

Pure competence in air.

NOVENCO® LOUVRE DAMPERS STANDARD

Building & Industry

NOVENCO 

SCHAKO Group



PRODUCT FACTS

PRODUCT

The Novenco® louvre dampers type SJD-FA offer proven design and well-known quality.

The construction is available as an aluminium frame with damper blades mounted in an arrangement for opposed or parallel operation. The operation type can be changed and the mode of operation can be either automatic or manual.

APPLICATION

The SJD dampers are suited for many kinds of ventilation systems and air handling installations. The usage is for shut-off, regulation and mixing.

RANGE

Heights range from 100 to 1200 mm and widths from 200 to 2000 mm, both in steps of 100 mm.

MATERIALS

Frame: Aluminium¹ sections

Blades: Aluminium sections¹

Shafts: Stainless steel

Bearings: Hostaform

Arms etc.: Stainless steel

Sealing strips: Silicone rubber

¹ Sea water resistant, cf. DIN 1725 part 1

CLASSIFICATIONS

Temperature range: -20 to +70 °C

Tightness standard: DS/EN 1751

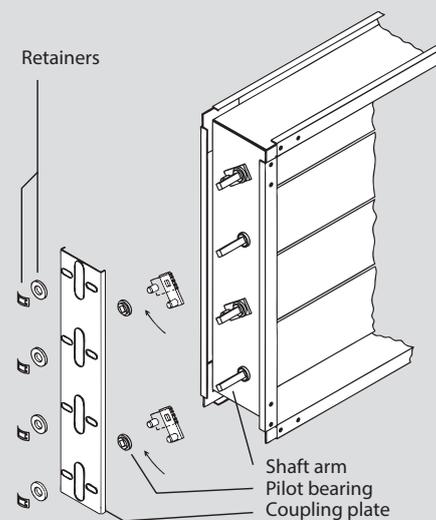
Corrosion standards:

Operation in medium-corrosive environments according to DS/EN ISO 12944-2

Corrosion category: C3

ACCESSORIES

- Rod connections and arms for connection of two dampers and swivel action damper motors
- Extension shafts for directly coupled damper motors
- Manual regulation lever



DESCRIPTION

Novenco louver dampers type SJD-FA are a range of robust, leak-proof, smooth-acting dampers designed for use in ventilation systems for shut-off, regulation and mixing functions.

The SJD dampers have aluminium frames and are intended for medium-corrosive environments.

CONSTRUCTION

The dampers are frame constructions with damper blades mounted on stainless steel shafts. The blade arrangements can be set for operation in opposed or parallel states. The state change is done without disassembly of the dampers.

The bearings are nylon sleeve bearings. The shafts extend out through the side plates on both sides.

Damper blades are made of smooth, extruded aluminium sections with sealing strips on one of the contact edges. The sides are made airtight with resilient stainless steel plates mounted on the inside of the side plates. The damper blades move simultaneously with an external shaft coupling in the form of a U-shaped regulating rail. The rail is made of stainless steel.

The dampers are connected to ducts with flange connections.

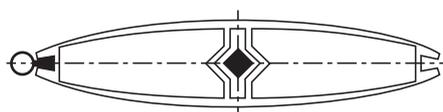
The SJD dampers are connected to ducts with U-cleats.

The SJD dampers are as standard made with free shaft ends. Accessories for automatic regulation and manual operation are available. The dampers can, for example, be provided with directly coupled damper motors or motors for rodding.



DAMPER BLADES

The smooth surfaces mean low air resistance when the blades are fully open. The sealing strip ensures complete tightness when the blades are closed.



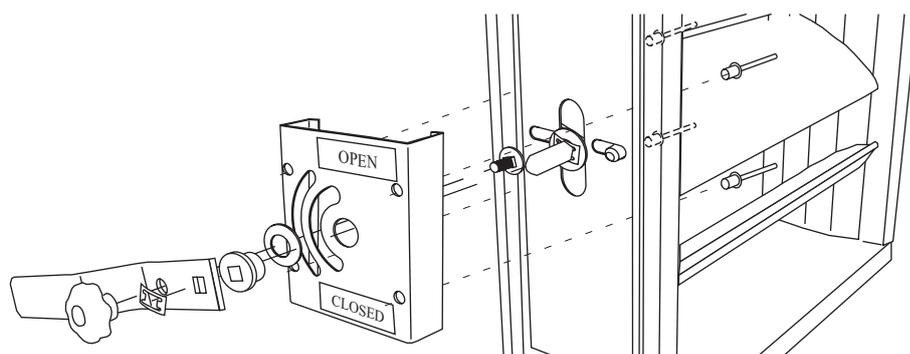
Cross-section of damper blade

DAMPER SELECTION

The damper size is selected based on the air speed and pressure impact when the blades are in closed position. Specify the connection type as U-cleats or duct flange.

Select the accessories for operation that match the desired control method.

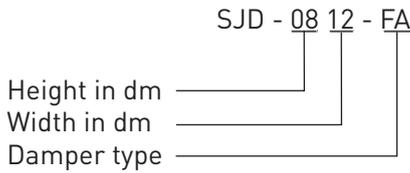
Allow space for clear damper operation at duct transitions.



Assembly of manual regulation lever

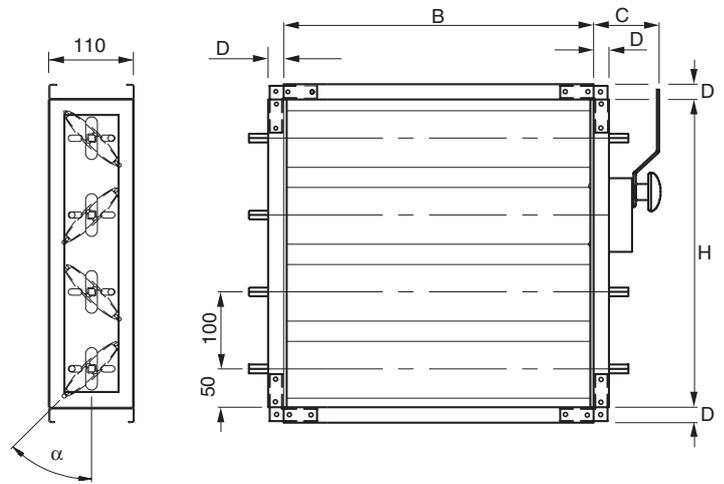
SPECIFICATIONS

The SJD dampers are supplied in combinations of height and width. These together with the corresponding weights and torques are summarised below.



FA : Aluminium

Product syntax



- α : Opening angle:
See section "Pressure losses" on page 6.
- C : Space required:
Free shaft end: 40 mm
Manual regulation: 80 mm
Rodding: 100 mm
- D : Flange width: 40 mm

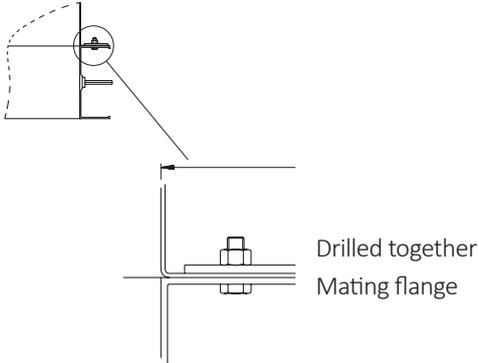
Dimension sketch

H [mm]	B [mm]												
	200	300	400	500	600	800	1000	1200	1400	1600	1800	2000	
100	2.2 2	2.8 2	3.4 2										
200	3.2 2	3.9 2	4.6 2	5.3 2	5.9 2	7.3 8							Weight [kg] Torque [Nm]
300	4.1 2	4.8 2	5.4 8	6 8	6.7 8	8 8	9.3 8	10.6 8					
400	4.9 8	5.8 8	6.7 8	7.6 8	8.5 8	10.3 8	12 8	13.8 8	15.6 14	17.4 14			
500	5.8 8	5.8 8	7.8 8	8.8 8	9.8 8	11.8 8	13.8 14	15.8 14	17.8 14	19.8 14	21.8 14	23.8 14	
600	6.7 8	7.8 8	8.9 8	10 8	11.1 8	13.3 14	15.4 14	17.8 14	20.0 14	22.2 14	24.4 14	26.6 14	
800	8.4 8	9.7 8	11.0 8	12.4 8	13.7 14	16.3 14	18.9 14	21.6 14	24.2 20	26.8 20	29.5 20	32.1 20	
1000		11.7 8	13.2 8	14.8 14	16.3 14	19.3 14	22.4 20	25.5 20	28.5 20	31.6 20	34.6 25	37.7 25	
1200		13.6 14	15.3 14	17.1 14	18.8 20	22.3 20	25.8 20	29.3 20	32.8 20	36.3 25	39.8 25	43.3 25	

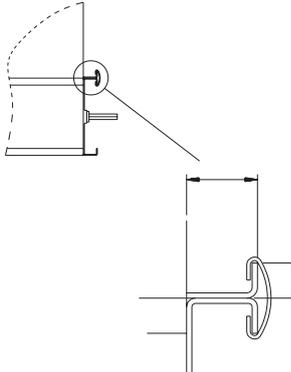
Damper heights, widths, weights and torques

CONNECTIONS AND OPERATIONS

DUCT CONNECTION

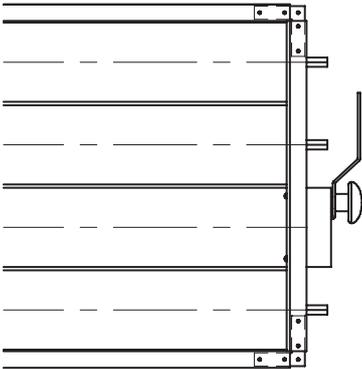


Damper with flange joint

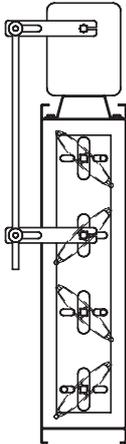


Damper with U-cleats

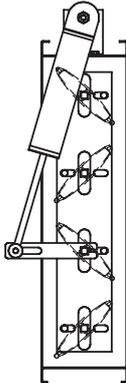
OPERATION



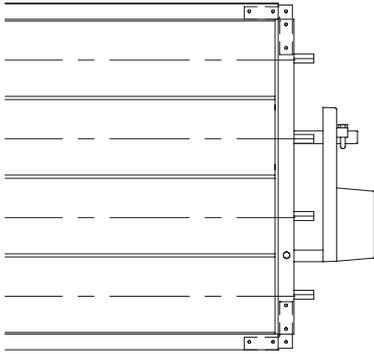
Manual operation



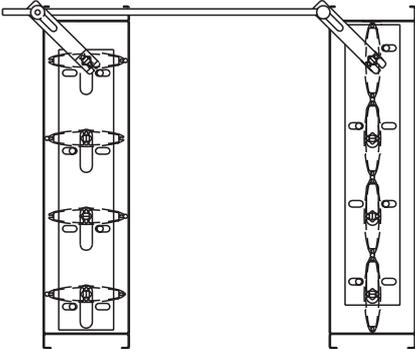
Swivel action damper motor



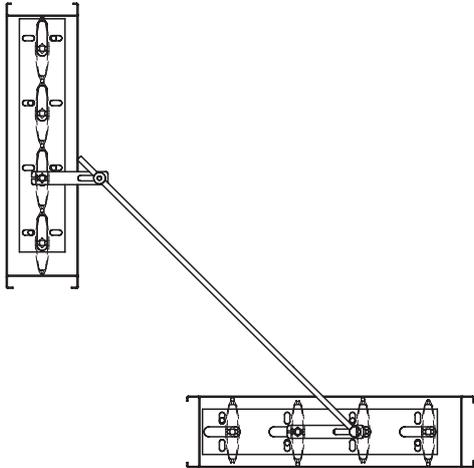
Linear action damper motor



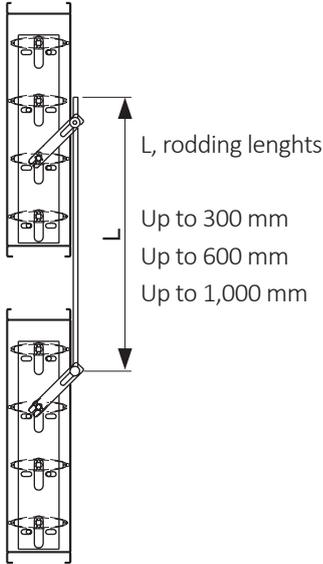
Damper motor with direct shaft drive



Opposed damper blade arrangement



Opposed damper blade arrangement



Parallel damper blade arrangement

L, rodding lengths
 Up to 300 mm
 Up to 600 mm
 Up to 1,000 mm

PRESSURE LOSSES

OPPOSED DAMPER BLADES

The values apply to dampers mounted in a duct system.

For free outflow, the speed loss (pd) corresponding to the front area must be added.

The opening angle refers to the dimensioned drawing in "Specifications" on page 4.

Example

For a damper with opposed damper blades.

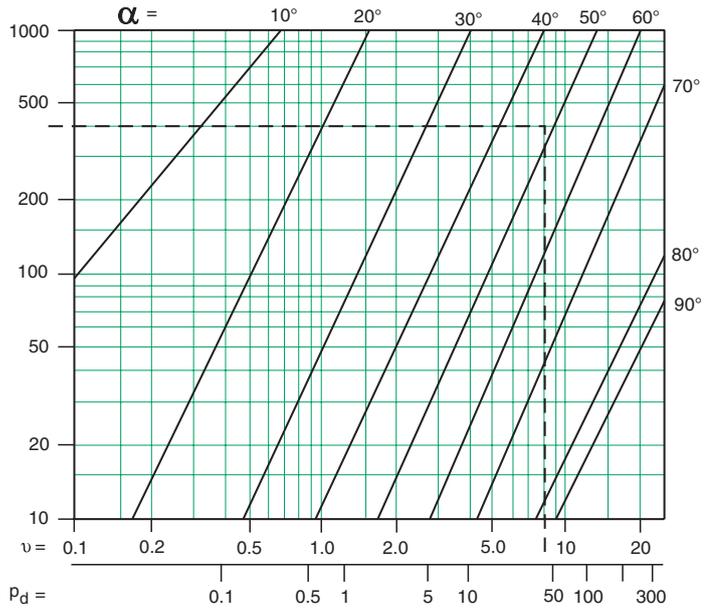
Air speed: 8 m/s

Opening angle: $\alpha = 48^\circ$

The graph shows

Pressure loss in damper: 400 Pa

Dynamic pressure: $p_d = 38 \text{ Pa}$



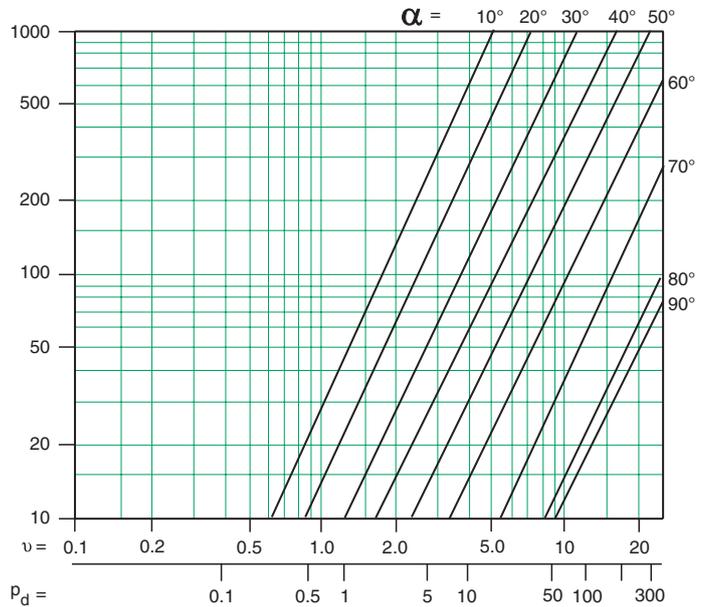
v = Air speed [m/s] T_{air} = 20 °C
 p_d = Dynamic pressure [Pa] ρ = 1.2 kg/m³

Opposed damper blades

MAXIMUM DIFFERENTIAL PRESSURE

The differential pressures for different sized dampers are shown below.

Damper width [mm]	Differential pressure [Pa]
< 1600	2500
1600	2350
1800	1650
2000	1200



v = Air speed [m/s] T_{air} = 20 °C
 p_d = Dynamic pressure [Pa] ρ = 1.2 kg/m³

Parallel damper blades

SOUND CONDITIONS

The sound power level L_{W} (ref. 10–12 W) applies to a damper with a front area of 1 m².

The sound power level for any damper size is calculated with the following formula 'x' is the front area in m².

$$L_{Wx} = L_{W1.0} + 10 \log(x)$$

The correction values for the individual octave bands are added to the sound power level reading.

	Octave band [Hz]							
	63	125	250	500	1k	2k	4k	8k
Opposed blades	-7	-7	-10	-11	-12	-15	-17	-20
Parallel blades	-4	-7	-10	-12	-14	-18	-19	-20
Tolerances ± 5 dB								
Example	78	78	75	74	73	70	68	65

Correction values

Values for sound power level are measured in accordance with DS/INSTA 121.

Example

The values for the damper in the example on page 6 are inserted in the graph for "Sound values for opposed damper blades".

Type: SJD-0808

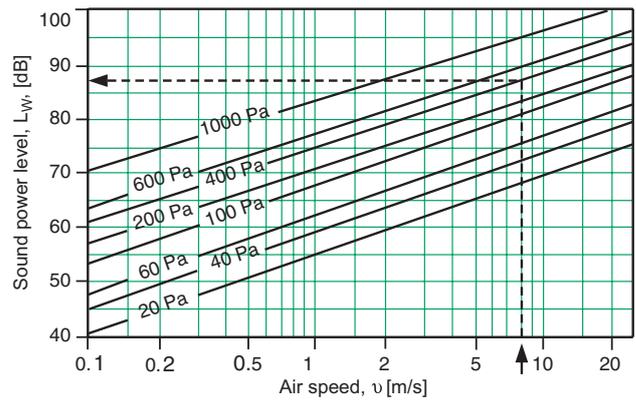
Air speed: 8 m/s

Pressure loss in damper: 400 Pa

The sound power level for 1 m² is read as 87 dB.

The actual sound power level is found.

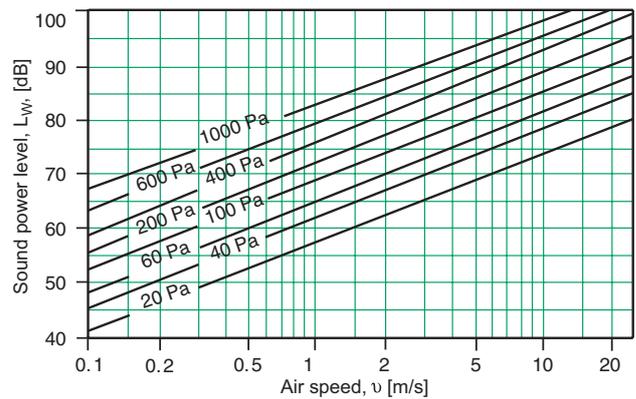
$$\begin{aligned} L_{W0.64} &= L_{W1.0} + 10 \log(0.64) \\ &= 87 \text{ dB} - 2 \text{ dB} = 85 \text{ dB} \end{aligned}$$



$T_{\text{air}} = 20 \text{ }^\circ\text{C}$

$\rho = 1.2 \text{ kg/m}^3$

Sound values for opposed damper blades



$T_{\text{air}} = 20 \text{ }^\circ\text{C}$

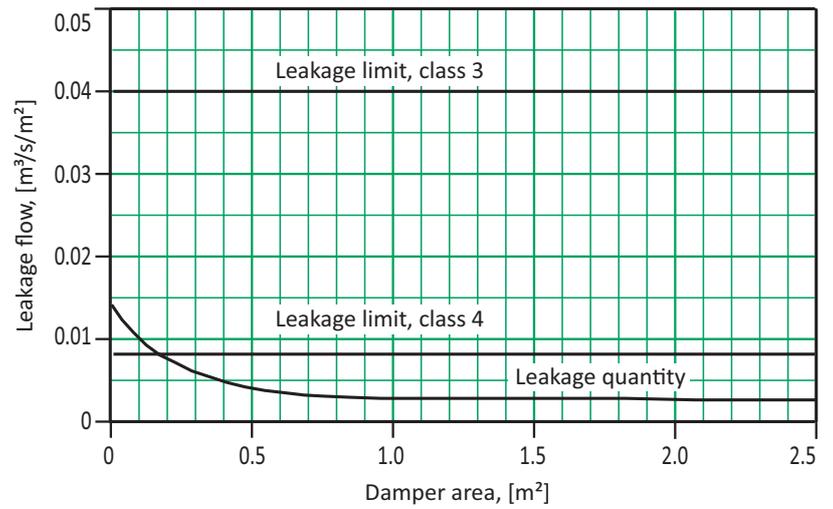
$\rho = 1.2 \text{ kg/m}^3$

Sound values for parallel damper blades

LEAKAGE

LOW LEAKAGE

The diagram shows the leakage flow per m^2 of damper area for varying damper sizes. The values were measured by the Technological Institute, Copenhagen, based on closed dampers with a differential pressure of 100 Pa. The measurements verify conformity to both class 3 and class 4 requirements according to DS 447 and AMA VS 83.



QUALITY AND SERVICE



REST ASSURED

The Novenco® SJD louvre dampers are produced in accordance with Novencos well-known quality standards. Novenco is ISO certified and all products are inspected and tested, before leaving the production.

IMPORTANT

This document is provided 'as is'. Novenco Building & Industry A/S reserves the right to changes without further notice due to continuous product development.

Some pictures in the catalogue show products with accessories fitted.

The fans are designed for continuous operation. The following kinds of operation may cause fatigue break in the impellers and endanger people.

- Operation in stall area
- Operation with pulsating counter pressure – called pump mode
- Daily operation with exceedingly starting and stopping

If in doubt, Novenco should be contacted to assess the suitability of the fans.

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The products are offered with options for technical guidance on installation, test of function and training of personnel.

WARRANTY

Novenco provides according to law a stand-

ard 12 months warranty from the product is sent from the factory. The warranty covers materials and manufacturing defects. Wear parts are not covered. Extended warranties can be agreed upon.

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QUALITY AND ENVIRONMENT

Novenco Building & Industry A/S is certified in accordance with ISO 9001 and 14001.



All Novenco Building & Industry's products are designed, developed and manufactured in Denmark.



Pure competence in air.

MU 16162 0322

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