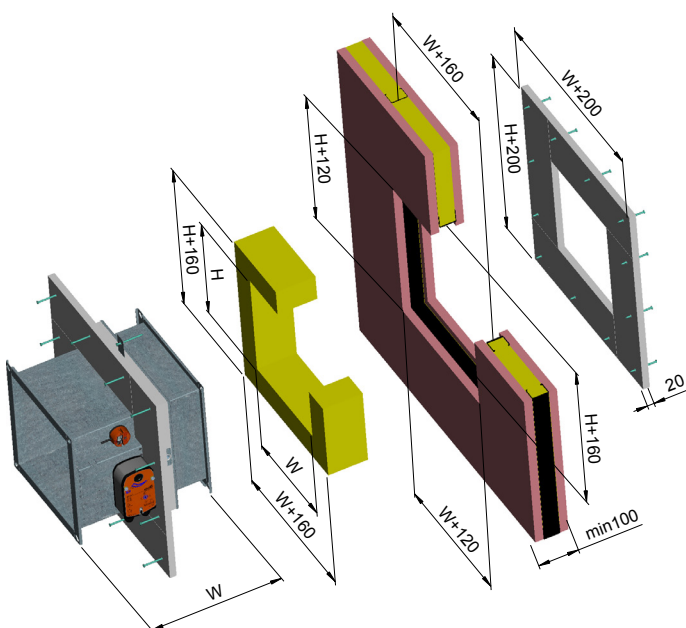


Fig. 4 Installation of square fire damper with mineral wool

Dimensions of cover plates			
Diameter (mm)	X (mm)	Dimension (mm)	X (mm)
$\text{Ø } 100$ to $\text{Ø } 560$	200	L	200
$\text{Ø } 630$ to $\text{Ø } 1000$	300	H	200

## 2 Operational manual

After installing the fire damper into the wall actuator needs to be armed. That means that the damper blade will open. Control system, which the damper is connected to, signals (according to damper connection) open or closed position of damper blade.

### 2.1 Electric actuator

Connect the electrical actuator to power (see wiring schemes) the electromotor is activated and puts the damper into operation position.

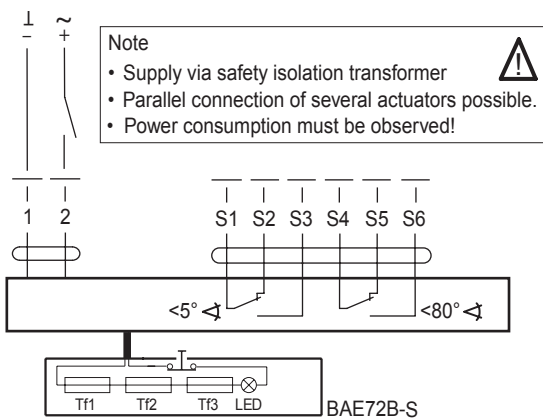


Fig. 5 Wiring scheme of actuators  
BELIMO BLF24-T, BF24-T

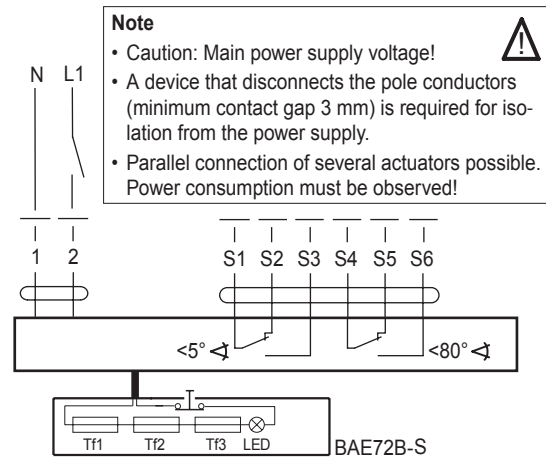


Fig. 7 Wiring scheme of actuator  
BELIMO BLF230-T, BF230-T

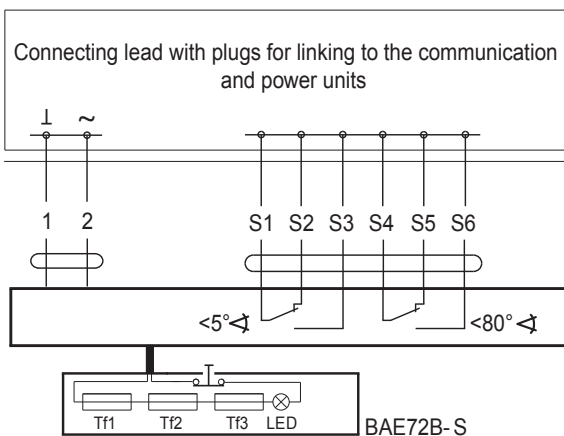


Fig. 6 Wiring scheme of actuators  
BELIMO BLF24-T-ST, BF24-T-ST

## 2.2 Manual actuator

Connect the electromagnet (8) and end switches (9) to power and to the BMS system. Pull the trigger (2) and move the lever (1) from closed position to open.

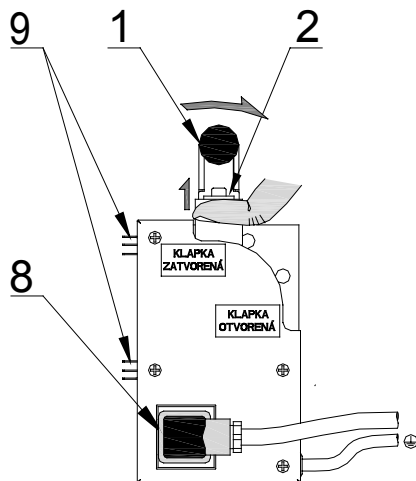


Fig. 8 Manual actuator for small fire dampers

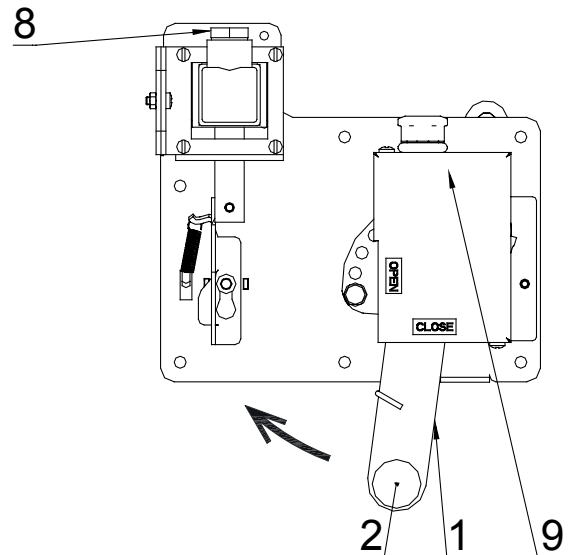


Fig. 9 Manual actuator for big fire dampers

## 3 Maintenance manual

### 3.1 Electric actuator

Damper function is checked when we press and hold the switch on thermo electrical release device (heat fuse) as shown in fig. 10. With the switch we simulate failure of heat fuse. It is necessary to hold the switch in ON mode during the whole damper function check. Actuator puts the damper into accident position – it closes the damper blade with the energy of return spring of the actuator. Damper should close within app. 20-30 seconds (depends on operation temperature). Position of the blade is possible to check visually through inspection lid or the blade position is signalled by control system which the damper is connected to. Damper must close also at any electricity supply drop out when the damper blade is closed with energy of actuator's return spring.



Fig. 10 Thermo electrical release device

### 3.2 Manual actuator

Damper function is checked by pulling the trigger (2) the spring will move the lever (1). (Fig. 8 & Fig. 9) from open position to close position. If the damper is equipped with electromagnet, the damper must be tested by putting signal in to it. The actuator must be armed manually after the control.



### 3.2.1 Fixed mechanism

Thermal fuse is located inside of the fire damper and can be replaced through inspection lid.

1. Put the fire damper into closed position.
2. Remove the inspection lid
3. Push the knob (2) so the spring is pressed with enough power to replace the fuse (1). (Fig. 11)

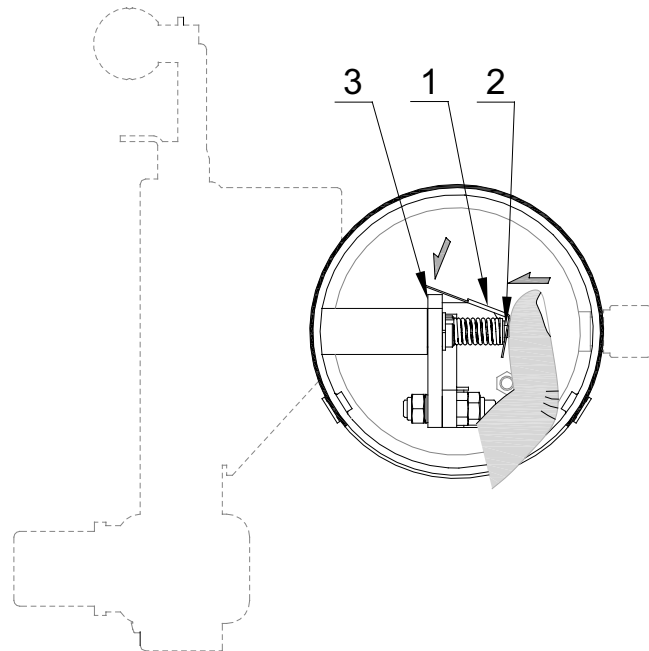


Fig. 11 Change the fuse in small manual fire damper

### 3.2.2 Removable mechanism

1. Put the fire damper into closed position. (Fig. 12)
2. Unscrew 6 screws using wrench. (Fig. 13)
3. Remove the inspection lid (Fig. 14)
4. Push the knob so the spring is pressed with enough power to replace the fuse. (Fig. 15)
5. Check the correct position of pivot and groove when assembling the inspection lid back to casing

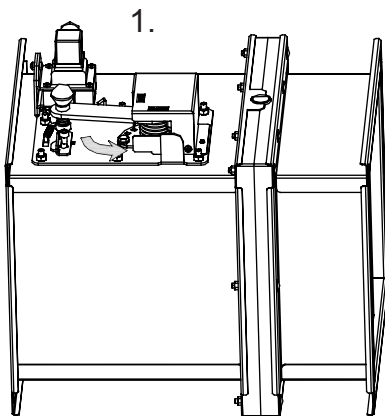


Fig. 12 Closing the damper

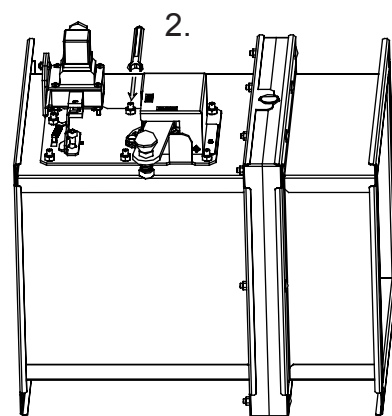


Fig. 13 Remove the inspection lid with wrench



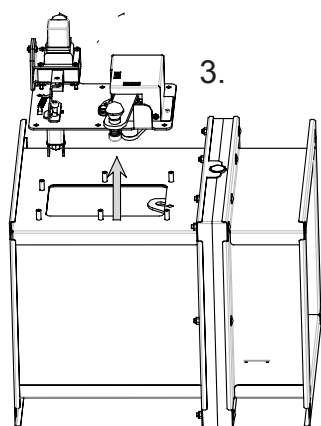


Fig. 14 Pull out the inspection lid

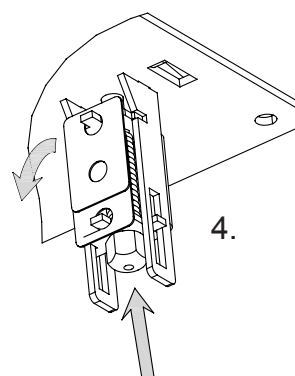


Fig. 15 Change the fuse in big manual fire damper

## Operation conditions

Actuator keeps fire dampers in operation and in safe status during their whole period of service according to operation manual published by the producer. It is not allowed to do any changes or modifications on the dampers and any damper parts cannot be removed without producer's permission. Operator provides regular checking of the dampers according to valid instructions and norms given by the country. If not stated in other way, operator does the damper check once per 12 months. Damper checking is provided by skilled person. Fire damper status determined during the check is noted into operation diary with the date of the check, name, last named and signature of the person that has done the check. If any inadequacies were determined it is needed to note also proposal for their elimination into the operation diary.

During visual check are possible visible damages on the damper parts checked. From outer side of the damper check the damper casing and actuator. During visual check from the inner part of the damper, inspection lid is dismantled and the sealing is checked together with intumescent material. Check the damper inner casing, heat fuse, all the sealing's inside the damper, damper blade and also the correctness of damper blade closure (when it is at the end stop in closed position). Damper blade must be open in operation mode. Do not open the inspection lid in case you have airflow in the duct system!

## Fire damper actuator function check

During the check the damper should be in operation mode. That means that during visual check is the damper blade open. Correct function of actuator release is checked by holding the switch on the thermo electrical release device. Closing of the damper is provided by spring.

After function check we put damper into operation mode, by releasing the switch on thermo electric device.

## DECLARATION OF CONFORMITY WITH THE MACHINERY DIRECTIVE 2006/42/EC

**Manufacturer** (The person authorised to compile the technical file):

**IMOS-Systemair, s.r.o., 900 43 Kalinkovo 146, Company registration number: 00 683 868**

declare that:

**Equipment:** Square (Round) Fire Damper  
**Model name:** presented on the last page of this installation manual  
**Serial number:** presented on the last page of this installation manual

is in accordance with the Machinery Directive 2006/42/EC and has been designed and manufactured to the harmonised standard EN ISO 12100: 2010

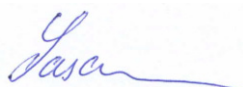
I hereby declare that the equipment named above has been designed to comply with the relevant sections of above referenced harmonised standards. The unit complies with all essential requirements of the Directives.

This declaration loses validity by the from us not agreed changes of the equipment.

Conformity certifikat No.111299058 from 31. 05. 2011, issued from Technický skúšobný ústav Piešťany, š.p. Krajinská cesta 2929/9, 921 01 Piešťany, CRN: 00 057 380 (NB 1299)

Kalinkovo, 31.05.2011

Michal Lasan, quality manager



**IMOS - Systemair, s.r.o.**  
 900 43 KALINKOVO 146  
 IČ DPH: SK2020363290  
 IČO: 00683868 -2-

## DECLARATION OF CONFORMITY VZ-28

**Product name and type:**  
Fire damper, PKI

**Producer:**

**Company name:** IMOS-Systemair s. r. o.

**Address:** Kalinkovo 146

**Company Id. Number:** 00683868

**Address of production:** Kalinkovo

**Product description and determination:**

Systemair fire dampers are manufactured to comply with latest european standards. With wide product range and sizes for 60, 90 and 120 minute resistance for round and rectangular ducting. All dampers as standard are designed and certified for EI-S performance conformity. PK-I fire damper units are designed to be imbedded into the fire partition walls. Installation of these units are clearly indicated in the installation, operation and maintenance manual. All units as standard are available with manual rearmament lever and actuator driven with optional accessories such as microswitches, electromagnets and communication controller units.

**Technical specification:**

TPI 28, Public Notice of MV SR no. 94/2004 Collection of Law, Public Notice of MH SR no. 515/2001 Collection of Law, STN 73 0872:2003, STN EN 1366-2:2001, STN EN 13501-3:2006, STN EN 61010-1+A2:2000

**Authorized person, who declared the conformity data:**

**Company name:** FIRES spol. s r. o.

**Company address:** Osloboditeľov 282, 059 35 Batizovce, Slovakia

**Company Id. Number:** CIS 01/1998

**Certificate:**

PKI-I-S EI90S	SK01-ZSV-0118
PKI-I-S EI120S	SK01-ZSV-0157
PKI-I-R EI60S	SK01-ZSV-0159
PKI-I-R EI90S	SK01-ZSV-0160
PKI-I-R EI120S	SK01-ZSV-0161
PK-I-R EI30S/E60S	SK01-ZSV-0259

The producer announce in accordance with law of constructional products, that

**product is in conformity**

with stated technical and law instructions. This declaration of conformity is published by the producer on his own responsibility.

Kalinkovo 25.10.2010

**IMOS - Systemair, s.r.o.**  
900 43 KALINKOVO 146  
IČ DPH: SK2020363290  
IČO: 00683868 -2-

Stamp



Michal LASAN  
Quality and environment  
manager

*This product was made under conditions of integrated quality and environment management, which is in conformity with standard ISO9001:2008 and ISO14001:2004. This system was certificated by Bureau Veritas Certification.*

## Operating diary

Putting the Fire damper into operation		
Date of putting into operation	Text- found faults and defects	Signature and date of control ling technician
Special controls		
Date of control	Text- found faults and defects	Signature and date of control ling technician

### Warranty conditions:

1. IMOS-Systemair s.r.o. provides warranty for all produced Fire dampers PKI, the warranty is 24 months from the shipment date.
2. The product is tested in the production factory before the shipment. The producer guarantees, that the features of the product shall be according to the related technical standards during the whole warranty period, assuming that the customer uses it in a way stated in operating instructions. If, despite this fact, any unpredictable production defects occur on the product, the producer shall secure their free of charge removal during the warranty period.
3. The customer may apply for the warranty service only in written form and with present properly filled in and stamped warranty document.
4. The warranty does not apply to defects caused by unprofessional handling, incorrect mounting and not following the instructions stated in operation manual.
5. The warranty period shall be prolonged for the same period of time since when the customer lodged the claim for warranty service until the repair is carried out.
6. The repair shall be carried out at user's premises and the producer shall bear costs which are necessarily needed for the repair.
7. In case no defects are found, which the warranty can be applied to the costs for sending a service technician or expert shall be borne by the customer, who drew a claim for repair.

### Storage conditions

It is recommended to store the products in closed and dry places in temperature range from -30°C to +50°C.

## Certificate of the product

Type	Fire resistance	Certificate	Date of issue	
PK-I-S	EI 90 S	SK01-ZSV-0118	12.6.2008	<input type="checkbox"/>
PK-I-S	EI 120 S	SK01-ZSV-0157	12.6.2008	<input type="checkbox"/>
PK-I-R	EI 60 S	SK01-ZSV-0159	12.6.2008	<input type="checkbox"/>
PK-I-R	EI 90 S	SK01-ZSV-0160	12.6.2008	<input type="checkbox"/>
PK-I-R	EI 120 S	SK01-ZSV-0161	12.6.2008	<input type="checkbox"/>
PK-I-R	EI 30 S & E 60 S	SK01-ZSV-0259	19.10.2010	<input type="checkbox"/>

Type of construction	Classification	Authorized person	Standard	Version
D1	A1	FIRES s.r.o. Batizovce	STN EN 13501-3:2006	<input type="text"/>

Construction site-object			
Type		Placement	
Dimension		No. of room	
Serial No.		Id. No.	
Year of production		Marking	
Controlling voltage		Signalization	

## Warranty

Shipment date: \_\_\_\_\_

\_\_\_\_\_  
Stamp and signature of shipment officer

### Important Notice!

The customer is required to keep the stamped Warranty document. Without this warranty document, no claims for warranty service free of charge are accepted.

### Warranty service:

Date of notification the repair	Date of the carried out repair	Description of performed work	Service officer (stamp and signature)