MADEL®

EN 15650:2010

FWC-EIS
Fire damper ventilation valves

DESCRIPTION

• The **FWC-EIS-60/ 120** series consists of a fire damper cartridge equipped with a ventilation valve .
They function as a separating element between two fire sectors and provide the same fire resistance as the structural elements of the compartments, limiting the risk of fire spreading inside the building.

• The assembly is to be installed on a constructive element (wall or slab), the ventilation valve must be placed at duct ends and the fire damper cartridge inside the ventilation duct, in the section of the structural element.

• The FWC-EIS-60/120 series complies with the following regulations:

European Testing Standard, EN 1366-2
(Fire resistance tests for service installations. Part 2: Fire dampers)

European Classification Standard, EN 13501-3
(Classification based on data obtained in fire resistance tests of products and elements used in building service installations: Fire-resistant dampers and ducts)

European Standard for CE Marking, EN 15650
(Ventilation of buildings. Fire dampers)

European Testing Standard EN 1751
(Ventilation of buildings - Air terminal units) Aerodynamic testing of dampers and valves)

Fire damper cartridge

• The closing blades are automatically activated by a spring, closing the air passage through the duct.

• It incorporates gaskets to the air passage, both outside and inside the cartridge, thus meeting the conditions required for the acronym (S) for tightness to cold fumes.

• The closing blades are made of an asbestos-free mineral fiber plate and lined with intumescent material that increases its capacity against fire and prevents the spread of smoke at high temperatures.

• The housing is entirely made of galvanized steel and welded together. It is longer than the FSC series housing to allow the assembly of the ventilation valve.

• Driving spring is made of stainless steel.

Ventilation valve

• Ventilation valve for supply / extract made of galvanized steel and painted in RAL9010, attached to the fire damper with clips and easily removable.

• Valve has an adjustable central disc for airflow regulation.

OPERATING CONDITIONS

• The fire damper is suitable for ventilation systems where the air doesn't contain abrasive particles, adhesives or chemicals.

• The cartridges are designed for areas with temperate climates according to EN 60721-3-3.
The allowed temperature of the installation is -30°C to 50°C.

• The product can be installed in construction support regardless of its orientation (v_e and h_o).

MADEL®

DECLARATION OF PERFORMANCES

DECLARATION OF PERFORMANCE (Nº 1391-CPR-0008) V03/20

1. Product and identification name:	*Fire Damper Cartridge "FWC-EIS-60"* *"FWC-EIS-120"*
2. Name and address of manufacturer:	Madel Air Technical Diffusion S.A, C/ Pont de les Bruixes P-5, P.I. La Gavarra, 08540 CENTELLES (Barcelona)
3. Uses to:	To prevent fire and reduce smoke spreading from one fire compartment to another through the air ductwork system which may penetrate fire separating vertical compartments, according to Standard EN 15650:2010 (annex ZA.1).
4. Assessment of conformity system:	System 1, according to Construction Products Regulation nº 305/2011
5. Certification body:	PAVUS - 1391 Performed tasks: - Determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product; - Initial inspection of the manufacturing plant and of factory production control; - Continuous surveillance, assessment and evaluation of factory production control. System 1 Certification number: 1391 – CPR – 2019/0008 Test report: Pr-18-2.100,Pr-18-2.101, Pr-18-2.102, PK3-02-18-004-C-0, PK3-02-18-005-C-0, PK3-02-18-006-C-0, Z220180291/A

6. Performances (EN 15650 :2010):

Essential characteristics				***Performances***
Dimensions	***Type***	***Wall***	***Type of installation***	***Class***
Ø 100 - 200 mm	Rigid wall ≥ 100 mm	Mortar or gypsum	Built-in	EIS 120 EIS 60
		Mineral wool boards with fire resistance coating	Built-in	EIS 90 EIS 60
		Mineral stone wool with fire stop coating and cement lime plate	Built-in	EIS 120 EIS 60
	Flexible wall ≥ 100 mm	Mortar or gypsum	Built-in	EIS 120 EIS 60
		Mineral wool boards with fire resistance coating	Built-in	EIS 90 EIS 60
		Mineral stone wool with fire stop coating and cement lime plate	Built-in	EIS 120 EIS 60
	Rigid floor ≥ 110 - Concrete ≥ 125 - Aerated concrete	Mortar or gypsum	Built-in	EIS 90 EIS 60
		Mineral wool boards with fire resistance coating	Built-in	EIS 90 EIS 60
Nominal activation conditions/ sensitivity: Sensing element load bearing capacity Sensing element response temperature				Approved
Response delay according to EN 1366-2: Closure time				Approved
Operational reliability according to EN 1366-2 Cycling (opening and closing) on fire test. Cycling (opening and closing) according to Standard for CE Marking				NPD *(Not determined)* NPD *(Not determined)*
Durability of response delay according to EN1366-2: Sensing element response temperature and load bearing capacity				Approved
Durability of operational reliability according to 15650: Opening and Closing cycle				NPD *(Not determined)*

7. The performances of the product identified in point 1, are in line with the declared performance in point 6.
This declaration of performance is issued under the responsibility of the manufacturer listed in point 2.
Signed for and on behalf of the manufacturer:

Joan Arcarons Alibés **Centelles, 26/03/20**
(Technical director)

CLASSIFICATION

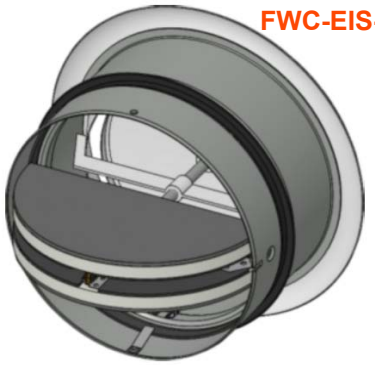
FWC-EIS- … Fire damper cartridge equipped with a ventilation valve with spring driven automatic closing through bimetallic fusible link 72ºC.

The closing of the cartridge is activated within 120s once the 72ºC has been reached. If the temperature in the duct does not exceed 70ºC, the automatic closing will not be activated.

…- 60 Fire damper cartridge equipped with a ventilation valve EIS 60.

…- 120 Fire damper cartridge equipped with a ventilation valve EIS 120.

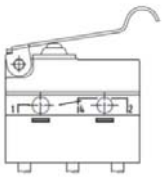
FWC-EIS- …



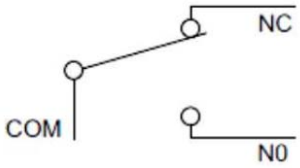
FWC-EIS- … - CIF

Accessories:

… - /CIF Limit switch contacts to signal closed damper x2 (one for each blade)



Rated voltaje and maximum current	AC 230V / 5A
IP rating	IP 67
Operating temperature	-25ºC … +120ºC



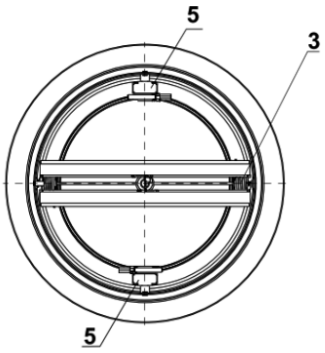
1 (COM) – Black
2 (NC) – Grey
4 (NO) – Blue

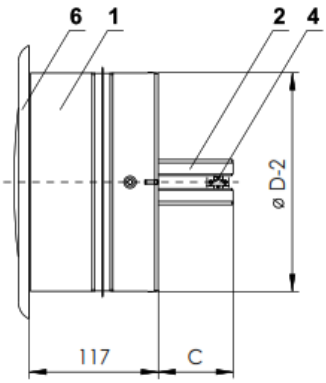
Connections

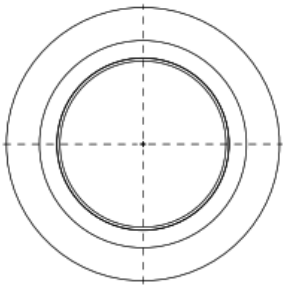
a) Open limit switches with closed blades.... 1 + 2
b) Closed limit switches with closed blades.... 1 + 4

DIMENSIONS/ WEIGHTS

FIRE DAMPER CARTRIDGE WITH VENTILATION VALVE







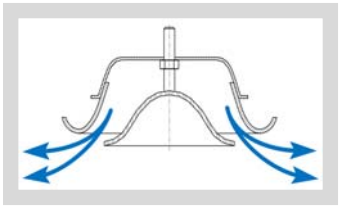
Ønominal [mm]	Fire damper* [Kg]	Aeff [m²]	Ventilation Valve [Kg]	c [mm]
100	0,45	0,0030	0,19	17,5
125	0,58	0,0060	0,27	30,2
160	0,78	0,0119	0,42	48
200	1	0,0209	0,59	68

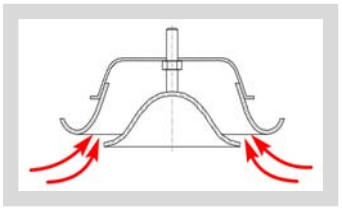
* For assembly weight, you must add the fire damper and ventilation valve weights together.

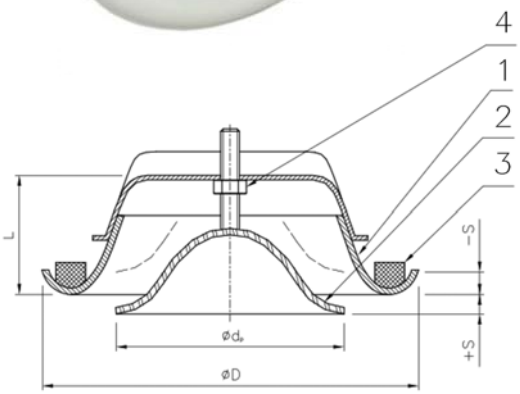
1. Steel body
2. Two semi-circular blades
3. Driving spring
4. Thermal fusible link
5. CIF (for FWC-EIS-…-CIF)
6. Ventilation valve

DIMENSIONS/ WEIGHTS

VENTILATION VALVE







1. Ventilation valve body
2. Disc of ventilation valve body
3. Seal
4. Check nut

Ønominal [mm]	**ØD** [mm]	**Ød$_o$** [mm]	**L** [mm]	**Set upped position +S…-S** [mm]	**Weight** [Kg]
100	138	75	40	10 a -3	0,19
125	164	99	46	15 a -7	0,27
160	211	129	54	15 a -10	0,42
200	248	157	63	20 a -3	0,59

GENERAL ASPECTS

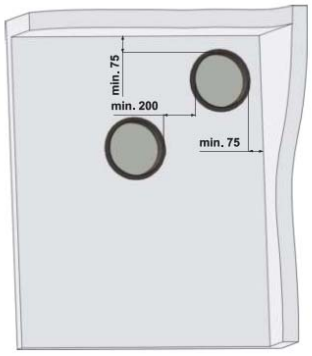
TRANSPORT, STORAGE AND HANDLING

- Avoid transporting and storing the fire damper cartridges and ventilation valves outdoors.
- Temperature during transport or storage must be between -5ºC and +40ºC, with a maximum relative humidity of 80% (to avoid condensation on the cartridge casing).
- Transport the cartridge and ventilation valves with the sealing leaves in closed position.
- Avoid blows.
- Avoid contact with liquids.
- Do not place weights on the sealing leaves.
- Do not use the cartridge and ventilation valves for other purpose than it was designed for.

BUILDING ELEMENT AND INSTALLATION

- MADEL fire damper cartridges are classified for use in the types of building elements described in this document or ones of the same type with greater thickness/density/nº of boards *(acc. EN 1366-2).*
- The cartridge and ventilation valves will not comply with the classification in the case of any difference in the building element, sealing and/or installation from that described in this document.
- Install the cartridge inside the duct. The axis of the sealing leaf must be inside the building element's section.
- Avoid placing building loads on the duct where the cartridge and ventilation valves is to be installed.
- Avoid flying materials coming into contact with the inside of the tunnel and the moving parts of the cartridge.
- Once assembled, the cartridge-duct, damper interior area, damper sealing leaf, airtight gaskets and intumescent gaskets must be visually checked to ensure they are installed correctly.

MINIMUM DISTANCES *(acc. EN 1366-2)*



- The minimum space between fire damper cartridges and building elements must be 75 mm.
- The minimum space between two fire damper cartridges must be 200 mm.

INSTALLATION

OPENING IN BUILDING ELEMENT

Fig. 1 Opening in building element

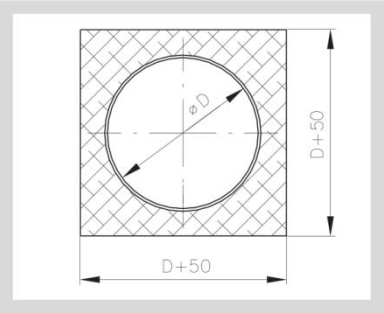
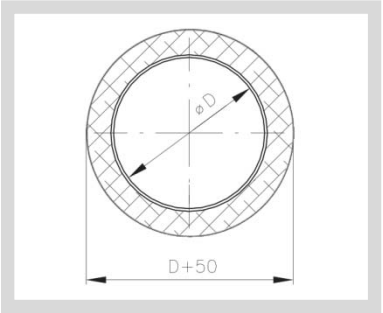


Fig. 2 Opening in building element



SYSTEM CLASSIFICATION

Support construction	Sealing	Sealing material	Figure
Rigid wall	Humid	Mortar or gypsum	A
Flexible wall	Humid	Mortar or gypsum	B
Rigid slab	Humid	Mortar or gypsum	C

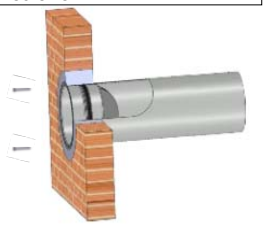
A. RIGID WALL – Mortar or gypsum (EIS 60/ EIS 90/ EIS 120)

1. Opening the Construction support

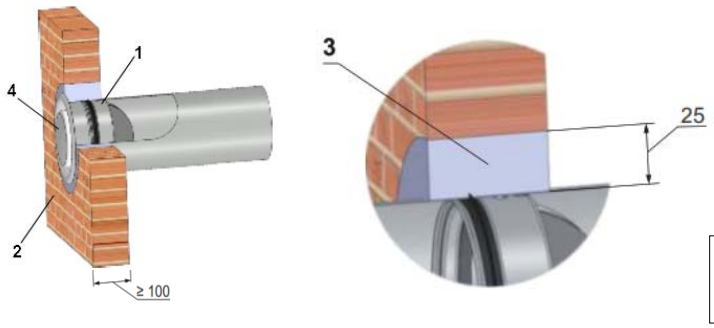
2. Install duct in the opening of the construction Support and seal

3. Insert damper in duct

4. Fix the cartridge to the construction Support with screws



4. Insert ventilation valve into the damper cartridge



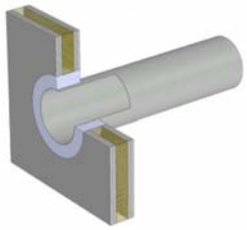
1. Fire damper cartridge
2. Rigid wall
3. Mortar or gypsum
4. Ventilation valve

Note:
Select the appropriate damper cartridge according to the required fire resistance.

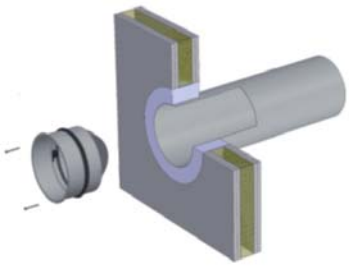
INSTALLATION

B. FLEXIBLE WALL – Mortar or gypsum (EIS 60/ EIS 90/ EIS 120)

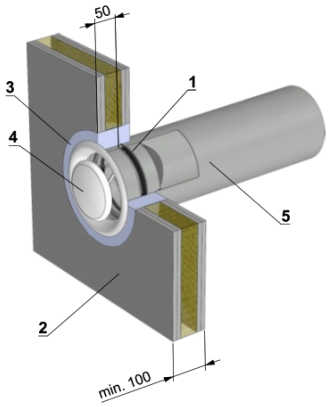
1. Opening in construction support. Install duct in the opening of the construction support and seal

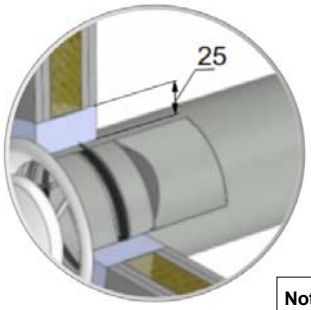


2. Screwing the cartridge to the construction support



3. Insert ventilation valve into the damper cartridge





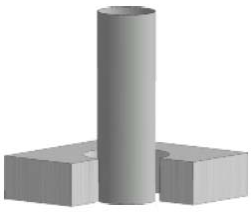
1. Fire damper cartridge
2. Flexible wall
3. Mortar or gypsum
4. Ventilation valve
5. Steel duct

Note:
Select the appropriate cartridge according to the required fire resistance.

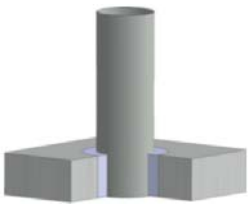
C. RIGID SLAB– Mortar or gypsum (EIS 60/ EIS 90)

1. Opening in support construction

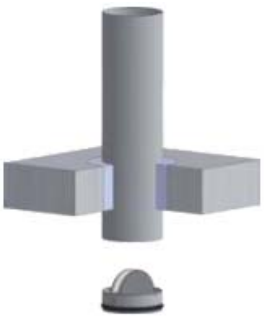
2. Install the duct in the support construction



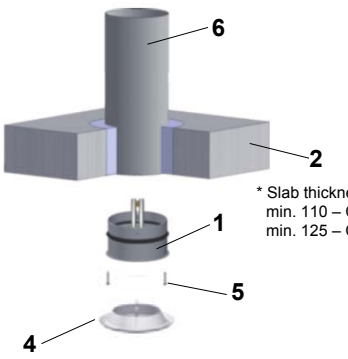
3. Sealing



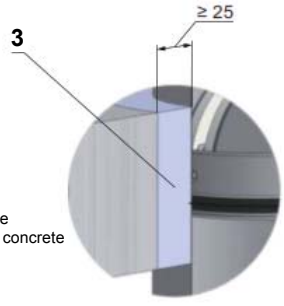
4. Insert cartridge into the duct



4. Installation details



* Slab thickness:
min. 110 – Concrete
min. 125 – Cellular concrete



1. Fire damper cartridge
2. Rigid slab
3. Mortar or gypsum
4. Ventilation valve
5. Fixing screws
6. Steel duct

Note:
Select the appropriate cartridge according to the required fire resistance.

TECHNICAL DATA

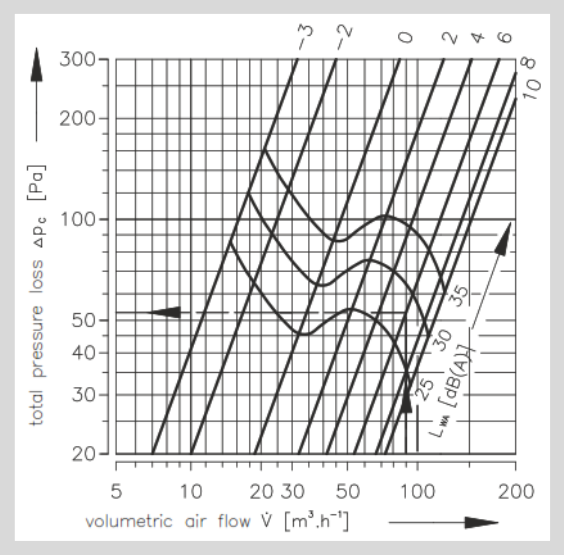
- **Parameters**

Δp_c	[Pa]	**Pressure loss at ρ= 1.2 kg/m³**
$\bar{V}$	[m/s]	**Air speed in nominal section**
ρ	[kg/m³]	**Air density**
S	[mm]	**Dish valve distance from 0 position.**

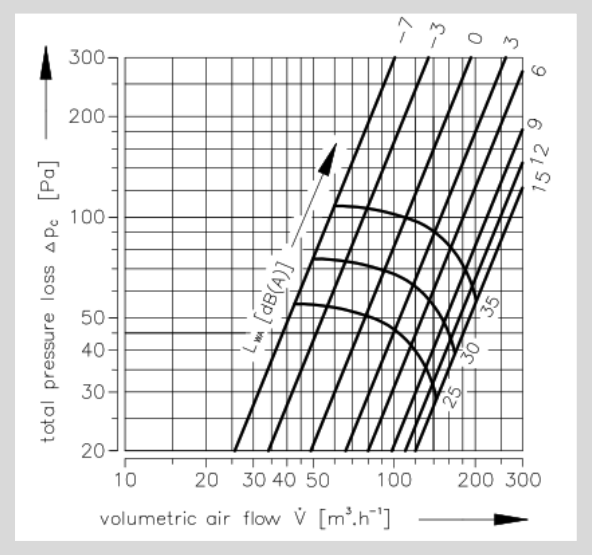
Ønominal [mm]	**100**	**125**	**160**	**200**
Q_{max} [m³/h]	90	150	200	250

- **Pressure loss and Acoustic data**

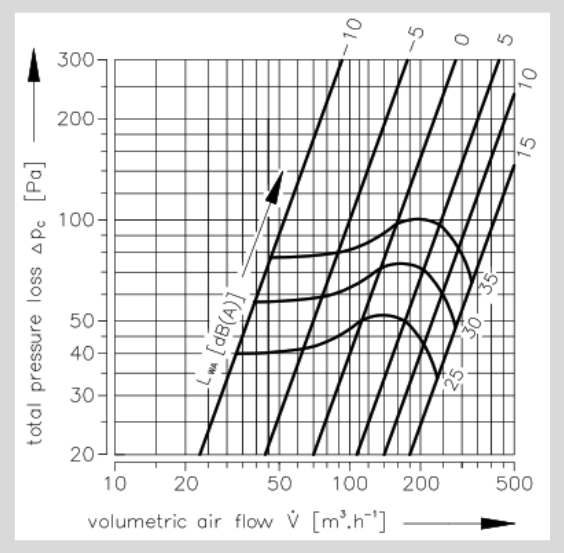
FWC –EIS-… Ø100



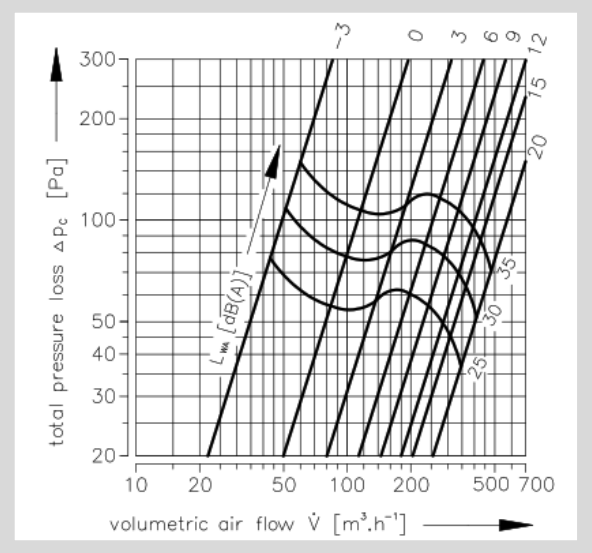
FWC –EIS-… Ø125



FWC –EIS-… Ø160



FWC –EIS-… Ø200



PRODUCT DOCUMENTATION

Label design

MADEL Air Technical Diffusion S.A. P.O. Box 5, E-08540 Centelles (Barcelona)	FWC-EIS-60 Cartuchos cortafuego/ Fire damper cartridge/ Cartouche coupe-feu/ Serranda tagliafuoco terminale

Clasificación / Classification / Classification / Clasificacion	EI60 (ve, ho i↔o) S	
Certificado / Certificat / Certificate / Certificato	1391- CPR – 2019/0008	
Diámetro / Diamètre / Diameter / Diametro	200	EN 15650:2010
N.de serie/ N. de série/ Serial Number/ N. di serie	……..	www.madel.com
Accesorios / Accessoires / Accessories / Accessori	/CIF/	EIS 60 CE 1391
Peso / Poids/ Weight / Peso	0,5	

Summary table

Model		**FWC-EIS-…**		
Dimension			**diam. 100 - 200**	
Support construction	**Support construction** Thickness [mm]	**Sealing**	**Fire resistance**	**Figure**
Rigid wall	100	Mortar or gypsum	EIS 120 EIS 90 EIS 60	A
Flexible wall	100	Mortar or gypsum	EIS 120 EIS 90 EIS 60	B
Rigid slab	110 - Concrete 125 - Aerated concrete	Mortar or gypsum	EIS 90 EIS 60	C

Coding

FWC-EIS - 120 - /CIF/ - diam.

1 2 3 4

1. Product reference
   - **Circular fire damper cartridge + Ventilation valve** to supply/ Exhaust
2. Fire resistance
   - **60** – EIS60
   - **120** – EIS120
3. Accessories
   - **/CIF/** Limit switch contacts to signal closed damper (both blades)
4. Nominal diameter [mm]

PRESCRIPTION TEXT

CE
EN 15650:2010

Supply and installation of a fire damper cartridge equipped with a ventilation valve, series **FWC-EIS-120 /CIF/ diam. 200** with spring driven automatic closing through bimetallic fusible link 72ºC.
To be mounted inside same diameter circular ventilation duct, with the ventilation valve to be mounted at duct ends.
Tested and certified EIS 120 according to *EN 13501-3* and with CE certification according to *EN 15650*.
Damper casing made of galvanized steel and blades made of fire resistant asbestos free boards made of mineral fibers. Fusible link set for 72º C.
With intumescent sealing in order to stop the propagation of fire. Include a ventilation valve for supply / exhaust and a double limit switch contacts.
With all necessary elements for installation.
Brand **MADEL**.