



## INSTALLATION AND OPERATION MANUAL



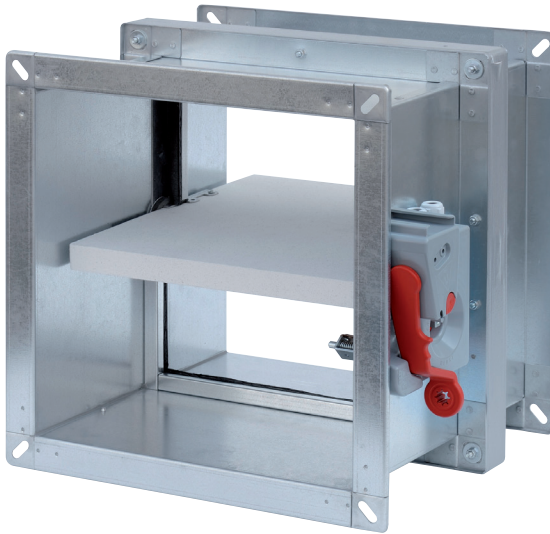
FIRE PROTECTION



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# MDF30EURO



  
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**EUROPEAN FIRE DAMPERS CERTIFIED ACCORDING TO  
EN 15650 SERIE MDF30EURO**

0497/CPD/5018



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## 1. SPECIFICATIONS / GENERAL DESCRIPTION

Fire damper suitable for wall or ceiling installation (horizontal or vertical), made from zinc-plated steel pipes and components, shutter and thermal cutting in single calcium silicate sheets 30 mm thick with perimeter seals to ensure conformity with sealing requirements for both cold fumes and hot fumes. The control device (manual, with electromagnetic or motorised release system) consists of a removable plate which can be replaced even after installation has been completed, on which all the elements required for correct intervention and operation of the fire damper are housed; the particular geometry of the control mechanism, prevents the pressure in the duct (up to 300 Pa) from opening the shutter unless the reset lever has been activated. When the element has been installed, the control unit will remain outside the masonry to make post-installation interventions easier. When installed following the instructions provided in this manual, it can be used in HVAC plant systems reinstating the partitioning between two areas, ensuring heat insulation and perfect sealing of fumes. **The installer is obliged to follow the installation and material utilisation procedures illustrated in this manual; this is mandatory in order to comply with the same conditions of the tested samples. Any inconsistency with the provided instructions may compromise the validity of the product certification and the declaration of correct installation.**

## 2. REGULATORY FRAMEWORK

Fire dampers tested according EN 1366/2 and classified according to EN 13501/3.

RESISTANCE RATING			
SUPPORTING ELEMENT	EI 120 S - 500 Pa	EI 90 S - 500 Pa	EI 60 S - 500 Pa
NORMALISED BRICK WALLS MIN. WIDTH 120 ( $V_e$ i $\leftrightarrow$ o)		from 200x200 to 1500x800	from 200x200 to 1500x800
LIGHT WALL MIN. WIDTH 125 ( $V_e$ i $\leftrightarrow$ o)		from 200x200 to 1200x800	from 200x200 to 1200x800
HORIZONTAL FLOOR MIN. WIDTH 150 ( $h_o$ i $\leftrightarrow$ o)	from 200x200 to 1200x800	from 200x200 to 1200x800	from 200x200 to 1200x800

### Legend

E = integrity

$V_e$  = vertical installation

I = thermal insulation

$h_o$  = horizontal installation

S = fume seal

i $\leftrightarrow$ o = side exposed to fire indifferent

### 3. HANDLING AND INSTALLATION WARNINGS

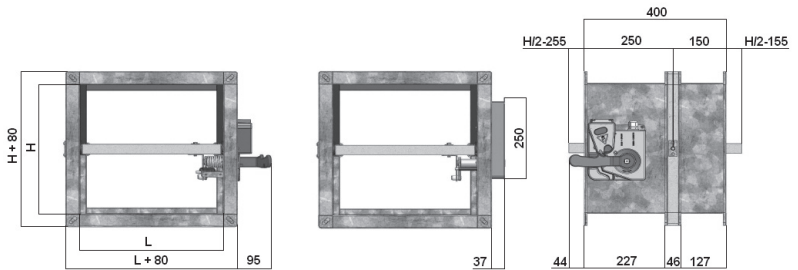
#### WARNING!

- All handling and installation operations must be conducted with the fire damper shutter in a closed position (as per our standard supply).
- All connections to the mains must be done by professionally qualified personnel.
- Clean and remove all cement residues from the connection flanges to ensure secure connections to the rest of the duct.
- Avoid all deformation of the duct and/or obstacles inside the duct that could prevent correct rotation of the shutter
- Check there are no external objects (cables, pipes, etc.) which could prevent the correct operations of the commands outside the duct itself
- Keep as much access clearance as possible on the control unit side so as to ensure the user and maintenance operators have sufficient space to work on the damper.

### 4. MAINTENANCE

No special maintenance is required. It is however recommended to check that all shutter operating and warning devices are working properly on a regular basis. More specifically, check for complete and correct opening and closing of the shutter blade: for information on how to enable the commands, please refer to the “COMMAND FUNCTION” paragraph on page 6 of this manual. Also check that the limit switch warning devices for start and end strokes (where applicable) are in good working condition.

#### DIMENSIONAL



## 5. INSTALLATION IN BRICK WALLS

- 1 Before commencing installation, check the condition of the damper, the correct position of the shutter, in a closed position, and that the command works properly.
- 2 Make a hole in the wall which is 120 mm large in H and L than the nominal damper measurements (fig.1).
- 3 Position the damper inside the hole centring it horizontally, making sure the shutter axis corresponds to the wall axis. Maintain the axis of rotation of the blade horizontal as from tests carried out (is not allowed to be installed with vertical axis). Respect the dimensions shown (fig.2 - table 1).
- 4 Fill in the space between the wall and the damper using fireproof cement material (M10 cat. or higher) to reinstate resistance and insulation (fig.3).

On completing installation, it is recommended to run a test to check the blade rotates correctly and the commands work properly (in both manual and motorised mode). It can be conducted in manual mode by using the lever to reset the damper and pressing the test button to simulate operating functions. In motorised mode, use the thermoelectric fuse lever. In motorised mode, use the thermoelectric fuse lever.

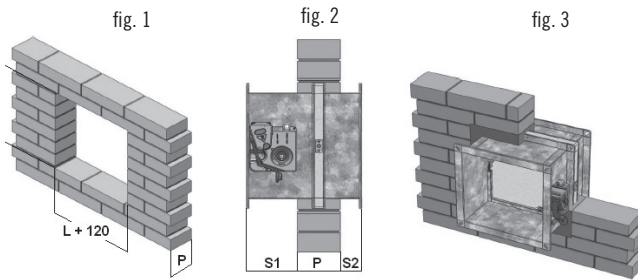


TABLE 1

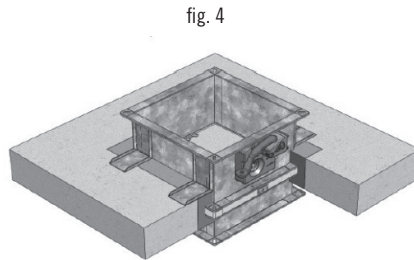
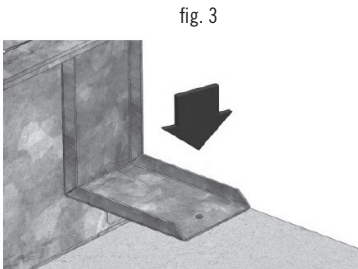
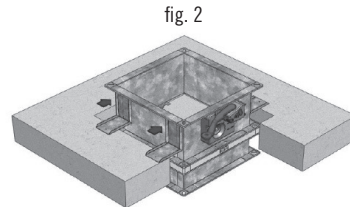
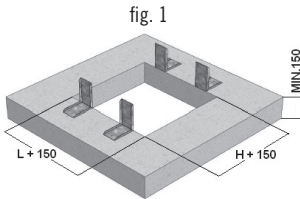
P (mm)	S1 (mm)	S2 (mm)
120	190	90
150	175	75
> 150	175	= 400 - (P+S1)

## 6. INSTALLATION IN CONCRETE FLOORS

- 1 Before commencing installation, check the condition of the damper, the correct position of the shutter, in a closed position, and that the command works properly.
- 2 Make a hole in the wall which is 150 mm large in H and L than the nominal damper measurements, and position the metal brackets accessories (only when positioning it with the command side above the floor) aligning them with the edge of the hole (fig. 1).
- 3 Insert the damper inside the hole, positioning it with the command side above the floor so that it protrudes by 175 mm. Push the brackets against the damper casing so that it is blocked in the correct position (fig.2).
- 5 The metal brackets are designed to be fastened to the floor (fig.3).
- 6 Fill in the space between the floor and the damper using fireproof cement material (M10 cat. or higher) to reinstate resistance and insulation (fig.4).

**PLEASE NOTE: if the damper is fitted with the command side below the floor, make sure it protrudes by 175 mm below the latter.**

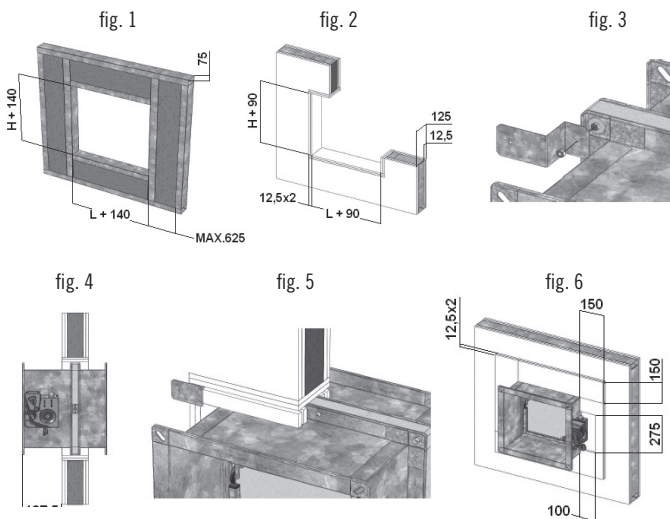
On completing installation, it is recommended to run a test to check the blade rotates correctly and the commands work properly (in both manual and motorised mode). It can be conducted in manual mode by using the lever to reset the damper and pressing the test button to simulate operating functions. In motorised mode, use the thermoelectric fuse lever.



## 7. INSTALLATION IN LIGHTWEIGHT WALLS

- 1 Before commencing installation, check the condition of the damper, the correct position of the shutter, in a closed position, and that the command works properly. The plasterboard panels to be used are of type F according to EN 520 and DIN 18180 and have unit thickness of 12.5 mm.
- 2 Make a hole in the metal structure wall which is 140 mm large in H and L than the nominal damper measurements. The metal structure must comply with the measurements indicated in the diagram. Fill in the spaces inside the metal structure using mineral wool which 60 mm thick and has a minimum density of 100 kg/m<sup>3</sup> (fig.1).
- 3 Cover both sides of the metal structure with two layers of plasterboard, each 12.55 mm thick, leaving enough space to install the fire damper unit. The wall will hence have a total thickness of 125 mm. Cover the perimeter of the damper housing seat with a double layer of plasterboard laths, 125 mm long and 12.5 mm thick. The measurements of the empty hole will now be 90 mm larger than the nominal damper measurements (fig.2).
- 4 Fasten the 4 accessory metal brackets to the screws protruding from the corner of the damper thermal cut, making sure that the side of the bracket supporting the damper does not protrude over the outer edge of the flange. Use the threaded bolts supplied with the brackets to fix them in place (fig.3).
- 5 Position the damper inside the hole centring it horizontally, making sure the shutter axis corresponds to the wall axis. Maintain the axis of rotation of the blade horizontal as from tests carried out (is not allowed to be installed with vertical axis). Check that the damper protrudes from the wall by the correct measurement, bringing the previously installed metal brackets up against the wall (fig.4).
- 6 Fill in the space between the wall and the damper using specifically sized plasterboard laths, using gypsum based adhesive to fill in any remaining holes (fig.5).
- 7 Reinforce the walls with a double layer of plasterboard panels (length = 150 mm + nominal damper size / width = 150 mm / thickness = 12.5 mm) on both sides of the damper, making sure to create a suitably sized compartment in the external panel to house the control unit. (fig.6).

On completing installation, it is recommended to run a test to check the blade rotates correctly and the commands work properly (in both manual and motorised mode). It can be conducted in manual mode by using the lever to reset the damper and pressing the test button to simulate operating functions. In motorised mode, use the thermoelectric fuse lever.



## 8. CONTROL FUNCTIONS

### Manual Mode

#### Reset:

- Remove the reset lever from the housing compartment (fig.1).
- Insert the reset lever inside the control pin as far as possible, turning the lever clockwise by 90 degrees, making sure that the control pin is blocked in the open position (fig.2).
- Now remove the lever from the control pin and replace it in its housing compartment.

#### Manual closing:

- Press the button highlighted in fig.3.

fig. 1

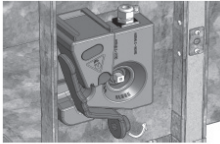


fig. 2

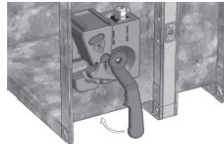
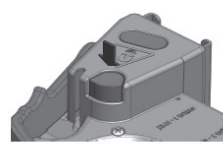


fig. 3



### Manual command with electromagnetic circuit breaker

#### Reset:

- Power up the electromagnet (electrical wiring diagram on page 8).
- Raise the metal lever on the control unit casing (fig.1).
- Remove the reset lever from the housing compartment (fig.2).
- Insert the reset lever inside the control pin as far as possible, turning the lever clockwise by 90 degrees, making sure that the control pin is blocked in the open position (fig.3).
- Now remove the lever from the control pin and replace it in its housing compartment.

#### Manual closing:

- Press the button highlighted in fig.4.

#### Electromagnetic closing:

- Disconnect the power to the electromagnet.

fig. 1

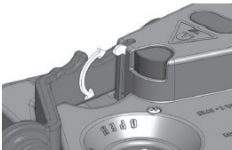


fig. 2

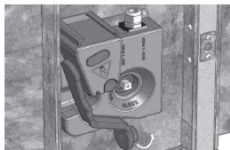


fig. 3

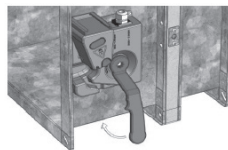
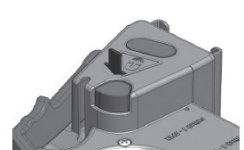


fig. 4





## Manual command with input electromagnet

Reset:

- Raise the metal lever on the control unit casing (fig.1).
- Remove the reset lever from the housing compartment (fig.2).
- Insert the reset lever inside the control pin as far as possible, turning the lever clockwise by 90 degrees, making sure that the control pin is blocked in the open position (fig.3).
- Now remove the lever from the control pin and replace it in its housing compartment.

Manual closing:

- Press the button highlighted in fig.4.

Electromagnetic closing:

- Power up the electromagnet.

fig. 1

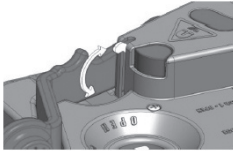


fig. 2

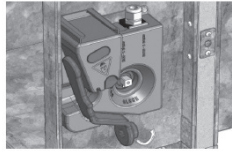


fig. 3

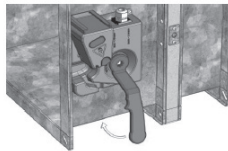
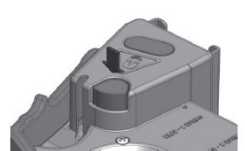


fig. 4



## Servomotor mode

Reset:

- Insert the key supplied with the delivery into the housing on the servomotor and turn it clockwise to a 90 degree position.
- Quickly rotate it counter clockwise to block the servomotor in the open position.

Manual closing:

- Insert the key supplied with the delivery into the housing on the servomotor and turn it counter clockwise by half a turn to enable the spring return that will automatically move the servomotor into the closed position and the relative indicator in a 0 degree position.

Motorised closing:

- Move the thermoelectric fuse lever located to the side of the servomotor or disconnect the power supply.

## 9. REPLACING THE MECHANICAL FUSE

### Warning !

All connection and maintenance operations must be carried out with the damper closed and the power supply disconnected.

- Check that the indicator on the control unit is set to CLOSE. If this is not the case, press the test button to close the damper manually.
- Remove the plastic cover by loosening the central fastener screw (fig.2).
- Unscrew the 3 cross-head screws and remove the release mechanism from the plate (fig.3).
- Replace the fuse by squeezing the spring and hooking it onto the two protruding pins (fig.4).

fig. 1

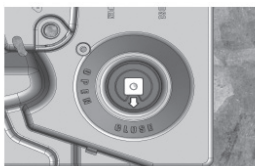


fig. 2

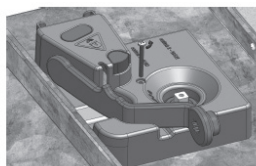


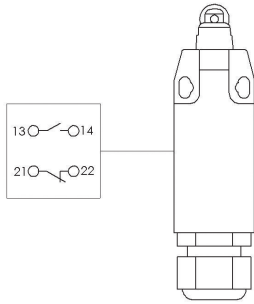
fig. 3



fig. 4



## 10. MANUAL COMMAND FUNCTIONS, DATA AND ELECTRICAL WIRING LAYOUT

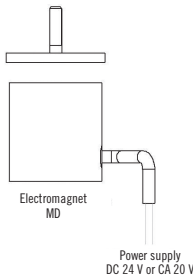


### Start and end stroke microswitches

The devices that signal the start stroke and end stroke are two independent NC+NO dual contact switches. The first normally closed (NC) on contacts 21 and 22, whilst the second normally open (NO) on contacts 13 and 14. When the switch is triggered, the contact status is inverted, the NC contact opens and the NO contact closes. E.g.: the relay that controls the fan power supply is connected to contacts 21 and 22 (NC), whilst a luminous alarm indicator is connected to contacts 13 and 14 (NO). In this case, when the damper shuts, the fan will switch off and the alarm indicator pilot light will come on.

### Switch technical data

- Casing: Fibre glass reinforced thermoplastic
- Protection rating (EN 60526 Standard): IP65
- Cable cross-section diameter: rigid 2.5mm<sup>2</sup> - flexible with ferrule 1.5 mm<sup>2</sup>
- Operating temperature: from -25 to +70



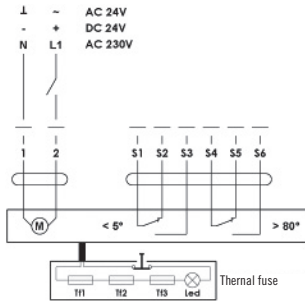
### Magnetic command

Where necessary, an electromagnet can be installed on the damper so as to anticipate the closing of the damper before the thermo fuse is triggered. Depending on the type of electromagnet (current input or breaker), it will send or cut off the electric power signal and the damper will close to prevent the diffusion of cold fumes. If a fire breaks out, when the temperature rises the thermo fuse will override the action of the electromagnet.

### Magnet technical specs

- Retaining force: 120N
- Protection rating (EN 60529 Standard): IP40
- Absorbed current at 20°C: 1.6W (none) - 3.5W (emission)
- Operating temperature: from -30 to +85

## 11. MOTORISED COMMAND FUNCTIONS, DATA AND ELECTRICAL WIRING LAYOUT



- 24V Connection: transformer  
 - 230V Connection: for the interruption of the network must incorporate a device which disconnects the phase conductors (contacts opening min. 3mm) ►

The motor is powered by connecting it to the mains (contacts 1 and 2) which moves the damper shutter to the open position, whilst simultaneously loading the spring which retains all the power needed to close the duct in case of and alarm or black-out. The connections of the two limit switches inside the motor can be used to render the rest of the system more flexible; for instance, by connecting contacts S1 and S2, it will be possible to trigger the shutdown of the fan unit should the damper shutter close, whilst contacts S4 and S6 can be used to trigger an alarm pilot light. The thermoelectric device consists of three fuses: these make the fire damper shutters sensitive to the temperature inside the duct (with Tf 2 and Tf 3 fuses which can be replaced) and to ambient temperatures (using the Tf 1 fuse). When the device is triggered, it locks down the power supply irreversibly, until the fuses are replaced, which allows the servomotor to move the shutter into the closed position using the force of the spring. It also has a button that can be pressed manually to simulate a triggered fuse and allow testing and inspection of the shutter. Its position outside the damper and self-threading screw fasteners allows for safe control over ambient temperatures and easy maintenance.

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INSTALLER



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