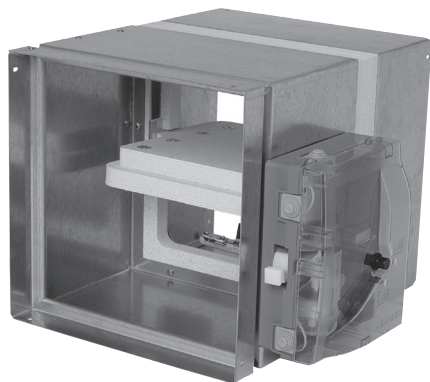
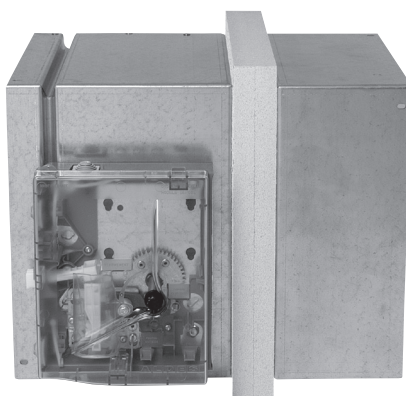


INSTALLATION & MAINTENANCE MANUAL

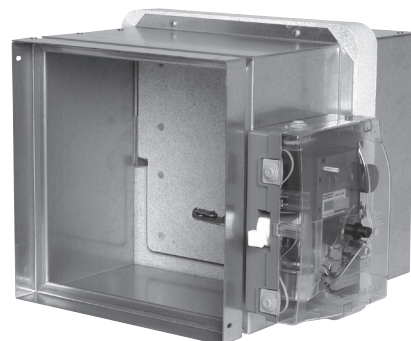
RECTANGULAR ISONE FIRE DAMPER



ISONE EM
Embedded



ISONE/Ap
Surface Mounted



ISONE FdP
Embedded



www.aldes.ae



IDENTIFICATION



AFNOR Certification

11 rue Francis Pressensé
93571 La Plaine Saint-Denis Cedex
Tel: 04 41 62 80 00 - Fax: 01 49 17 90 00
Internet: <http://www.afnor.com>
<http://www.marque-nf.com>
Email: certification@afnor.org

NF264 - FIRE DAMPERS AND SMOKE EXHAUST DAMPERS D.A.S

This Brand certifies:

- The conformity to the standard NF-S-61937-5 "Fire Damper Safety activated devices"
- Conformity to the decree dated on August 3, 1999 "Determination of the resistance of the construction elements to the fire and particular conditions of testing Smoke Exhaust Fans" or conformity to the decree dated on March 22, 2004.
- The specific values announced in this manual

1 NORMATIVE DESIGNATION OF THE PRODUCT

Rectangular automatic-controlled or remote-controlled fire damper:

- Rectangular ISONE EM: 2 hours fire resistance - 500 Pa (for a mounting embedded in wall)
and EIS 120 min (for a mounting in floor), damper with minimum space requirement.
EM-TGM: 1H30 fire resistance - 500 Pa (for a mounting embedded in wall)
- Rectangular ISONE FdP: 2 hours fire resistance - 500 Pa (for a mounting embedded in wall)
and EIS 120 min (for a mounting in floor), damper with low pressure losses
- Rectangular ISONE/Ap: 1H30 fire resistance - 500 Pa, on vertical concrete wall
1 hour or 1h30 fire resistance - 500 Pa, on vertical wall in plasterboards.

2 EXPLANATION OF THE LABELING MARKING CODE

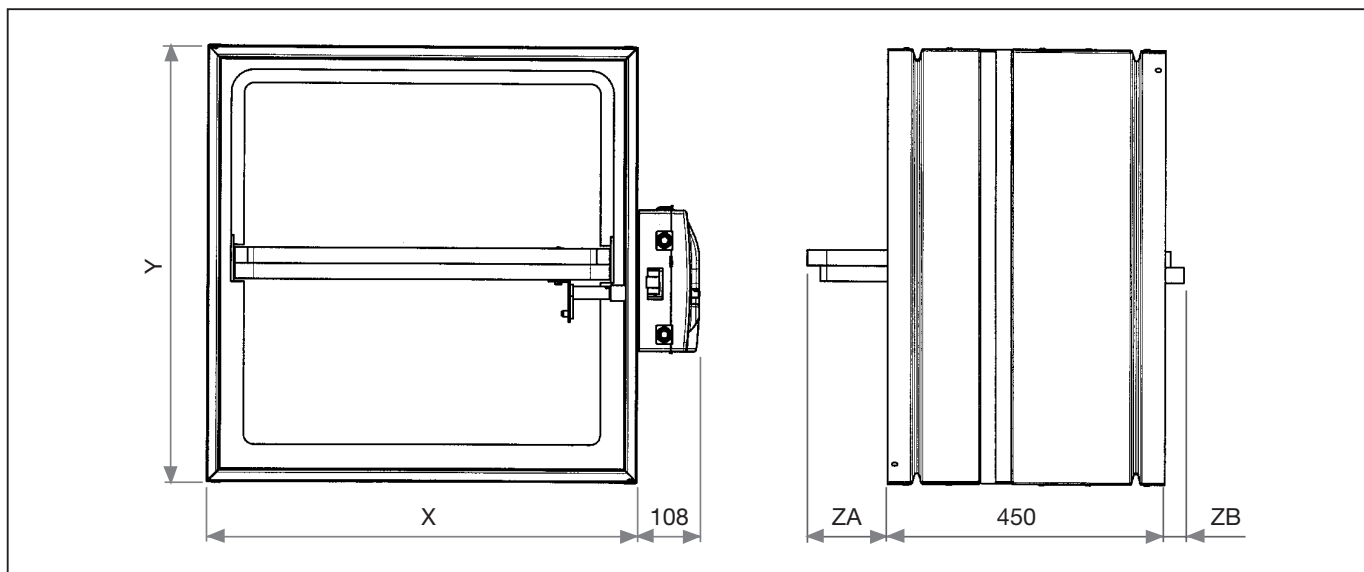
CF = Fire Resistance	Tele = Remote-controlled	SL= Free surface	VCC= Voltage direct current
Auto= Self-Controlled	E= Emission/R= Rupture	E.Tele= remote control input	VCA= Voltage alternative current

3 DETAILED CHARACTERISTICS

- Safety position = Closed - Standby position = Open.
 - Release through intrinsic energy.
 - Integrated manual control of level 0 or 1.
 - Release by automatic control of a thermal release with category 1 eutectic alloy at 70°C.
 - For remote-controlled dampers, release by electromagnetic release, at choice:
 - VDS 24 VCC => Voltage U_c = 24 VCC / Power = 3.5W / Power emission,
 - VM 24 VCC => Voltage U_c = 24 VCC / Power = 1.5W / Power cut-off,
 - VDS 48 VCC => Voltage U_c = 48 VCC / Power = 3.5W / Power emission,
 - VM 48 VCC => Voltage U_c = 48 VCC / Power = 1.5W / Power cut-off,
 - Resettable, if no thermal release, either manually or by EHOP 30s electrical motor.
 - Contact of safety position FCU 1: - Compulsory for remote-controlled dampers,
- Safety option for automatic controlled dampers.
 - Contact of standby position DCU 1 in safety option.
 - Contact of additional safety position FCU 2 and standby DCU 2 in additional function.
 - The type of mounting is vertical (horizontal duct) and horizontal (vertical duct).
 - The axis of blade is horizontal or vertical.
 - The fire dampers can operate under fire/air from both direction.
 - After an endurance test of: - 150 cycles for automatic controlled dampers,
- 300 Cycles for remote-controlled dampers.
- the rectangular ISONE Fire Dampers have same initial characteristics.

4 DIMENSIONS - SPACE REQUIREMENT - WALL OPENING

RECTANGULAR ISONE EM



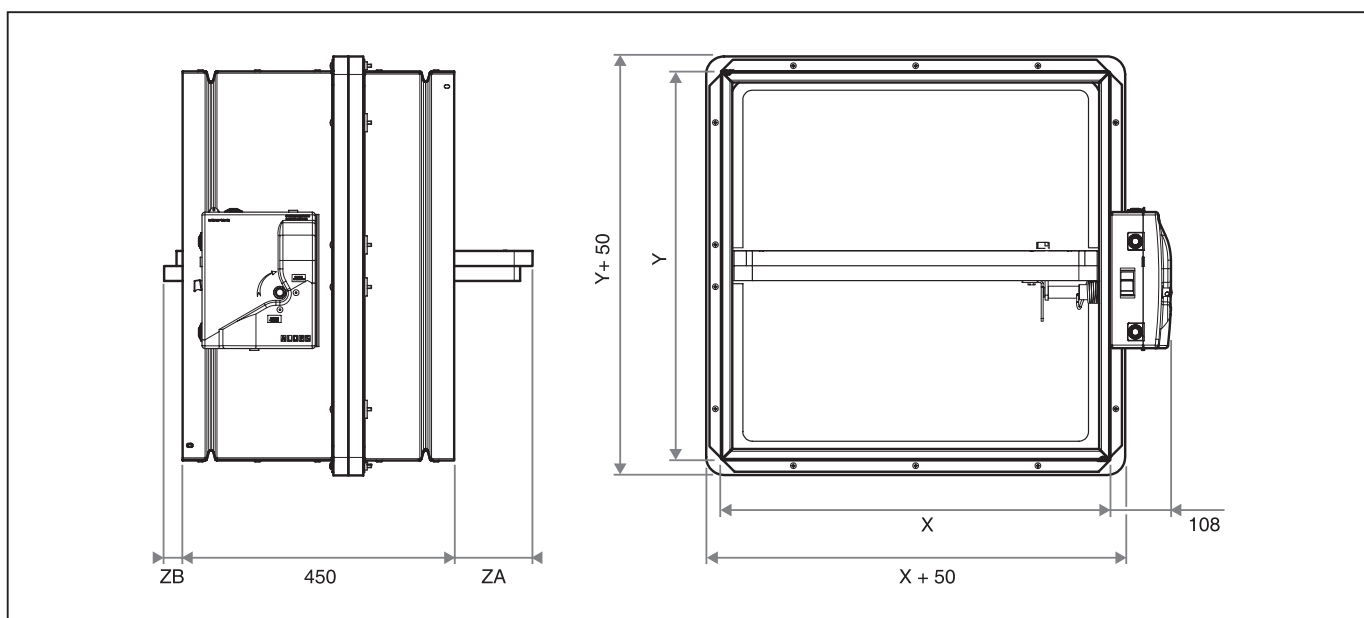
Overall dimensions: $(X - 2) - (Y - 2)$.

Opening dimensions: $(X + 50) - (Y + 50)$.

Maximum clearance of the blade:

Y	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
ZA	0	0	0	0	0	20	45	68	93	116	141	164	195	220	245	270	295	320
ZB	0	0	0	0	0	0	0	0	0	16	41	64	95	120	145	170	195	220

RECTANGULAR ISONE FdP



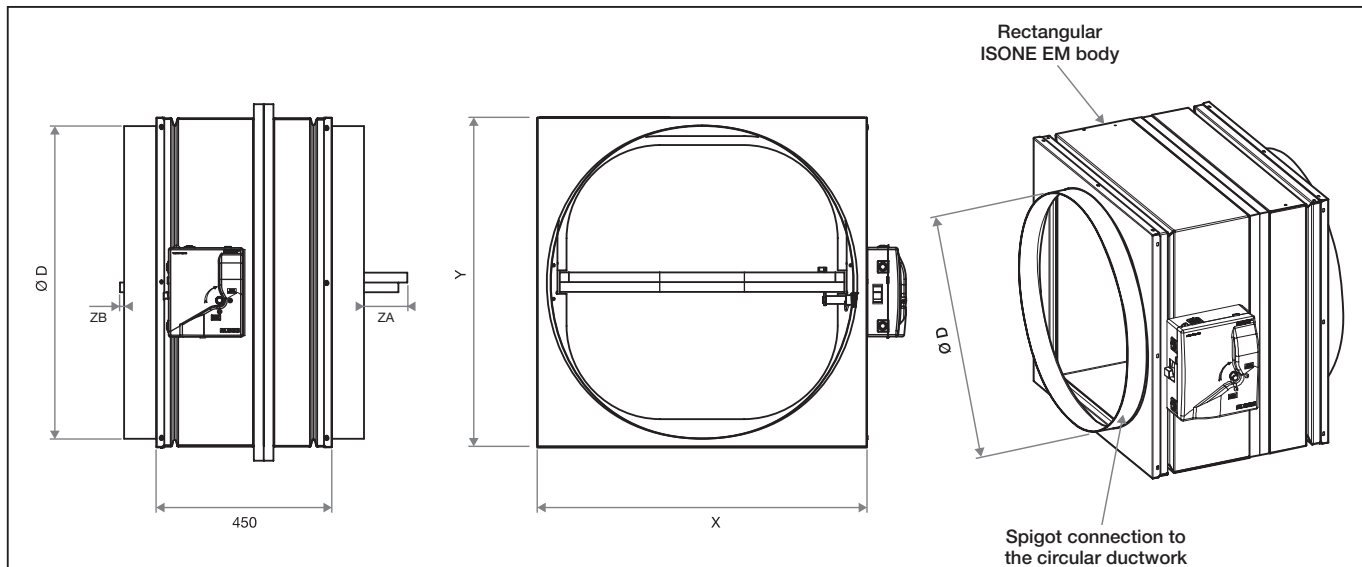
Overall dimensions: $(X + 48) - (Y + 48)$.

Opening dimensions: $(X + 100) - (Y + 100)$.

Maximum clearance of the blade:

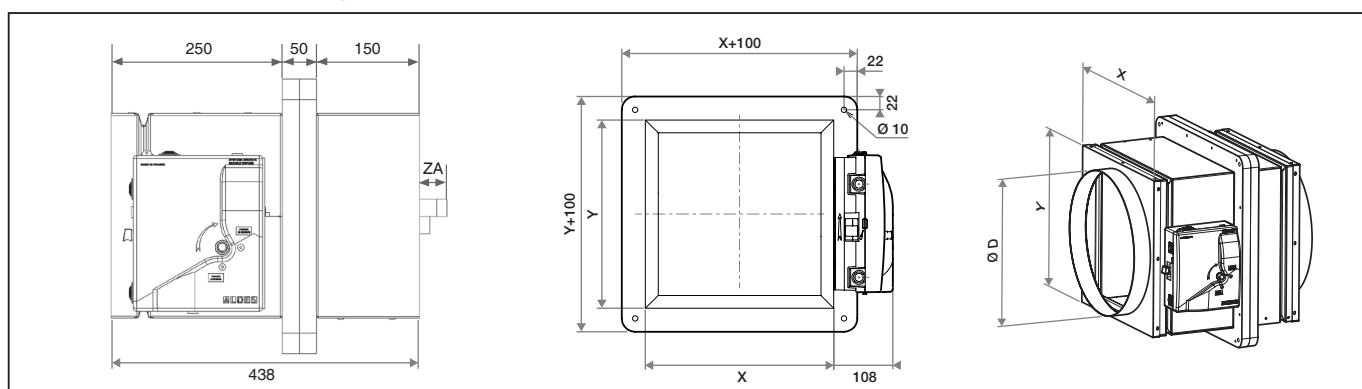
Y	200	250	300	350	400	450	500	550	600	650	700	750
ZA	0	0	0	0	16	42	66	92	116	142	166	190
ZB	0	0	0	0	0	0	0	0	16	42	66	90

4 DIMENSIONS – SPACE REQUIREMENT – WALL OPENING RECTANGULAR ISONE EM WITH CIRCULAR SPIGOTS



Ø D (mm)	Ø 560	Ø 630	Ø 710	Ø 800	Ø 900	Ø 1000
X x Y equivalent	600 x 600	670 x 670	750 x 750	840 x 840	940 x 940	1040 x 1040
Air passage (dm ²)	20.5	26	33.2	40.2	51.8	63.8
ZA	1	35	73	111	187	235
ZB	0	0	0	11	87	135

RECTANGULAR ISONE/AP AND WITH SPIGOT Ø 560-630 MM



RECTANGULAR ISONE/AP

Opening dimensions for concrete wall: $(X + 10) - (Y + 10)$.

Maximum clearance of the blade:

Y	200	250	300	350	400	450	500	550	600
ZB	0	0	0	0	17	42	47	72	97

RECTANGULAR ISONE/AP with circular spigots

Ø D (mm)	Ø 560	Ø 630
X x Y equivalent	600 x 600	670 x 670
Air passage (dm ²)	20.5	26
ZA	1	35
ZB	0	0

5 FREE SURFACE IN DM²

RECTANGULAR ISONE EM WITH CIRCULAR SPIGOTS - RECTANGULAR ISONE EM

Y	X	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
200		0.9	1.3	1.6	2.0	2.4	2.8	3.2	3.5	3.8								
250		1.4	2.0	2.6	3.2	3.8	4.4	5.0	5.6	6.0	6.6	7.2	7.8					
300		2.0	2.8	3.5	4.2	4.9	5.6	6.2	6.9	7.2	7.8	8.4	8.9	9.4	9.9	10.4		
350		2.4	3.5	4.5	5.5	6.4	7.3	8.2	9.0	9.7	10.5	11.3	12.0	12.8	13.5	14.2	14.9	15.6
400		2.8	4.1	5.4	6.6	7.8	8.9	10.1	11.2	12.1	13.1	14.1	15.2	16.2	17.1	18.1	19.0	20.0
450			4.7	6.2	7.7	9.1	10.5	11.9	13.2	14.4	15.7	17.0	18.3	19.5	20.7	21.9	23.1	
500			5.3	7.1	8.8	10.4	12.1	13.7	15.3	16.8	18.4	19.9	21.4	22.9	24.3	25.8		
550				7.8	9.8	11.7	13.6	15.5	17.3	19.1	20.9	22.7	24.4	26.2	27.9			
600				8.6	10.8	12.9	15.1	17.2	19.3	21.3	23.4	25.4	27.4	29.3				
650					11.7	14.1	16.5	18.9	21.2	23.5	25.8	28.0	30.3					
700					12.7	15.3	17.9	20.5	23.1	25.7	28.2	30.7						
750						16.4	19.3	22.2	25.0	27.8	30.5							

Y	X	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
350															15.1									
400															19.6	20.4	20.9	21.6						
450															23.0	24.1	24.7	25.8	26.8	27.8	28.8	29.8		
500													25.9	27.3	28.1	29.4	30.7	31.9	33.2	34.4	35.7	36.9	38.1	39.2
550												28.3	29.9	30.9	32.4	34.0	35.5	37.1	38.6	40.1	41.5	43.0	44.4	45.8
600										30.2	32.1	33.2	35.0	36.8	38.6	40.4	42.2	43.9	45.7	47.4	49.1	50.8	52.4	
650									31.5	33.7	35.0	37.1	39.1	41.2	43.2	45.3	47.3	49.3	51.2	53.2	55.1	57.1		
700								32.2	34.6	36.2	38.6	40.9	43.3	45.6	47.8	50.1	52.4	54.6	56.8	59.0	61.2			
750							32.4	35.0	36.9	39.6	42.2	44.8	47.4	49.9	52.4	55.0	57.5	59.9	62.4	64.8				
800						31.9	34.9	37.2	40.1	42.9	45.8	48.6	51.4	54.2	57.0	59.8	62.5	65.2	67.9					
850					31.0	34.2	36.9	40.0	43.2	46.3	49.4	52.5	55.5	58.6	61.6	64.6	67.6	70.5						
900			26.1	29.4	32.9	36.0	39.5	42.9	46.3	49.6	53.0	56.3	59.6	62.9	66.1	69.4	72.6							
950			27.4	31.1	34.7	38.4	42.0	45.7	49.3	52.9	56.5	60.1	63.6	67.2	70.7	74.2								
1000			28.8	32.8	36.8	40.7	44.6	48.5	52.4	56.2	60.1	63.9	67.7	71.5	75.2									
1050				34.4	38.6	42.8	47.0	51.1	55.2	59.3	63.4	67.5	71.5	75.5										

RECTANGULAR ISONE FDP

Y	X	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
200		1.9	2.5	3.0	3.6	4.2	4.8	5.3	5.8	6.4								
250		2.6	3.4	4.2	5.0	5.8	6.7	7.5	8.2	9.0	9.8	10.7	11.5					
300		3.3	4.4	5.4	6.5	7.4	8.4	9.2	10.0	10.8	11.6	12.4	13.2	14.0	14.7	15.4		
350		4.0	5.3	6.6	7.9	8.6	9.8	10.9	12.0	13.1	14.2	15.2	16.2	17.2	18.2	19.2	20.1	21.1
400		4.7	6.2	7.8	8.7	10.2	11.6	13.0	14.3	15.7	17.0	18.3	19.5	20.8	22.0	23.2	24.2	25.6
450			7.1	8.3	10.1	11.8	13.4	15.0	16.6	18.2	19.8	21.3	22.8	24.3	25.8	27.2	28.7	
500			7.3	9.4	11.4	13.3	15.2	17.1	18.9	20.8	22.6	24.3	26.1	27.8	29.5	31.2		
550				10.4	12.7	14.9	17.0	19.1	21.2	23.3	25.3	27.3	29.3	31.3	33.3			
600				11.5	14.0	16.4	18.8	21.2	23.5	25.8	28.1	30.3	32.6	34.8				
650					15.3	17.9	20.6	23.2	25.7	28.3	30.8	33.3	35.8					
700					16.5	19.5	22.3	25.2	28.0	30.8	33.6	36.3						
750						21.0	24.1	27.2	30.2	33.3	36.3							

RECTANGULAR ISONE/A_p

Y	X	200	250	300	350	400	450	500	550	600	650	700	750	800
200		1.9	2.5	3.0	3.6	4.2	4.8	5.3	5.9	5.6				
250		2.6	3.4	4.2	5.0	5.8	6.7	7.5	8.3	9.1	9.9	10.8	11.6	
300		3.3	4.4	5.4	6.5	7.6	8.6	9.7	10.7	11.8	12.9	13.9	15.0	16.1
350		4.0	5.3	6.6	8.0	9.3	10.6	11.9	13.2	14.5	15.8	17.1	18.4	19.7
400		4.7	6.3	7.8	9.4	10.9	12.5	14.0	15.6	17.1	18.7	20.2	21.8	23.3
450			7.2	9.0	10.8	12.6	14.4	16.2	18.0	19.8	21.6	23.4	25.2	27.0
500			8.2	10.2	12.3	14.3	16.3	18.4	20.4	22.4	24.5	26.5	28.6	30.6
550				11.4	13.7	15.9	18.2	20.5	22.8	25.1	27.4	29.6	31.9	34.2
600				12.5	15.1	17.6	20.1	22.6	25.2	27.7	30.2	32.7	35.3	37.8
650					16.4	19.2	22.0	24.8	27.5	30.3	33.1	35.8	38.6	41.4
700					17.8	20.8	23.8	26.9	29.9	32.9	35.9	38.9	41.9	44.9
750						22.4	25.7	28.9	32.2	35.5	38.7	42.0	45.2	48.5

ISONE/A_p Ø 560 : 20.5 dm² - ISONE/A_p Ø 630 : 26 dm²



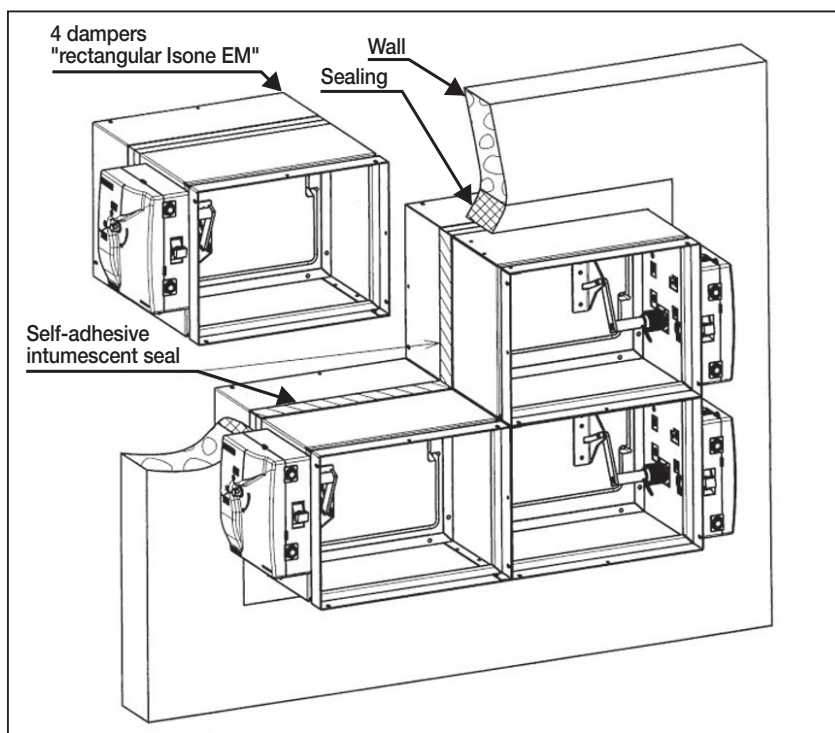
INSTALLATION

1 CONNECTION TO HVAC DUCTWORK

The two metallic sleeves of the ISONE are male components. The damper shall not support any constraint from the ductwork. The fixing of the sleeves shall be carried out without mechanical constraints and shall respect a perfect alignment of the ducts with the dampers. According to the dimension of the damper (see previous page), the mobile blade can move inside the duct (each hole on the sleeve will have to be sealed...).

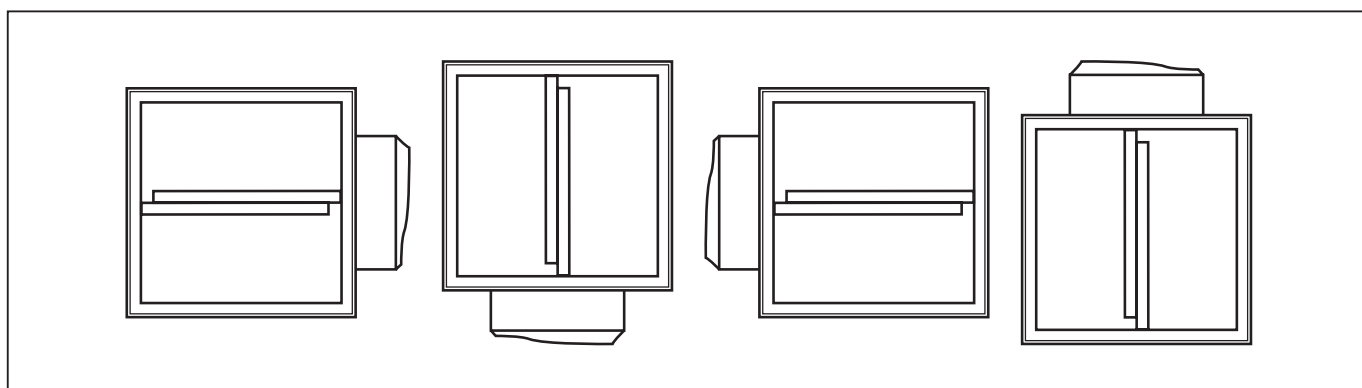
2 MULTI-SECTION ASSEMBLY

The assembly of several rectangular ISONE EM fire dampers in multiple section is very simple. A tape of intumescent fire seals (kit intumescent seal ref. 110 45.394) can be placed between the fire dampers on the refractory material. The metallic sleeves have to be fixed with self-drilling screws or rivets in the different pre-drilled locations. Some fire resistant mastic paste can be eventually used between the metallic sleeves to provide a better air tightness. For flange connection, it could be necessary to notch the sleeves on few centimeters to be able to position the flanges. Multi-section assembly is impossible for ISONE FdP and ISONE/Ap.



3 MULTI-SECTION ASSEMBLY

The blade axis of the ISONE fire dampers can be horizontal or vertical resulting in an indifferent positioning of the mechanism box (limited to sizes of dampers up to 800 X 600 mm).

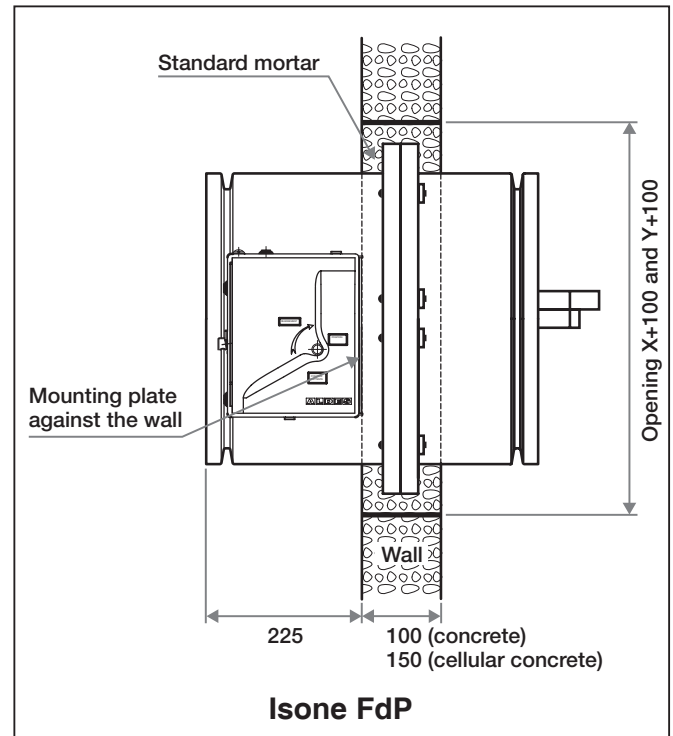
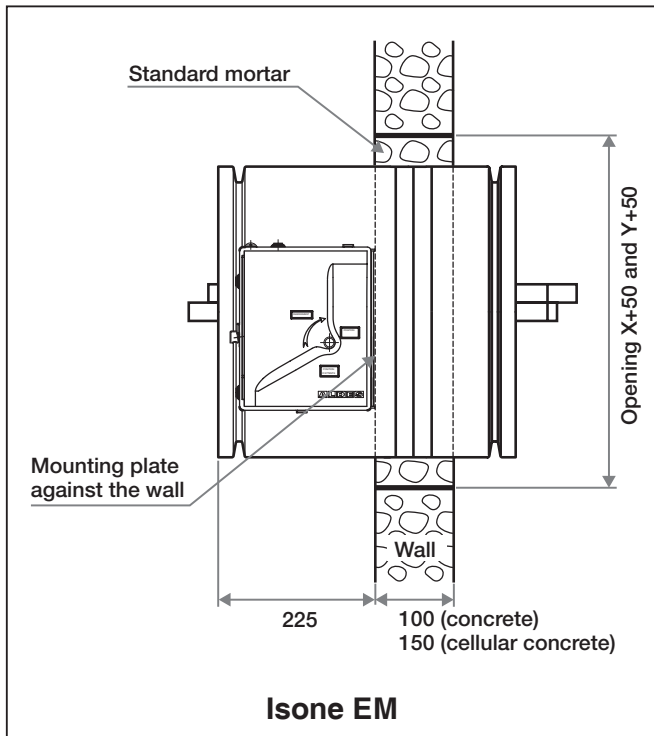


Note: The mechanism box shall remain accessible after the installation of the fire damper. To consider an inspection door for this purpose

4 ISONE EM - FdP

The opening should be considered to accept the space requirements mentioned in the previous pages. Embedding is simplified because of the shifted mechanism out of the fire-rated wall. The dampers ISONE EM and FdP are sealed with standard mortar (in the case of a supporting wall in cellular concrete, embedding will be achieved by means of a mortar for cellular concrete). Respect any specific fire resistance report.

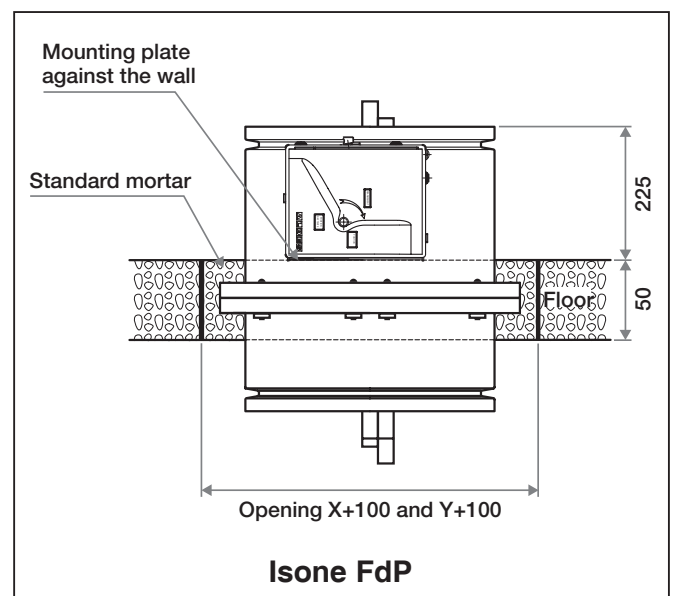
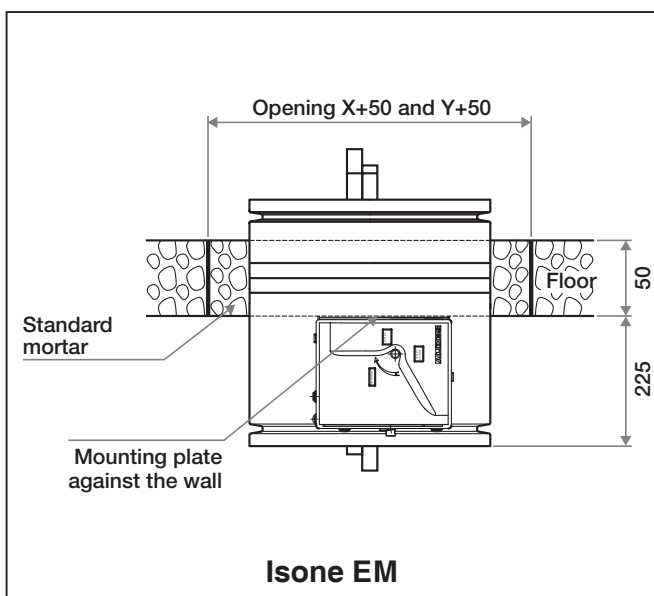
• IN CONCRETE WALL 110 mm or CELLULAR CONCRETE 150 mm



• IN CONCRETE SLAB 150 mm or CELLULAR CONCRETE 150 mm

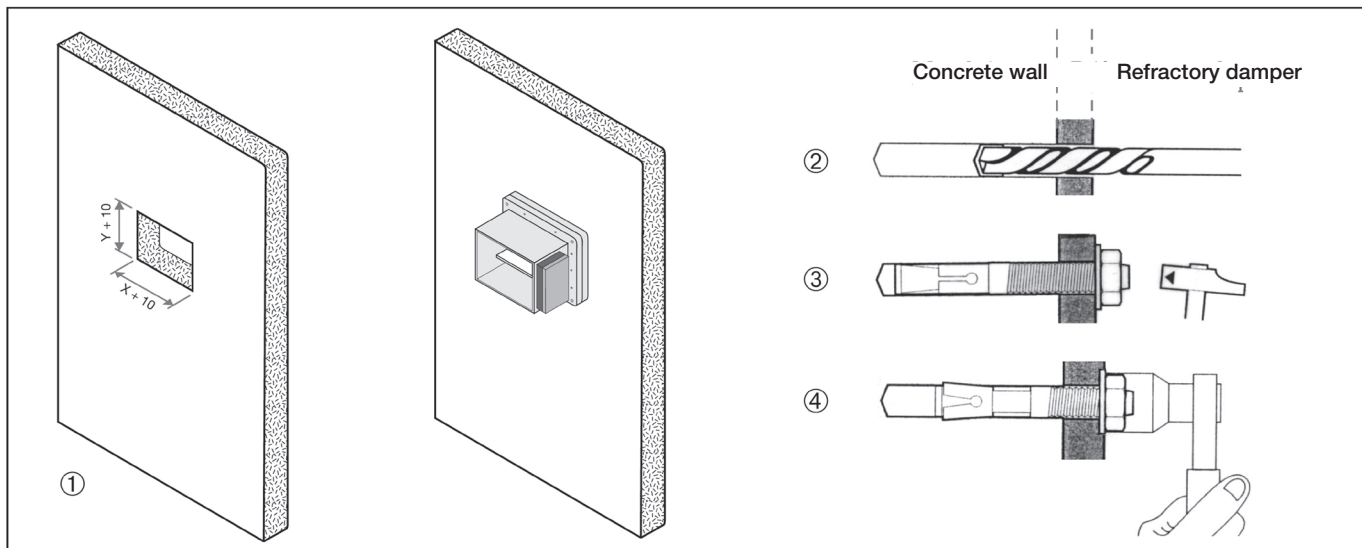
The assembly in slab is carried out by simple embedding with traditional mortar (or for cellular concrete) and does not require any means of additional fixing nor suspension.

The damper is embedded with its mechanism against the slab, positioned indifferently on the surface or sub-face of floor.



5 ISONE/Ap

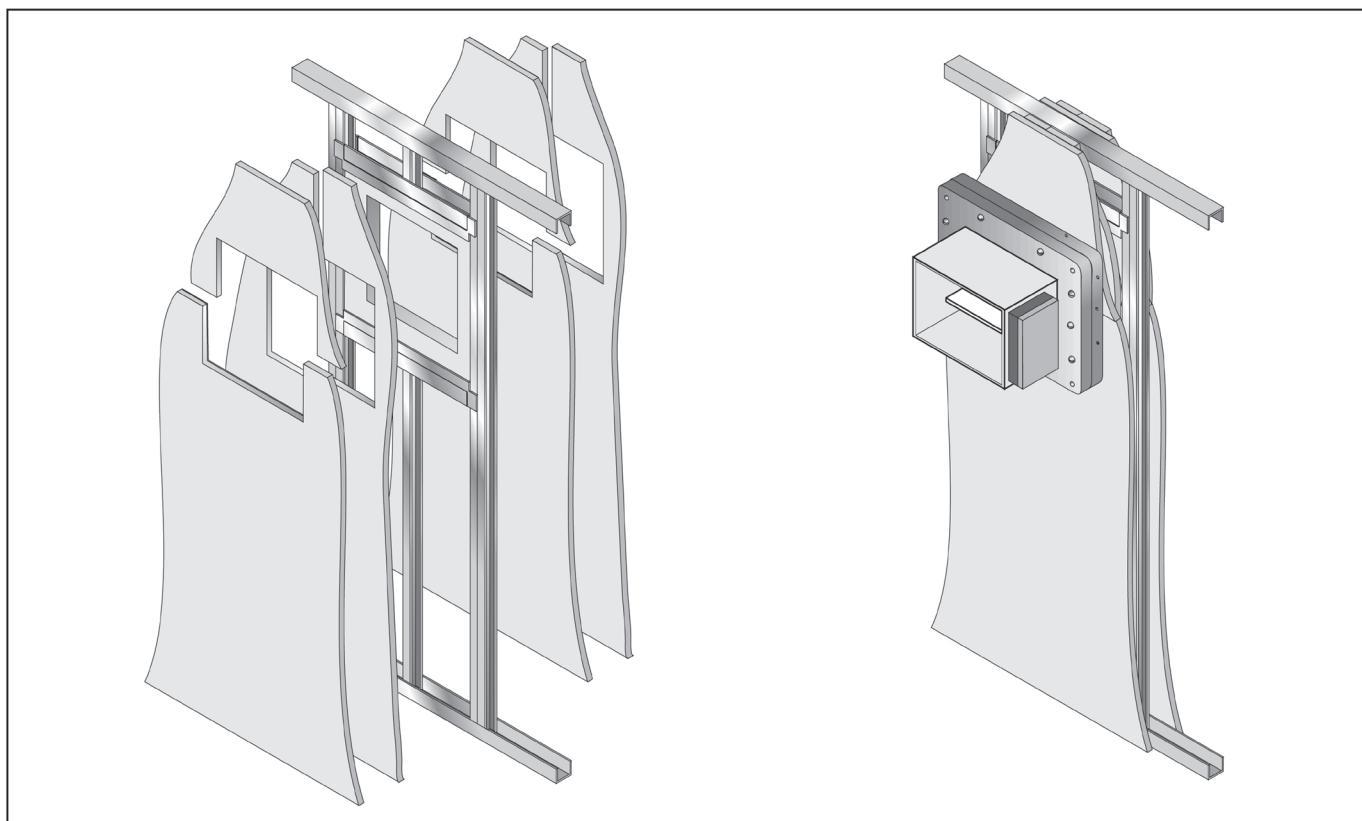
• ON CONCRETE WALL 110 mm



- ① Place the fire damper in its opening (nominal sizes + 10 mm).
- ② Drill the wall with a drill machine through the damper holes on a depth of 50 mm.
Use a concrete drill Dia 8 X 100 mm.
Use dowel pins SPITFIX M8 X 130 or HILTI HSA-K M8 X 137.
- ③ Enter fully the dowel pins.
- ④ Tighten until the incrustation of the disc inside refractory material. Neither filling in, nor suspending rods.

Note: the walls should be perfectly straight (concreted for example) and free from scratching.

• ON WALL IN PLASTERBOARDS



The fixing of the damper is carried out by screws through a metallic crosshead structure with adapted dimensions. Consult www.aldes.com or your ALDES agency for more information. Respect any specific fire resistance report.

6 MAINTENANCE

- Each intervention on the mechanism of a rotating machine with gears and strong springs should be made with all precautionary measures.
- As it is compulsory that every element has to be supplied in SELV (Safety Extra Low Voltage), earthing is not necessary. It is recommended to work with no power supply/ voltage to avoid short-circuits that could damage the apparatus.
- The plastic box protecting the mechanism should imperatively be positioned back after each dismantling.
- According to the type of building, some periodic operation tests must be scheduled (see NFS 61-933). We recommend at least one annual operation, test.



OPERATION

The marking label informs you on the different options available on the fire damper.

1 ACTIVATION

- Manual control: by action on the white lateral handle without disassembling the cap.
- Automatic control: any temperature exceeding 70° C will activate the thermal fusible link assembled consistently on all ISONE fire dampers (compulsory as per NFS 61-937-5).
- Remote control: according to the prior choice of the voltage of the electromagnetic coil, a power cut-off or a power emission (24 or 48 VCC) will trigger the fire damper towards its safety position.

2 RESET

The fire damper being in safety position (closed position), the reset is made either:

- manually with a screwdriver without disassembling the cap,
- remotely through the supply of the reset motor. The motor is stopped automatically when the maximum torque is reached. To switch off the motor supply is recommended after 30 seconds.

3 SIGNALLING

The closed position switch (FCU) and the opened position switch (DCU) indicate if the fire damper is respectively closed (safety position) or opened (standby position).

These signalling contacts are represented free of any action. Use the terminals NO of the contacts (1 and 3, 4 and 6, 11 and 13, 14 and 16) to close a signalling circuit (or to light on signals for example).



OPERATION:

The marking label informs you on the different options available on the fire damper.

1 GENERAL POINTS

Any power supply connected to the mechanism of the rectangular ISONE fire damper should be in SELV (Safety Extra Low Voltage). All these connections are done by removable connectors (provided).

The contacts are considered at rest and free of any action.

According to the selected options (see label on the damper), there are three types of connection card. These three cards are easily de-clipped without tool. Cards N°1 and N°2 are interchangeable.

2 CARD N° 1 - FCU 1 - DCU 1

ISONE with thermal fusible link.

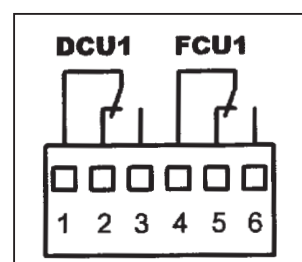
Possible options: closed/open position switches (FCU/DCU)

FCU1 and/or DCU1:

Switches with reverser NO/NC.

Intensity of cutoff = 3A max. under 48 VDC.

The contacts are represented at rest position



3 CARD N° 2 - ELECTROMAGNETIC DEVICE / MOTOR

ISONE with thermal fusible link.

Possible options: - closed/open position switches (FCU/DCU),

- Electromagnetic coil,

- Reset motor.

FCU1 and/or DCU1 :

Switches with reverser NO/NC.

Intensity of cutoff = 3A max. under 48 VDC.

Electromagnetic device equipped with 3-wire dual voltage coil.

Voltage is preset in-factory in accordance with the customer order; it can be modified thanks to a specific switch as well (see diagram).

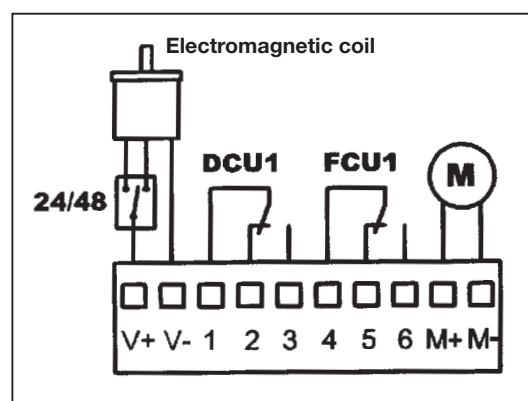
The coil is either: - With power emission: $V_n = 24$ or 48 VDC (-15% / +20%) - $P_{max} = 3.5$ W,

- With power cut-off: $V_n = 24$ or 48 VDC (-15% / +20%) - $P_{max} = 1.5$ W.

Be careful, the choice between power cut-off and power emission should be made when ordering the fire damper.

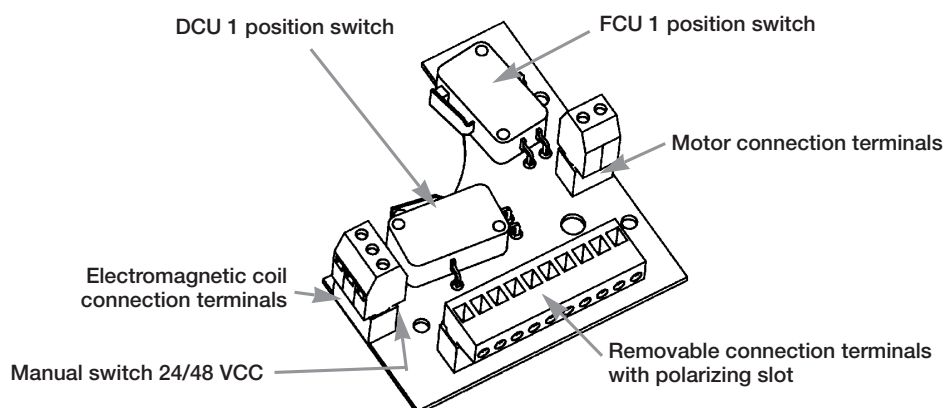
Reset motor EHOP 30s:

Dual voltage from 24 to 48 V alternative or continuous ($\pm 10\%$) - $I_{max} = 0.7$ A.



The contacts are represented at rest position

CARD N° 2



4 CARD N° 3 - FCU 2 - DCU 2

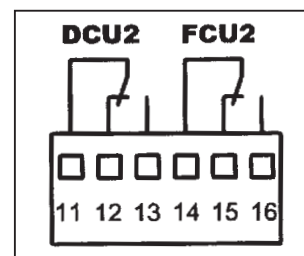
ISONE with thermal fusible link.

FCU2 and/or DCU2 :

Switches with reverser NO/NC.

Intensity of cutoff = 3A max. under 48 VDC.

*The contacts are
represented at rest position*





WARNING

STORAGE BEFORE INSTALLATION

These products whose storage before installation shall be made away from bad weather conditions in a closed space, away from water and from too high / too low temperatures, shall not be piled up beyond in-factory original conditioning. They shall be suitably arranged in a manner to prevent any damage of the mechanism or mobile parts, or any deformation as a consequence of a too much load or too high moisture. Be careful to prevent sun exposure of the fire dampers in order to avoid a premature ageing of the fusible link.

PRODUCT PROTECTION DURING INSTALLATION

The fire damper, and more particularly its mechanism, although protected under a cap in synthetic material shall be held away from projections of any nature (cement during sealing, painting, flocking, etc) that could harm the good performance of the various triggering & signalling elements.

The product shall also be protected against the risks from streaming or strong condensation for the refractory part as well as for the metallic parts or electromagnetic devices.

The intumescent seal is essential for achieving a correct fire resistance of the fire damper; any mechanical action on the refractory parts shall be prevented.

All precautionary measures shall be taken in order to prevent the product materials from any premature ageing before the commissioning of the complete facilities.

The action of adjustment and filling in for embedding the products shall not cause any deformation likely to deteriorate the good performance of the fire damper.

PRODUCT CONTROL BEFORE STARTUP OF THE FACILITIES

The products shall be maintained in mechanical rest position before the effective commissioning of the HVAC ductwork in order not to create any loads on the activation or release device as long as normal operating conditions are not fulfilled.