MADEL®

CE

EN 15650:2010

FOK-EIS-120 Fire dampers CE

ÅThe fire dampers **FOK-EIS-120** work as a separator between two sectors of fire and ensure the same fire resistance that the structural elements of compartmentalisation, which limits the risk of spreading of fire by interior of the building.

ÅFOK-EIS-120 fire dampers are according with the following standards:

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

European Classification Standard, EN 13501-3
(Fire classification of construction products and building elements ï Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers)

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

European Test Standard, EN 60529:1991
(Degrees of protection provided by enclosures (IP Code))

European Test Standard EN 1751
(Ventilation for buildings ï Air terminal devices ï Aerodynamic testing of dampers and valves)

International Test Standard ISO 10294-4
(Fire resistance tests ï Fire dampers for air distribution systems Part 4: Test of thermal release mechanism)

French Standard, NF S 61-937 (part 1/ part 5)
(Fire Safety Systems - Operated safety devices)

Å The casing is made of galvanised steel, and joined by clinching system (cold forming the material).

Å It incorporates a solid perimeter frame to facilitate the sealing between the fire damper and support construction.

Å The housing is made from galvanized steel. It has a symmetrical design that allows wall mounting regardless of air flow.

Å The blade is made of ceramic material resistant to high temperatures and abrasion.

ÅThese dampers meet the conditions required for the symbol (S) to cold smoke seal.

ÅThe airtightness to the passage of cold smoke is achieved through a joint between the perimeter of the housing and the blade.

ÅFor high temperatures, the damper is equipped with an expanding intumescent seal, forming a paste that prevents the passage of hot air and smoke from one side of the damper to another.

ÅThe operating devices of the dampers is automatic shooting by means of a thermal fuse calibrated at 72°C to activate the closure when reaches that temperature. Reset is manual except for motorized dampers.

DECLARATION OF PERFORMANCES

DECLARATION OF PERFORMANCE (Nº 0370-CPR-1380)	**V10/18**

1. Product and identification name:	*Fire damper ñFOK-EIS-120ò*
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:	APPLUS - 0370 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: 0370 ï CPR ï 1380 Test report: 11/3034-2632, 12/5477-1359, 14/8629-797, 17/12815-16, 18/12815-1800, 14/8629-947, 18/12815-700, 18/12815-701, 18/12815-703, 18-17552-1206

6. Performances (EN 15650 :2010):

Essential characteristics					***Performances***
Dimensions	***Type***	***Wall***	***Type of installation***	***Mechanism orientation***	***Class***
200 x 200 a 1000 x 600	Rigid wall	Brick wall/ reinforced concrete wall Ó150 mm	Built-in	0-180º	EI 120 (v_e iź o) S (500Pa)
	Rigid wall	Plasterboard type F (s/ EN 520) 108 (15x2 + 48 (LM 50Kg/m^3) + 15x2)	Built-in	0-180º	EI 120 (v_e iź o) S (500Pa)
	Rigid floor	Reinforced concrete floor Ó150 mm	Built-in	0-360º	EI 120 (v_e iź o) S (500Pa)
200 x 200 a 1500 x 800	Rigid wall	Muro de obra/ Hormigón armado Ó150 mm	Built-in	0-180º	EI 120 (v_e iź o) S (500Pa)
	Rigid floor	Reinforced concrete floor Ó200 mm	Built-in	0-360º	EI 120 (h_o iź o) S (300Pa)

Nominal activation conditions/ sensitivity:	
Sensing element load bearing capacity	Approved
Sensing element response temperature	
Response delay according to EN 1366-2:	
Closure time	Approved
Operational reliability according to EN 1366-2	
Cycling (opening and closing) on fire test.	50 cycles
Cycling (opening and closing) according to Standard for CE Marking	é - /MA/ - 300 cycles, é -/MAF/ - 300 cycles, é - /MFSé V/ - 10.200 cycles, é - /MFBé V/ - 10.200 cycles
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	Approved

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, 22/10/18**
(Technical Director)

CLASSIFICATION

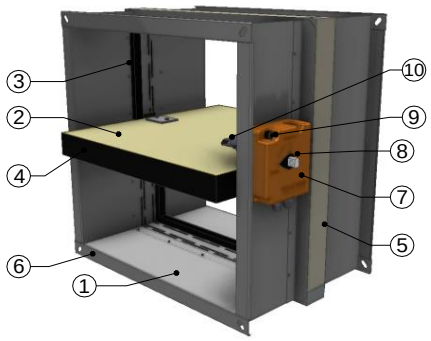
FOK-EIS-120 Rectangular damper 90º angled flange connection to the ducts.

é -MA Manual resetting damper. Is not necessary to open the box device.

é -MFé Damper operated by an actuator with switch off device at 24 or 230V.

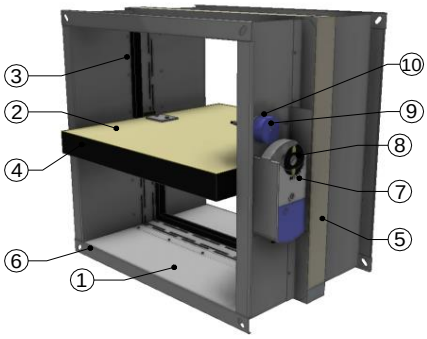
PARTS

FOK-EIS-120-MA



1. Casing
2. Blade
3. Airtightness seal
4. Intumescent seal
5. Perimetral frame
6. 90º angled flange
7. Operating device /MA/
8. Position indicator
9. Test button
10. Thermal fuse 72ºC

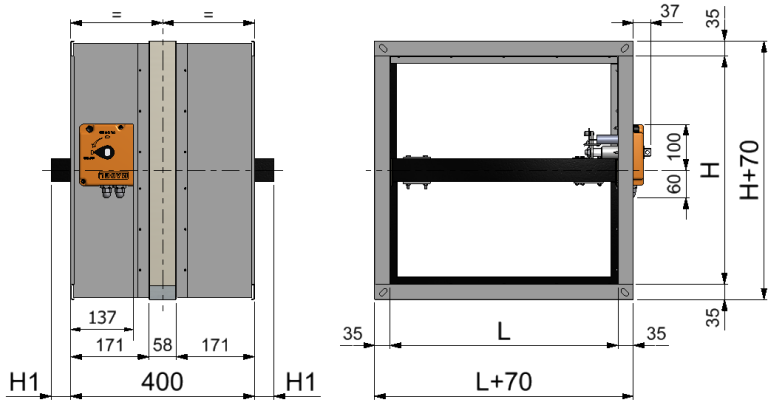
FOK-EIS-120-MFé



1. Casing
2. Blade
3. Airtightness seal
4. Intumescent seal
5. Perimetral frame
6. 90º angled flange
7. Actuator /MFé /
8. Position indicator
9. Test switch
10. Thermoelectrical fuse 72ºC

DIMENSIONS

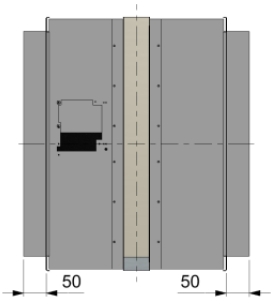
FOK-EIS-120-MA



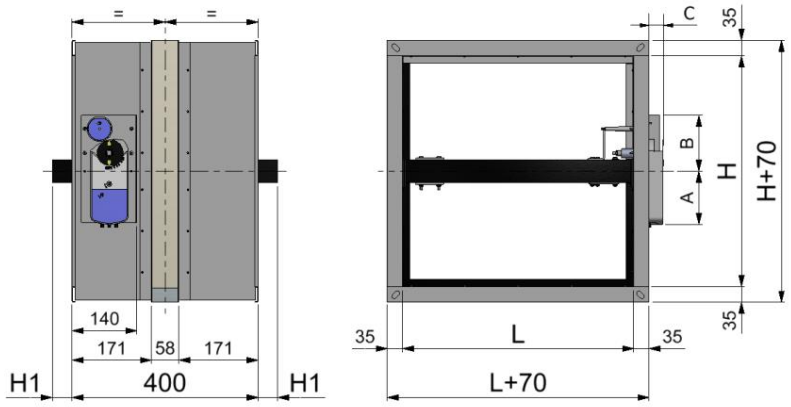
L (mm)	L (mm)
200	700
250	800
300	900
350	1000
400	1100
450	1200
500	1300
550	1400
600	1500

H (mm)	H1 (mm)
200	-
250	-
300	-
350	-
400	-
450	25
500	50
550	75
600	100
700	150
800	200

FOK-EIS-120 /CR é



FOK-EIS-120-MFé



Ref.	S/ dim.	A (mm)	B (mm)	C (mm)
MFS...		115	121	32
MFS...		115	121	32
MFS...		191	121	40
MFB...		150	121	25
MFB...		160	121	32

OPERATING DEVICES

é -/MA/ Manual resetting damper. Automatic shooting by means of a thermal fuse calibrated at 72 °C.

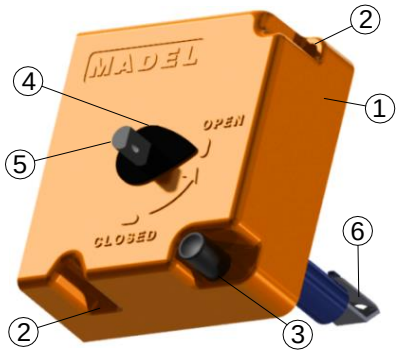


fig. **MA**

Standard:

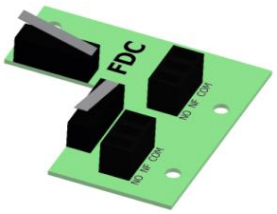
- Thermal fuse 72ºC
- Manual test button
- Manual resetting
- Position indicator
- IP42 protection

1. Plastic command cover
2. Screws for cover attachment
3. Manual test button
4. Position indicator
5. Manual resetting axe.
6. Thermal fuse 72ºC

Optional

é - /PIF/ Closed switches device

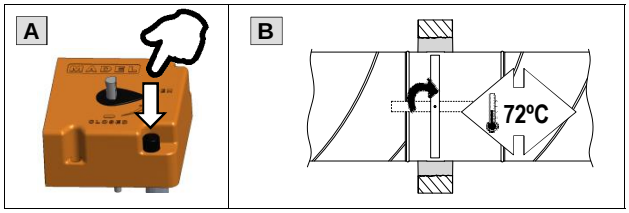
fig. **PIF**



		L	
		200é 1000	1050é 1500
H	200é 550	- /MA/	- /MA/
	600é 800	- /MA/	-

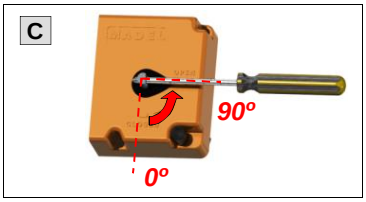
Close (unlocking)

Å **Manual:** Pressing the unlocking button *(A)*
Å **Automatic:** The fusible link reaches 72ºC *(B)*
Å **Remote:** -

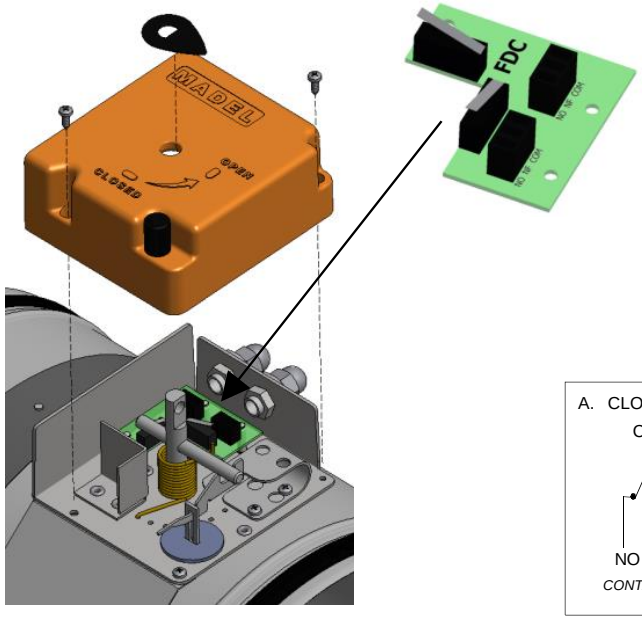


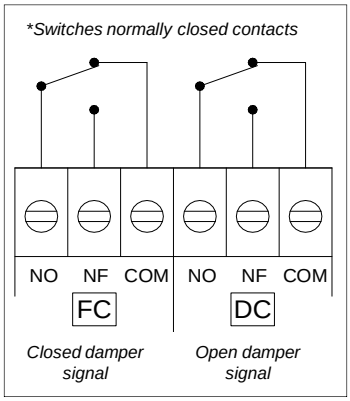
Open (resetting)

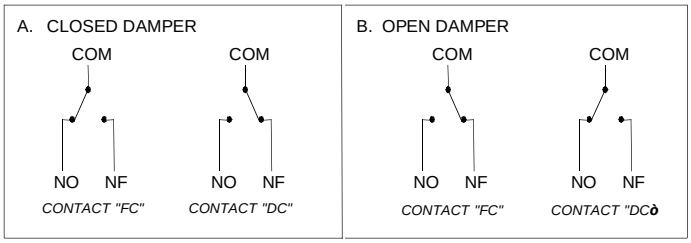
Å **Manual:** Turning counterclockwise 90º the manual resetting axe using a tool with a smaller diameter than 8mm *(C)*
Å **Automatic:** -



Electrical connection







OPERATING DEVICES

é - /MFSé / Damper operated by remote control by means of an actuator with switch off device at 24 or 230V or a thermal fuse calibrated at 72 °C. .

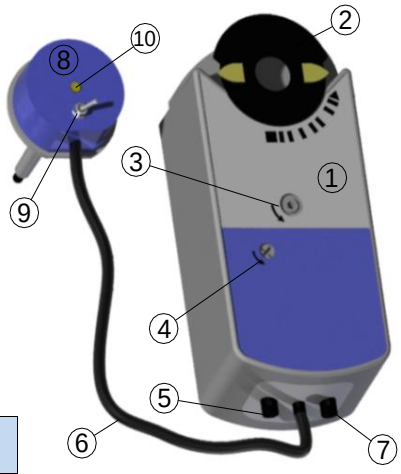
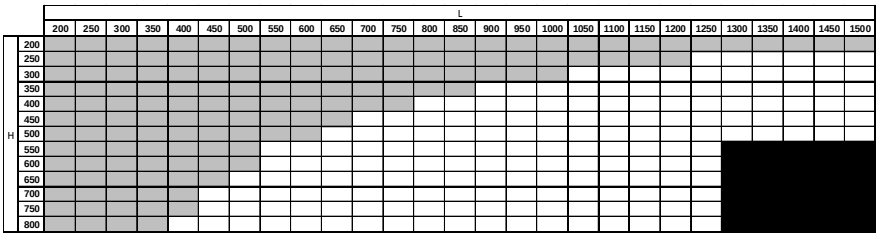


fig. **MFSé V**

Standard:

- Internal and external thermoelectrical fuse 72ºC
- Automatic resetting
- Automatic closing by fuse 72ºC
- Remote closing by interruption of power supply
- Manual test switch
- LED status fusible indicator
- Position damper indicator
- Closed switches
- IP54 Protection

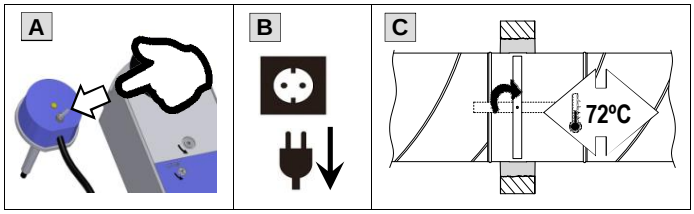
Reference a/size	Torque	Voltage	Consumption	Time Open/ Close
MFS24V	4 Nm	CA 24V, CC 24/48V	3,5W (running)/ 2W (stationary)	90s/ 15s
MFS230V	4 Nm	CA 230V	4,5W (running)/ 3,5W (stationary)	90s/ 15s
MFS24V	7 Nm	CA 24V, CC 24/48V	3,5W (running)/ 2W (stationary)	90s/ 15s
MFS230V	7 Nm	CA 230V	4,5W (running)/ 3,5W (stationary)	90s/ 15s
MFS24V	18 Nm	CA 24V, CC 24/48V	5W (running)/ 4W (stationary)	90s/ 15s
MFS230V	18 Nm	CA 230V	6W (running)/ 4W (stationary)	90s/ 15s



1. Actuator
2. Position damper indicator
3. Manual resetting
4. Manual lock
5. Plug closed switches cable
6. Thermoelectrical fuse cable
7. Power supply cable
8. Thermoelectrical fuse 72ºC
9. Manual test switch
10. LED status fusible indicator

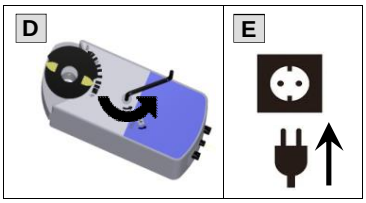
Close (unlocking)

- Å **Manual:** Pressing the manual test switch *(A)*
- Å **Remote:** By interrupting the power supply *(B)*
- Å **Automatic:** The fusible link reaches 72ºC *(C)*



Open (resetting)

- Å **Manual:** Turning counterclockwise the manual resetting with allen key *(D)*
  To keep the blade open, lock by manual lock
- Å **Automatic:** By supplying the power supply *(E)*

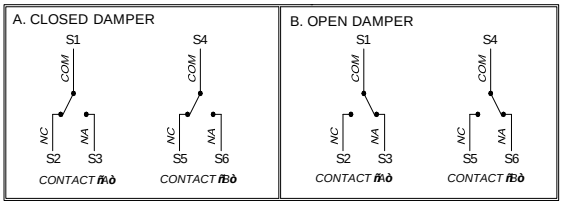


Electrical connection

AUXILIARY SWITCHES CABLE			
MEANING	**Nº**	**COLOR**	
Switch "A" input	S1	grey/ red	
Switch "A" normally-closed contact	S2	grey/ blue	
Switch "A" normally-open contact	S3	grey/ pink	
Switch "B" input	S4	black/ red	
Switch "B" normally-closed contact	S5	black/ blue	
Switch "B" normally-open contact	S6	black/ pink	

ACTUATOR 230VCA			
MEANING	**Nº**	**COLOR**	
Line 230VCA	3	Brown	
Neutral	4	Blue	

ACTUATOR 24VCA/24é 48VCC			
MEANING	**Nº**	**COLOR**	
System potential 24VCA/ 24é 48VCC	1	red	
System neutral	2	black	



ÅFixed switching points at 5º and 80º

ÄÄFixed switching point at 5º to contact ñAò

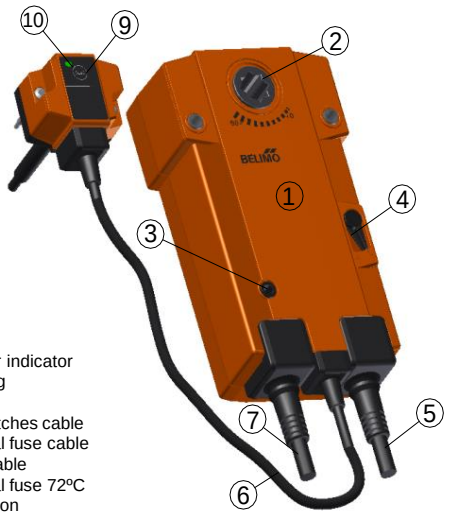
ÄÄFixed switching point at 80º to contact ñBò

OPERATING DEVICES

é - /MFBé / Damper operated by remote control by means of an actuator with switch off device at 24 or 230V or a thermal fuse calibrated at 72 °C. .

Standard:

- Internal and external thermoelectrical fuse 72ºC
- Automatic resetting
- Automatic closing by fuse 72ºC
- Remote closing by interruption of power supply
- Manual test switch
- LED status fusible indicator
- Position damper indicator
- Closed switches
- IP54 Protection



1. Actuator
2. Position damper indicator
3. Manual resetting
4. Manual lock
5. Plug closed switches cable
6. Thermoelectrical fuse cable
7. Power supply cable
8. Thermoelectrical fuse 72ºC
9. Manual test button
10. LED status fusible indicator

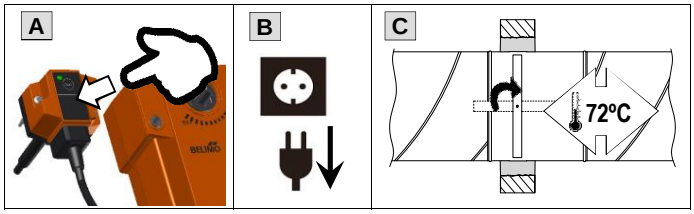
fig. **MFBé V**

Reference a/size	Torque	Voltage	Consumption	Time Open/ Close
MFB24V	9 Nm	CA 24V/ CC 24/48V	4W (running)/ 1,4W (stationary)	60s/ 20s
MFB230V	9 Nm	CA 230V	4,5W (running)/ 3,5W (stationary)	60s/ 20s
MFB24V	18 Nm	CA 24V/ CC 24/48V	7W (running)/ 2W (stationary)	120s/ 16s
MFB230V	18 Nm	CA 230V	8,5W (running)/ 3W (stationary)	120s/ 16s

		L	
		200é 1250	1300é 1500
H	200é 500		
	550é 800		

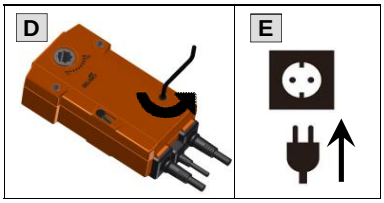
Close (unlocking)

Å **Manual:** Pressing the manual test switch *(A)*
Å **Remote:** By interrupting the power supply *(B)*
Å **Automatic:** The fusible link reaches 72ºC *(C)*



Open (resetting)

Å **Manual:** Turning counterclockwise the manual resetting with allen key *(D)*
To keep the blade open, lock by manual lock
Å **Automatic:** By supplying the power supply *(E)*

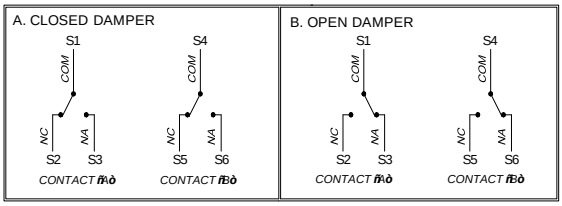


Electrical connection

MEANING	Nº	BFL/ BFN		BF	
Switch "A" input	S1	Violet		White	
Switch "A" normally-closed contact	S2	Red		White	
Switch "A" normally-open contact	S3	White		White	
Switch "B" input	S4	Orange		White	
Switch "B" normally-closed contact	S5	Pink		White	
Switch "B" normally-open contact	S6	Grey		White	

ACTUATOR 24VCA/24é 48VCC		
MEANING	**Nº**	**COLOR**
Neutral	1	Black
System potential 24VCA/ 24é 48VCC	2	Red

ACTUATOR 230VCA		
MEANING	**Nº**	**COLOR**
Neutral	1	Blue
Line 230VCA	2	Brown



ÅFixed switching points at 5º and 80º
ÅÅFixed switching point at 5º to contact ñAò
ÅÅFixed switching point at 80º to contact ñBò

GENERAL POINTS

STORAGE AND HANDLING

Å Avoid to store outdoor.

Å Avoid the contact with liquids.

Å Avoid impacts.

Å Not to put loads on the blade.

Å Not to use the fire damper for a different purpose to which it has been designed.

Å Use the operating device for open/ close the damper, never through the blade.

SUPPORTING CONSTRUCTION AND INSTALLATION

Å The MADEL fire dampers are classified for the supporting constructions described in this manual or similar supporting constructions with a same or superior fire resistance (more thickness/ density or number of boards *(according to EN 1366-2).*

Å Any variation in supporting construction as described in the previous point, different sealing or type of installation regarding this document, the fire damper will not comply the classification.

Å Install the fire damper with the blade closed and avoid excessive pressures in its casing.

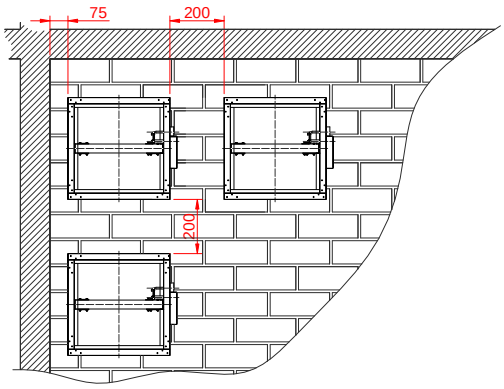
Å Avoid to project materials to the interior of the tunnel.

Å Avoid vibrations in the installation.

Å Check the opening and closing after the installation.

Å The inner dimension of the air ducts can not be smaller than inside dimension of the damper.

MINIMAL DISTANCES *(a/ European Standard EN 1366-2)*



Å The minimum distance between fire dampers and construction elements will be 75mm.

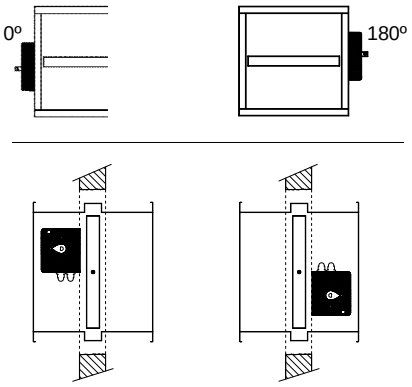
Å The minimum distance between fire dampers will be 200mm.

INSTALLATION

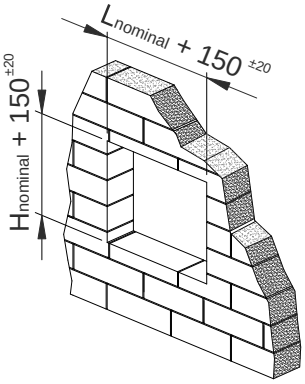
- RIGID WALL

Dimensions	Supporting construction		Sealing	Classification
200 x 200 a 1500 x 800	Rigid wall	Brick wall Ó150mm	Mortar	EI120 (v_e iź o) S (500Pa)
	Rigid wall	Reinforced concrete Ó150mm	Mortar	EI120 (v_e iź o) S (500Pa)
	Rigid wall	Aerated concrete Ó150mm	Mortar	EI120 (v_e iź o) S (500Pa)

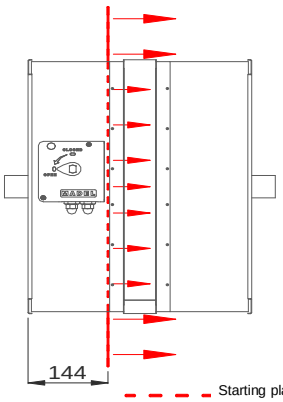
1. Operating device position



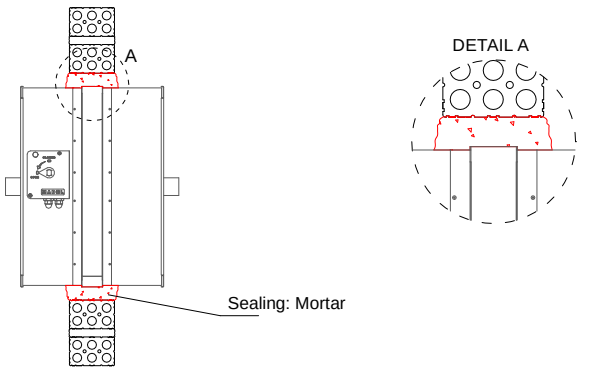
2. Support construction opening



3. Starting plane of supporting construction



4. Sealing



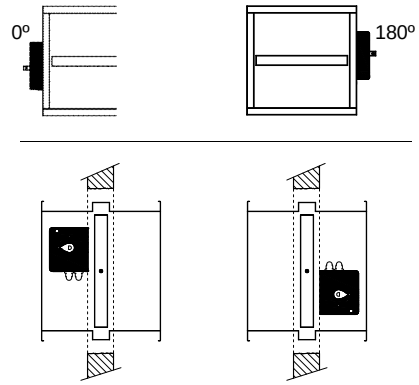
INSTALLATION

- FLEXIBLE WALL

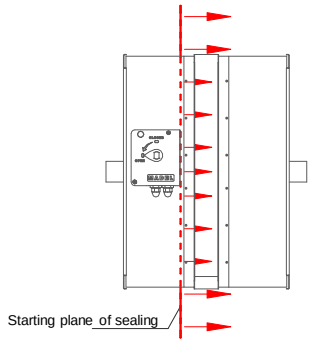
Dimensions	Supporting construction		Sealing	Classification
200 x 200 to 1000 x 600	Flexible wall	15 x2 *(Plasterboard type F, s/ EN 520)* + 48 *(LM, 50Kg/m³)* + 15 x2 *(Plasterboard type F, s/ EN 520)*, modulation 400mm Ó108mm	Plasterboard + instumescent mastic	EI120 (v_e iź o) S (500Pa)

*** LM** Mineral wool

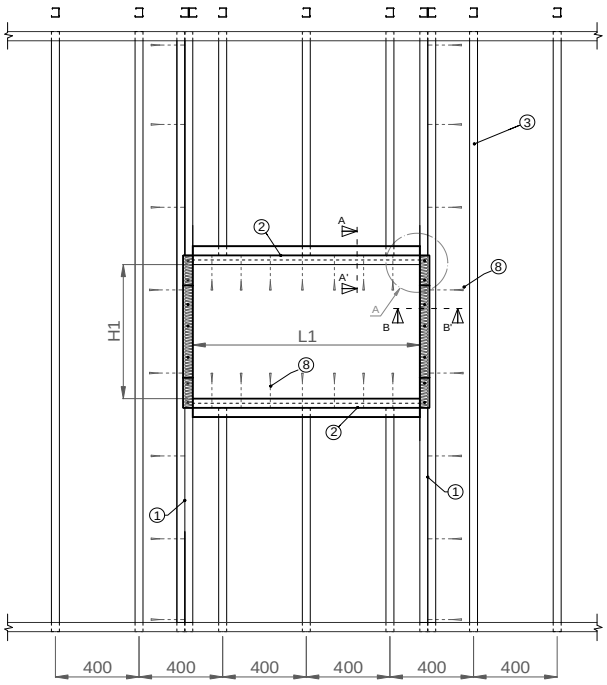
1. Operating device position



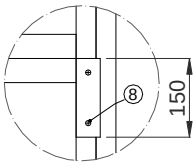
2. Support construction opening



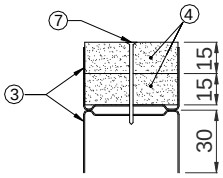
3. Mounting frame



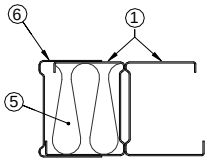
DETAIL A



SECTION A-Aô



SECTION B-Bô



H ó L (mm)	H1 (mm)	L1 (mm)
200	275	275
250	325	325
300	375	375
350	425	425
400	475	475
450	525	525
500	575	575
550	625	625
600	675	675
650	725	725
700	775	775
750	825	825
800	875	875
900	-	975
1000	-	1075

Modulation spaced 400mm. Support structure consists in,

- Two vertical profiles, forming an ñHò each one, spaced L1 and isolated with mineral wool (section A-Aô).

- Two horizontal profiles, forming an ñHò each one, spaced H1 and isolated with double plasterboard (section B-Bô).

- ñHò Horizontal profiles fixed to ñHò vertical *(Detail A)*

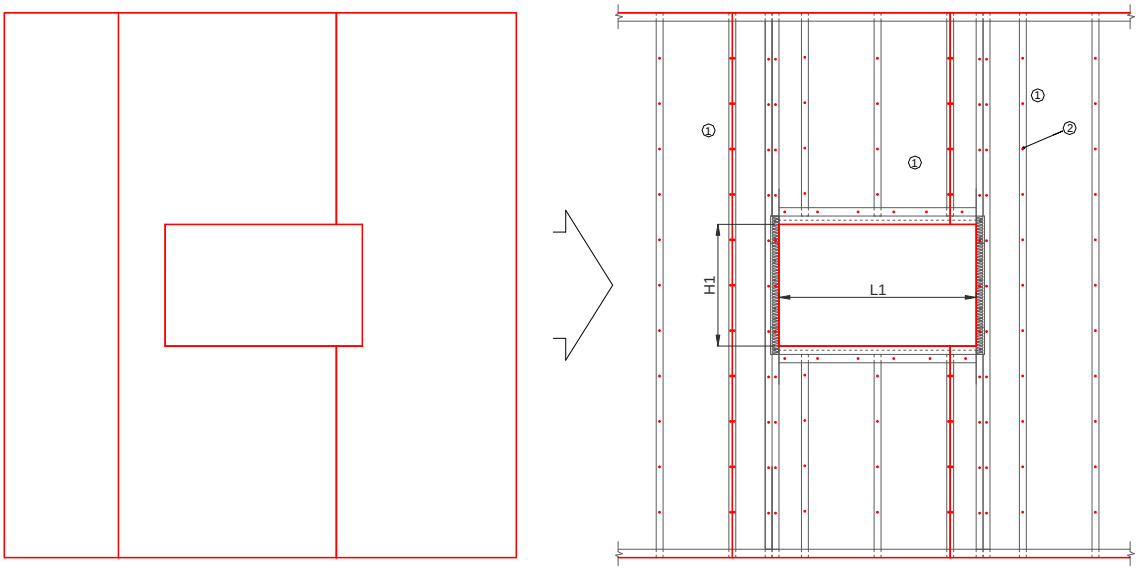
DESCRIPTION

1. H Vertical profiles (48mm)
2. H Horizontal profiles (48mm)
3. Vertical profiles (48mm)
4. plasterboard type F (15mm)
5. Mineral wool
6. Vertical profile (48mm)
7. Steel metal screws (3.5 x 45 mm)
8. Steel metal screws (3.5 x 9.5 mm)

INSTALLATION

- FLEXIBLE WALL

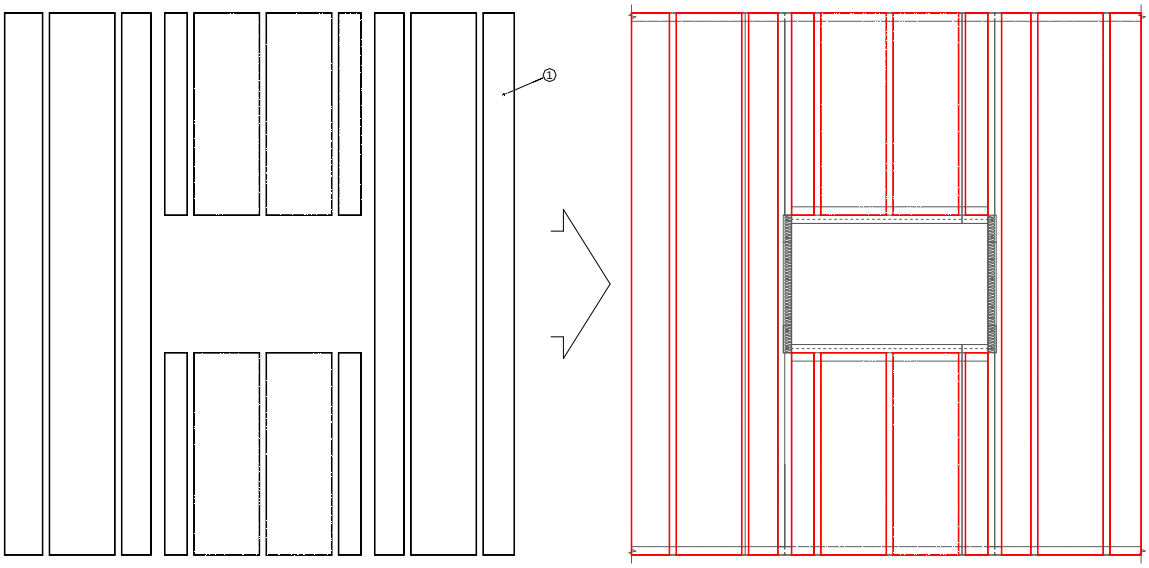
4. 1ª side plasterboard installation



DESCRIPTION
1. Plasterboard 15mm 2. Steel metal screws (3,5 x 25mm)

Fix the first side of plasterboards on one side of the structure and trim the perimeter describer by the damper support structure.

5. Isolation installation



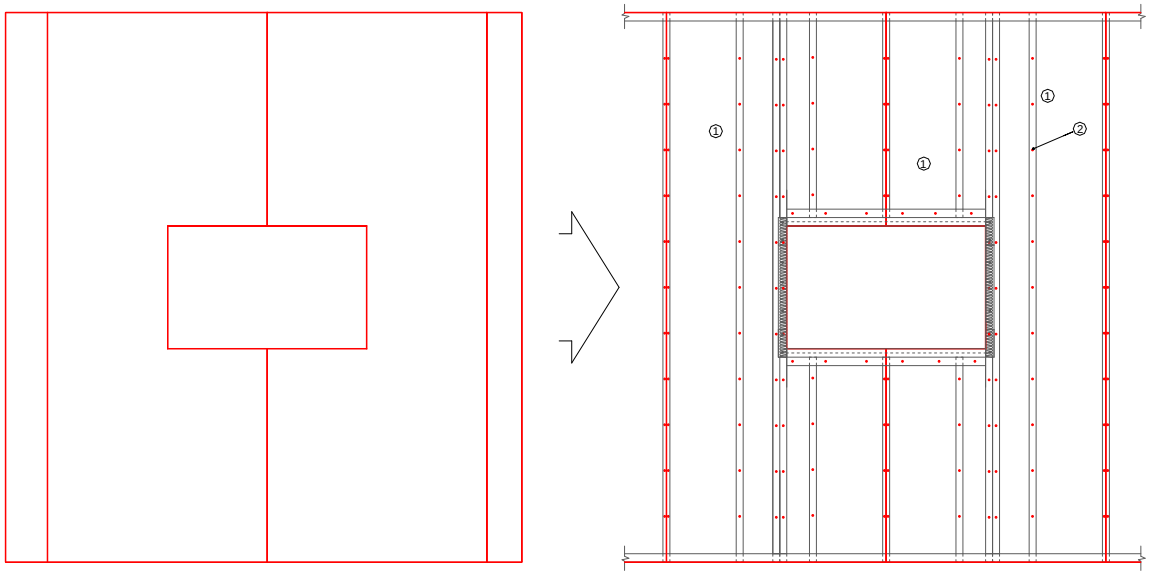
DESCRIPTION
1. MINERAL WOOL(40mm, 50Kg/m³)

Fill the gap between the metal structure with mineral wool.

INSTALLATION

- FLEXIBLE WALL

6. 2nd side plasterboard installation

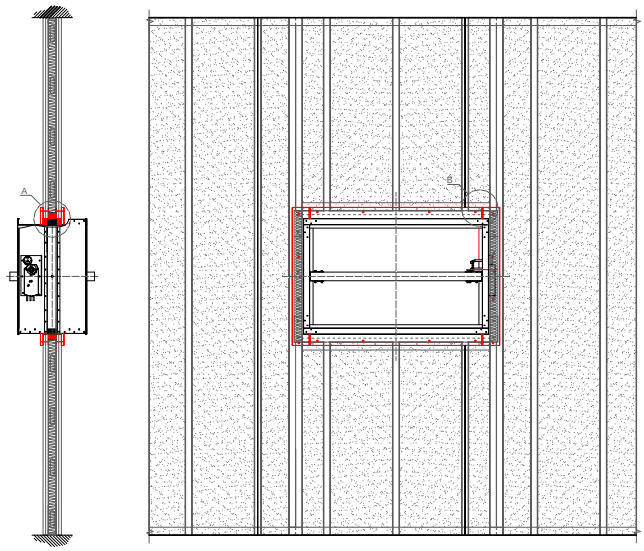


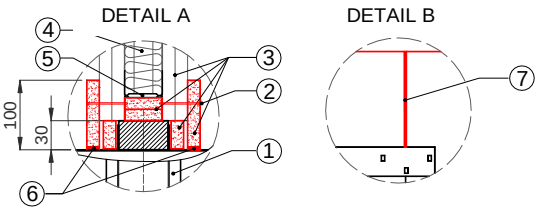
DESCRIPTION
1. Plasterboard 15mm 2. Steel metal screws (3,5 x 25mm)

Fix the second side of plasterboards on the remaining side of the structure and trim the perimeter describer by the damper support structure. The second plasterboard side must alternate the joints with the first side.

Then, it is carried out the joints processing between the plasterboards.

7. Sealing





DESCRIPTION
1. FOK-EIS-120 2. Steel metal screws 4.2 x 70mm 3. Plasterboard (type F) 15mm 4. Mineral wool (48mm, 50Kg/m³ 5. Horizontal profiles ñHò 6. Intumescent mastic 7. Gap filled of Intumescent mastic

Place the damper such that the axis of the blade matches with the middle of the wall section. Seat correctly the damper into the wall and fill the gap between them with plasterboard strips (30 mm width).

Fix the covering tapes (plasterboard strips, 100 mm width) to the support structure all around the perimeter of the damper and on both sides.

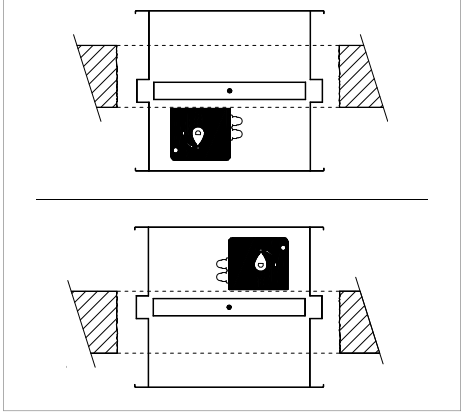
Finally, we fill the gap between covering tapes and between covering tapes and the fire damper with intumescent mastic.

INSTALLATION

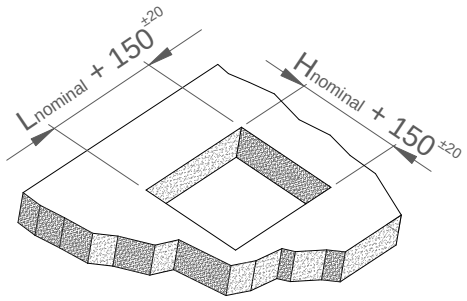
- RIGID FLOOR

Dimensions	Supporting construction		Sealing	Classification
200 x 200 to 1000 x 600	Rigid floor	Reinforced concrete Ó150mm	Mortar	EI120 (h_o iź o) S (500Pa)
>1000 x 600 to 1500 x 800	Rigid floor	Reinforced concrete Ó200mm	Mortar	EI120 (h_o iź o) S (300Pa)

1. Operating device position



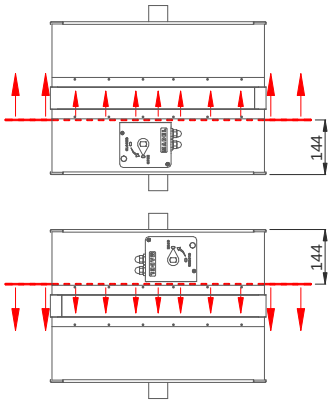
2. Support construction opening



3. Starting plane of supporting construction

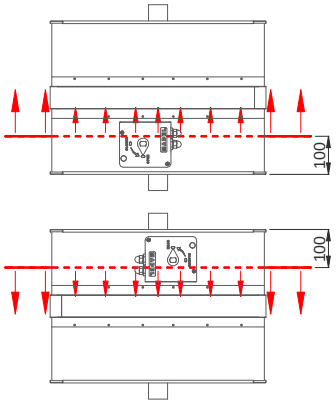
150 Òe

(dim. Ò1000 x 600)



200 Òe

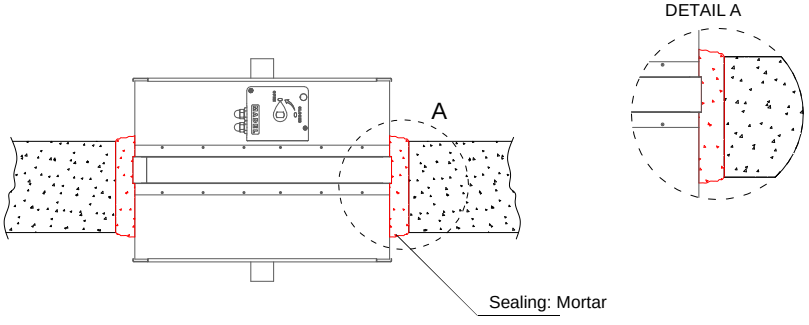
(dim. > 1000 x 600)



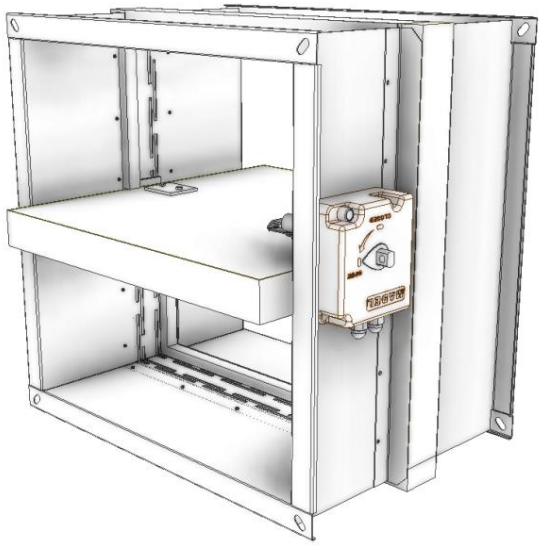
e *(Wall thickness in mm)*

Starting plane of supporting construction/ sealing

4. Sealing



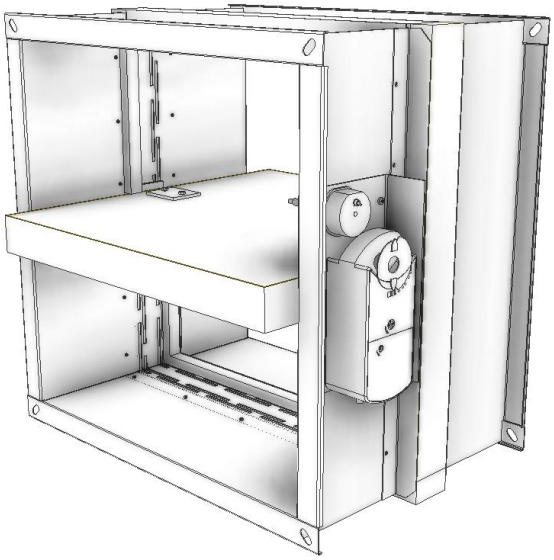
SPECIFICATION TEXT



(Manual)

Supply and mounting of rectangular fire damper classed EIS-120 in accordance to the European Standard *EN 13501-3* and certified CE according to *EN 15650,* series **FOK-EIS-120-MA dim. 500 x 300** Operated by means of a manual operating device. Built in galvanized steel and refractory material. Thermal fusible link at 72ºC. An expanding joint together an air-tightness joint, as much prevent the propagation of smoke to high as to low temperature.

Manufacturer **MADEL**.



(Motorized)

Supply and mounting of rectangular fire damper classed EIS-120 in accordance to the European Standard *EN 13501-3* and certified CE according to *EN 15650,* series
FOK-EIS-120-MFS230V dim. 500 x 300
Operated by means of a motorized operating device. Built in galvanized steel and refractory material. Thermoelectric fusible at 72ºC. An expanding joint together an air-tightness joint, as much prevent the propagation of smoke to high as to low temperature.

Manufacturer **MADEL**.

CODIFICATION

FOK-EIS-120 - /CR - H - MA - /PIF/ dim. L x H

1 2 3 4 5 6

1. Product

2. Operating device
   - (90º angled frame) *(by default)*
   - /**CR/** (50mm straight flange)

3. Orientation
   - **H** (Blade axe parallel to the smaller size) *(by default)*
   - **V** (Blade axe parallel to the higher size)

4. Operating device
   - **MA** (Manual)
   - **MFS** (Siemens actuator)
   - **MFB** (Belimo actuator)

5. Accessories
   - **/PIF/** (Open-closed switches device)

6. Dimensions (mm)
   - **L** (Length of the base)
   - **H** (Height of the operating device side)

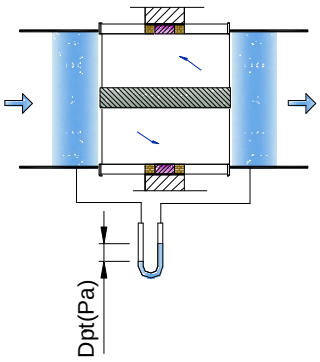
TECHNICAL DATA

FOK-EIS-120

FREE AREA FOR THE AIR PASS (m^2) / CORRECTION VALUES FOR DPt, Lwa

L / H		100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
200	Afree	0,007	0,019	0,03	0,042	0,053	0,065	0,077	0,088	0,1	0,111	0,12	0,13	0,14	0,155	0,166
	Kr	1,070	1,075	0,930	0,920	0,895	0,875	0,865	0,855	0,845	0,830	0,815	0,8	0,785	0,77	0,76
	Kf	-24	-21,75	-17,5	-15,5	-14	-11,75	-10,25	-9,5	-8,75	-8	-7,5	-7,25	-7	-6,75	-6,5
300	Afree	0,013	0,035	0,056	0,078	0,099	0,121	0,143	0,164	0,186	0,207	0,22	0,25	0,26	0,28	0,31
	Kr	0,805	0,790	0,740	0,685	0,645	0,625	0,615	0,6	0,59	0,58	0,57	0,56	0,545	0,53	0,515
	Kf	-18	-17,25	-13	-10,5	-8,75	-7,25	-6	-5	-3,75	-3	-2,75	-2,5	-2,25	-2	-1,75
400	Afree	0,019	0,051	0,082	0,114	0,145	0,177	0,209	0,240	0,270	0,303	0,33	0,367	0,39	0,42	0,45
	Kr	0,735	0,715	0,655	0,595	0,550	0,530	0,525	0,490	0,480	0,470	0,46	0,450	0,445	0,43	0,415
	Kf	-18	-14,5	-10,5	-9	-6,25	-4	-3,25	-2,25	-1	-0,5	-0,45	-0,4	-0,35	-0,325	-0,3
500	Afree	0,025	0,067	0,108	0,150	0,191	0,233	0,275	0,316	0,358	0,399	0,44	0,483	0,518	0,558	0,598
	Kr	0,675	0,670	0,585	0,520	0,485	0,450	0,440	0,415	0,410	0,4	0,39	0,38	0,375	0,36	0,345
	Kf	-16	-11,75	-8,5	-6	-3,5	-2	-0,75	-0,25	0,75	2,5	2,25	2	1,75	1,5	1,25
600	Afree	0,031	0,083	0,134	0,186	0,237	0,289	0,341	0,392	0,444	0,495	0,54	0,599	0,643	0,693	0,742
	Kr	0,655	0,630	0,535	0,470	0,425	0,4	0,375	0,365	0,360	0,345	0,33	0,32	0,302	0,029	0,27
	Kf	-14,75	-10,25	-6,5	-3,5	-2,25	-0,25	1	2	3	4	4	4	4	4	4
700	Afree	0,037	0,099	0,16	0,22	0,28	0,34	0,4	0,46	0,53	0,59	0,65	0,715	0,767	0,82	0,88
	Kr	0,635	0,58	0,5	0,44	0,4	0,37	0,35	0,33	0,32	0,31	0,3	0,28	0,265	0,25	0,24
	Kf	-14,75	-10,25	-6,5	-3,5	-2,25	-0,25	1	2	3	4	4	4	4	4	4
800	Afree	0,043	0,115	0,186	0,25	0,32	0,4	0,47	0,54	0,61	0,68	0,75	0,83	0,88	0,95	1,02
	Kr	0,605	0,56	0,49	0,42	0,38	0,35	0,32	0,31	0,3	0,29	0,27	0,26	0,245	0,23	0,22
	Kf	-14,75	-10,25	-6,5	-3,5	-2,25	-0,25	1	2	3	4	4	4	4	4	4

Lwa = Lwa1 + Kf



TECHNICAL DATA

FOK-EIS-120

FREE VELOCITY, PRESSURE DROP AND SOUND POWER LEVEL