

COMMERCIAL DAMPER

U RANGE

Commercial dampers of the **U range** are designed to control or shut off ductworks with airtightness classification going from class 0 to class 3 according to EN175.

There are suitable for HVAC commercial applications.



CODIFICATION

U ———> **U range** - Commercial

X ———> **W** - Gear wheels
L - Linkage

Y ———> **O** - Not classified
G - Class 1
S - Class 3

130 ———> Frame's width in mm

CONSTRUCTION

	Control
Manual	Square shaft 12 mm - length 100 mm Lever and manual locking
Motorized	Square shaft 12 mm - length 100 mm <i>In option : actuator supplied and assembled in factory</i>



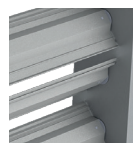
Frame
Width : 130 mm
Thickness : 1.0 mm
Galvanized steel
Drilling Ø10 mm in each angle <i>in option : specific drilling</i>
Flanges : 30 mm



Linkage
Gear wheels for UW type
Linkage for UL type
Opposed blade operation <i>in option: parallel blade operation</i>



Blades
Galvanized steel
Pitch : 100 mm



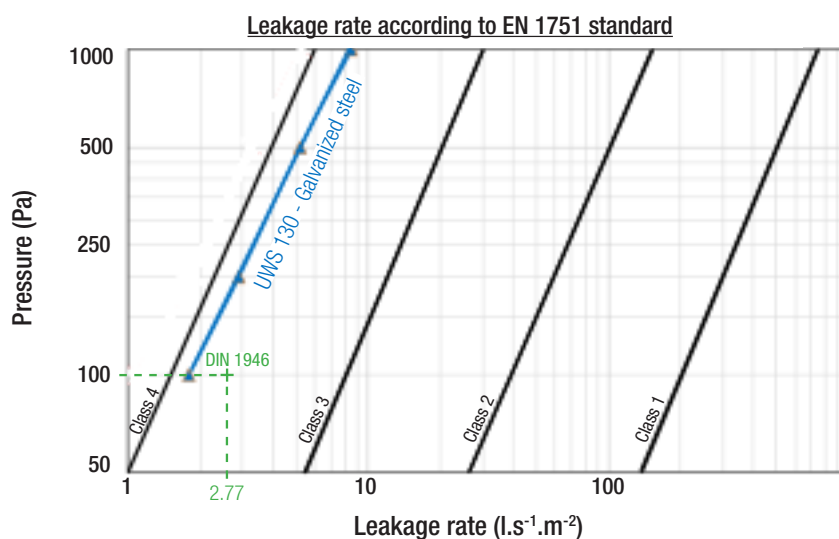
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PERFORMANCES

	Volume control O type	Antifrost G type	Shutt-off S type
Seals	None	Lateral stainless steel seals Top and bottom L shaped profiles	Lateral stainless steel seals Top and bottom L shaped profiles EPDM seals on the blades
Upstream/downstream airtightness (according to EN 1751)	Not classified	Class 1	Class 3
Frame's airtightness (according to EN 1751)	Class A <i>In option : class B or C</i>		
Acceptable pressure	1 000 Pa (for length L=1m)		
Maximum air velocity	10 m/s		
Operating temperatures	From -20°C to +80°C		

Upstream/downstream airtightness



Values taken from tests carried out in Cetiat laboratory according to EN 1751.
Test report n°1515 107 et n°1515 107 A1.

Frame's airtightness

Damper U with option class C.

Pressure (Pa)	Leakage rate (l.s ⁻¹ .m ⁻²)	Class C requirements according to EN 1751 (l.s ⁻¹ .m ⁻²)
200	0.04	0.1
500	0.08	0.183
1 000	0.13	0.28

Values taken from tests carried out in Cetiat laboratory according to EN 1751.
Test report n° 1515 107 A1

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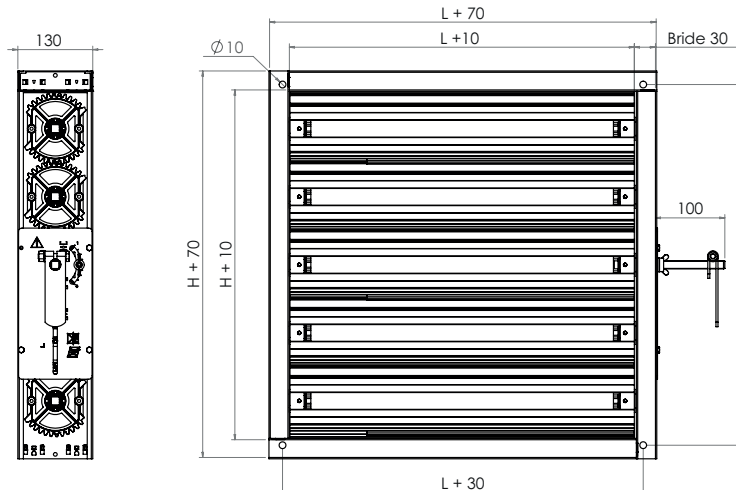
DIMENSIONS

Height H de 100 à 1400 mm

Length L de 100 à 1400 mm

F2A recommends the use of a damper with linkage (ULO / ULG / ULS type) for dimensions bigger than L 800 x H 800 mm.

In option : circular connection up to Ø1120 mm



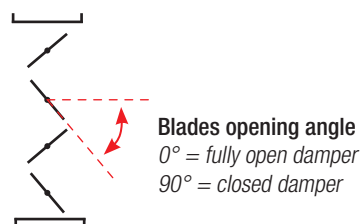
WEIGHT (kg)

H \ L	200	400	600	800	1000	1200	1400
200	3	5	6	7	8	9	11
400	5	6	8	9	11	13	14
600	6	8	10	12	14	16	18
800	7	10	12	14	17	19	21
1000	9	11	14	17	19	22	25
1200	10	13	16	19	22	25	28
1400	11	15	18	22	25	28	32

PRESSURE LOSSES

The following pressure losses (Pa) are given according to the blades opening angle (in °) and air velocity (m/s).
Damper type UWO equipped with gear wheels - Opposed blade operation.

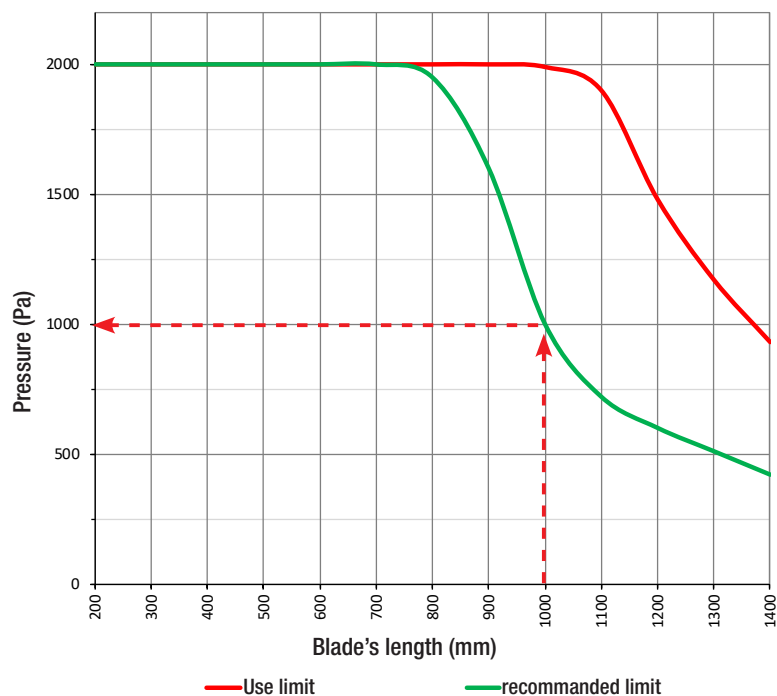
Air velocity (m/s)	Blades opening angle		
	0°	30°	60°
2	< 5	10	315
4	< 5	30	-
6	8	70	
8	10	130	
10	20	200	



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USE LIMITS



We recommend that the differential pressure does not exceed 1000 Pa for a 1000 mm long U damper

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REGENERATED NOISE

The acoustic performances of our U 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 UWO blades actuation via gear wheels (opposed blade operation):

Air velocity (m/s)	Frequency (Hz)								Gobal L_w (dB)
	63	125	250	500	1000	2000	4000	8000	
2 m/s	33.9	38.2	32.4	26.4	25.5	26.8	35.0	39.0	43.6
4 m/s	45.8	48.4	46.4	50.2	45.0	39.8	37.7	39.2	54.9
6 m/s	58.2	59.0	54.5	54.7	55.7	51.9	48.5	44.5	64.2
8 m/s	62.8	66.6	61.3	61.4	62.5	59.4	57.8	51.1	71.0
10 m/s	71.8	72.4	67.7	67.3	67.5	65.0	63.1	58.0	77.4

- Damper type ULO blades actuation via linkage (opposed blade operation):

Air velocity (m/s)	Frequency (Hz)								Gobal L_w (dB)
	63	125	250	500	1000	2000	4000	8000	
2 m/s	34.6	37.8	39.7	28.0	25.9	26.8	34.2	38.8	44.8
4 m/s	46.3	49.5	45.7	47.8	48.1	41.9	36.3	39.3	55.1
6 m/s	56.3	58.7	55.1	55.8	56.4	53.7	50.2	41.3	64.2
8 m/s	63.5	69.5	62.6	61.7	62.7	60.8	58.8	50.0	72.7
10 m/s	78.2	73.3	68.9	68.1	67.8	66.1	65.0	57.6	80.6

Datas 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 :

$$L_{w_{63}} = x_{63} + 10 \log \left(\frac{S}{0.25} \right)$$

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 (en m^2).

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

Example – Calculation of regenerated noise for a damper UWO 400 x 200 mm

- Damper section damper : $S = 0.4 \times 0.2 = 0.08 \text{ m}^2$

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

$$L_{w_{63}} = 45.8 + 10 \log \left(\frac{0.08}{0.25} \right) = 40.8 \text{ dB}$$

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).

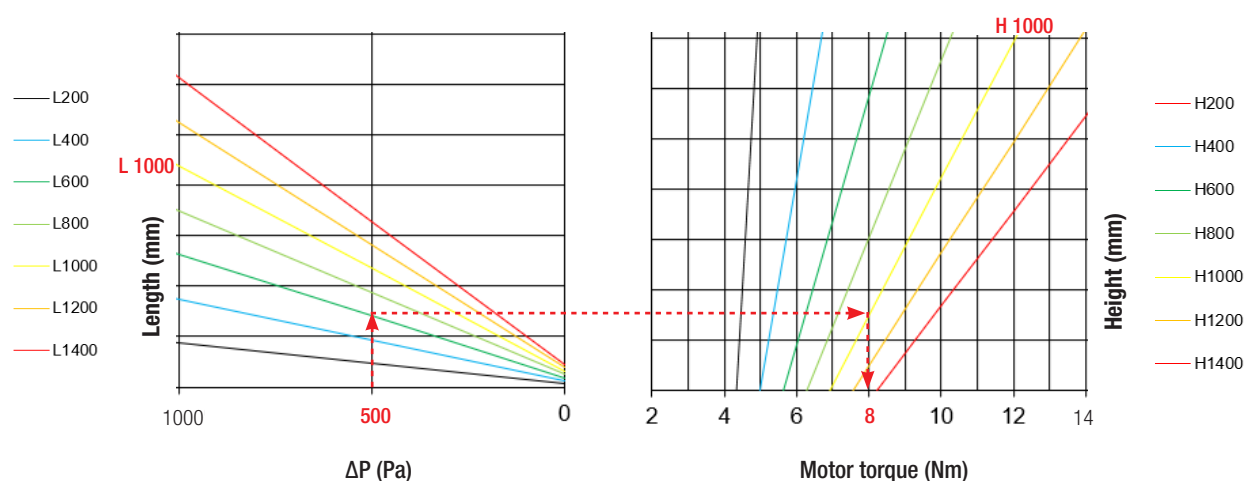
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MOTOR TORQUES

The following motor torques are given in Nm for a volume control damper type UWO or ULO.

A coefficient of 1.3 must be applied to the mentioned data for an G, S type damper.



Example :

$\Delta P = 500$ Pa

Damper ULO 130 – L = 1000 mm, H = 1000 mm => motor torque = **8 Nm**