

# SHUT-OFF DAMPER

## CI

Shut-off damper CI is designed for ventilation networks with a high security constraints that requires a high degree of isolation in order to guarantee the protection of the workers or equipment.

It is designed to guarantee a leaking rate under  $0.03 \text{ m}^3/\text{h}/\text{m}^2$  under a pressure of 2 000 Pa.

It can withstand up to 5 000 Pa in closed position.

In its standard version, the shut-off damper CI is delivered with a steering wheel manual controller.

In option, the damper can be equipped with a pneumatic or electrical actuator (on/off or spring-return functioning).

## CONSTRUCTION

### Control

Manual blocking control

Delivered with a steering wheel manual control  
*In option : electric or pneumatic actuator*

Control shaft adapted to the actuator



### Frame

Galvanized steel

*In option : stainless steel AISI 304L - 1.4307  
or AISI 316L - 1.4404*

Folded and profiled metal sheet 2 mm thick  
Width: 350 mm

F2A standard drilling (see p.4)

*In option : drilling  $\varnothing 10.6$  in each angle*

Flanges : 50 mm



### Blades

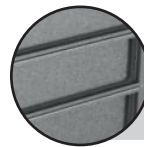
Galvanized steel

*In option : stainless steel AISI 304L - 1.4307  
or AISI 316L - 1.4404*

Folded and profiled metal sheet 1.5 mm thick

$\varnothing 20$  mm shaft

Pitch of 250 mm



### Characteristics

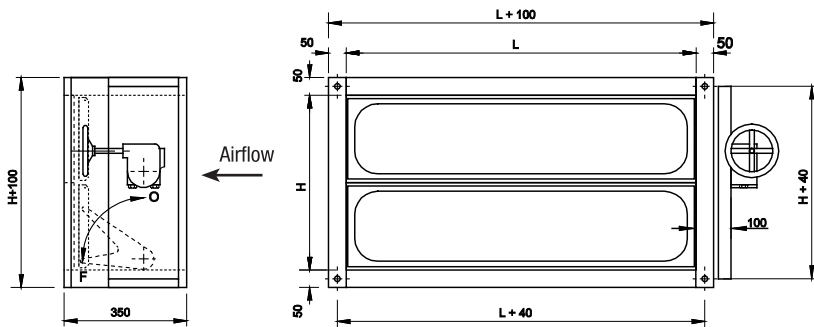
	Characteristics
Seals	EPDM seals on the frame
Upstream/downstream airtightness	Below $0.03 \text{ m}^3/\text{h}$ under a pressure of 2 000 Pa for a dimension of 1 000 x 1 000 mm
Frame's airtightness	Class C according to EN 1751
Acceptable pressure	5 000 Pa for a blade length of 1000 mm
Operating temperature	From $-20^\circ\text{C}$ to $+70^\circ\text{C}$
Linkage	Located outside the airflow

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## DIMENSIONS

Height (H) :  
From 250 to 1000 mm  
With a pitch of 250 mm

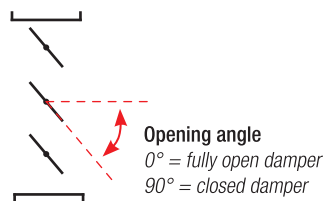
Length (L) :  
From 400 to 1000 mm  
With a pitch of 100 mm



## PRESSURE LOSSES

The following pressure losses (Pa) are given according to the blades opening angle (in °) and air velocity (in m/s). Damper type CI, parallel blade operation.

Air velocity (m/s)	Opening angle		
	0°	30°	60°
2	< 5	30	170
4	15	115	620
6	35	255	
8	60	455	
10	100		
12	140		
15	215		



## WEIGHT (kg)

Height		Length			
		400	600	800	1000
Height	250	33	39	46	52
	500	43	57	60	71
	750	65	74	78	90
	1000	82	91	95	108



Weights are given for a damper in galvanized steel.

Information and data can not be considered as contractual. Design and data changes may occur without notice during F2A's continuous product development.

### REGENERATED NOISE

The acoustic performances of our dampers have been tested in an independent laboratory (CTTM) according to ISO 7235:2009 standard.

#### Air flow noise $L_w$ in dB ( blades opening angle 30°)



- Damper type CI- blades actuation via linkage (parallel blade operation):

Air velocity (m/s)	Frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	Overall
2	48.0	45.9	45.5	44.5	42.3	36.7	35.2	38.8	53.0
4	65.1	69.4	57.5	62.7	59.8	57.3	54.5	46.2	72.1
6	72.5	79.5	68.5	70.0	71.4	68.4	65.0	59.2	81.7
8	73.2	87.2	81.9	76.5	79.3	77.0	73.0	67.1	89.6

Data are given for a damper 500 x 500 mm.

From these data, you can calculate the regenerated noise of a damper of different dimensions by applying the formula below for every frequency band:

$$Lw_{63} = X_{63} + 10 \log \left( \frac{S}{0.25} \right)$$

$X_{63}$  = Air flow noise for a damper 500 x 500 mm at 63 Hz (in dB) for a given air velocity => read the data in the table

$S$  = Damper section (in  $m^2$ ).

$Lw_{63}$  = Air flow noise required at 63 Hz (in dB) for a given air velocity.

#### Example – Calculation of regenerated noise for a damper CI 750 x 700 mm (HxL)

- Damper section :  $S = 0.75 \times 0.7 = 0.525 m^2$

Calculation of the regenerated noise at 63Hz for an air velocity of 4 m/s:

$$Lw_{63} = \underline{65.1} + 10 \log \left( \frac{0.525}{0.25} \right) = 68.3 \text{ dB}$$

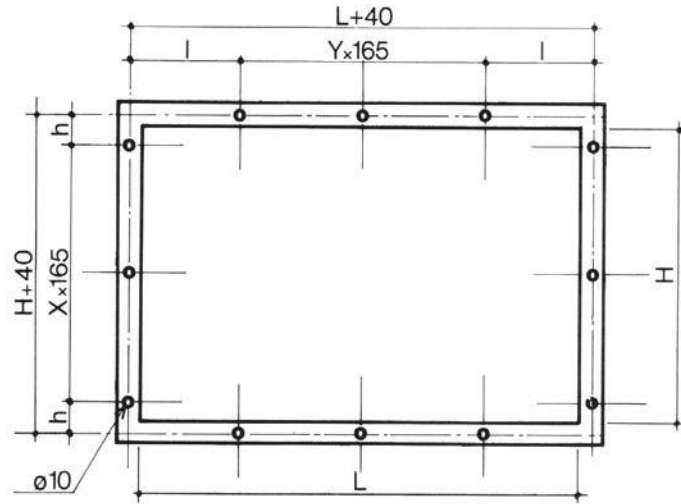
Value in the table at a frequency of 63Hz and for an air velocity of 4 m/s.

Repeat this calculation rules to get the regenerated noise for all frequencies (63Hz - 8kHz).

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### F2A STANDARD DRILLING



H	250	500	750	1000
h	62.5	22.5	65	25
X	1	3	4	6

L	400	500	600	700	800	900	1000
I	55	105	155	40	90	140	190
Y	2	2	2	4	4	4	4

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