

08



Overpressure dampers



Volume control dampers



Throttling, shut-off and non-return dampers



Mechanical flow rate controllers

Air flow control units

Overpressure dampers are used to equalize the pressures between adjacent rooms and for automatic interruption of air supply or air exhaust.

Volume control dampers regulate the air flow volume in ventilating ducts and air conditioning devices.

Throttling, shut-off and non-return dampers and flow rate controllers are used for control the air flow volume in ventilating ducts.

VENTILATING GRILLES,
VENTILATING VALVES

CIRCULAR DIFFUSERS,
SQUARE DIFFUSERS

SWIRL DIFFUSERS,
VARIABLE SWIRL
DIFFUSERS

SLOT DIFFUSERS,
ROUND DUCT DIFFUSERS

AIR DISPLACEMENT
UNITS

SUPPLY AIR NOZZLES

EXTERNAL ELEMENTS

AIR FLOW
CONTROL UNITS

SOUND ATTENUATORS,
SOUND ATTENUATING
LOUVRES

Overview

Overpressure dampers

Overpressure dampers are used to equalize the pressures between adjacent rooms and for automatic interruption of air supply or air exhaust. Steel (Types JNŽ) or aluminium (Types ANŽ) overpressure dampers can be produced.

Overpressure dampers



JNŽ-6



ANŽ-3, ANŽ-4



JNŽ-6W

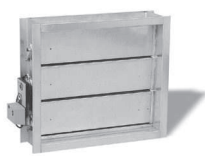
Volume control dampers

Volume control dampers regulate the air flow volume in ventilating ducts and air conditioning devices. We produce several construction types with manual, motor or pneumatic regulation.

Volume control dampers



RŽ-1



RŽ-2



RŽ-3



RŽ-1/G

Throttling, shut off and non return dampers, flow rate controllers

They are used to control the air flow volume in ventilating ducts.



RŽ-7

Throttling, shut off and non return dampers



DL



DL-2



ZL-2



RSK

Mechanical flow rate controllers



MRP-1



MRP-2



MRP-3



MRP-4

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Volume control dampers

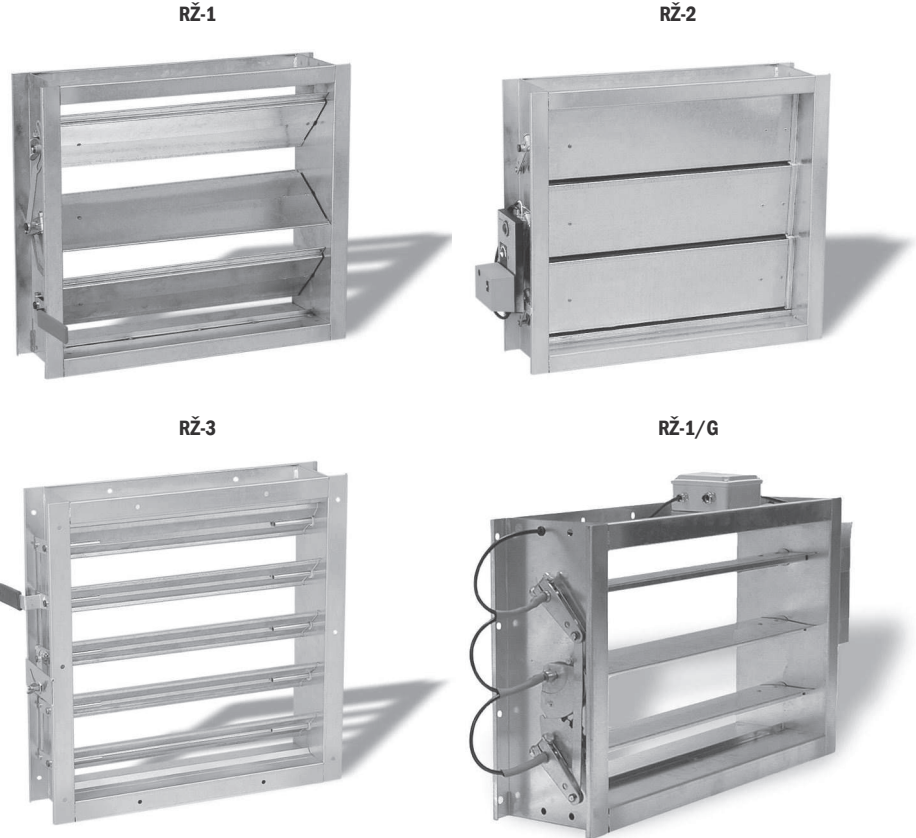
Volume control dampers RŽ-1, RŽ-2 and RŽ-3

Application

Volume control dampers are designed for regulation of air flow and pressure in ventilating ducts and air handling units. They are installed as independent devices or combined with protection- or overpressure louvers.

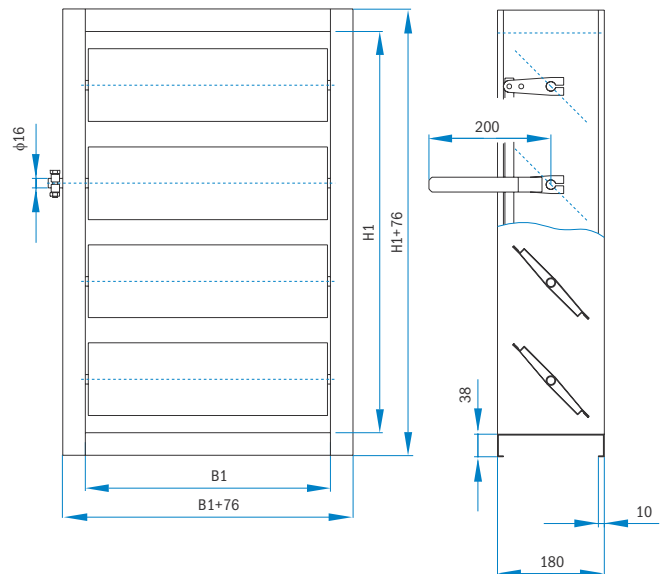
Description

They are made of galvanised sheet steel. Volume control dampers consist of supporting frame and interconnected blades. Blades are inserted into PVC - bearings. When operating by temperatures, higher than 70° C bearings are made of brass. Blades can be moved manually or by the means of the electric actuator. Pneumatic control is also possible.



Type RŽ-1A

- Parallel blades
- Bearings made of PVC or brass (higher operating temperatures)
- Galvanised supporting frame RŽ-1A/3
- Control handle is attached to the blade which is closer to the centre (from the top side)



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ROUND DUCT DIFFUSERS

AIR DISPLACEMENT
UNITS

SUPPLY AIR NOZZLES

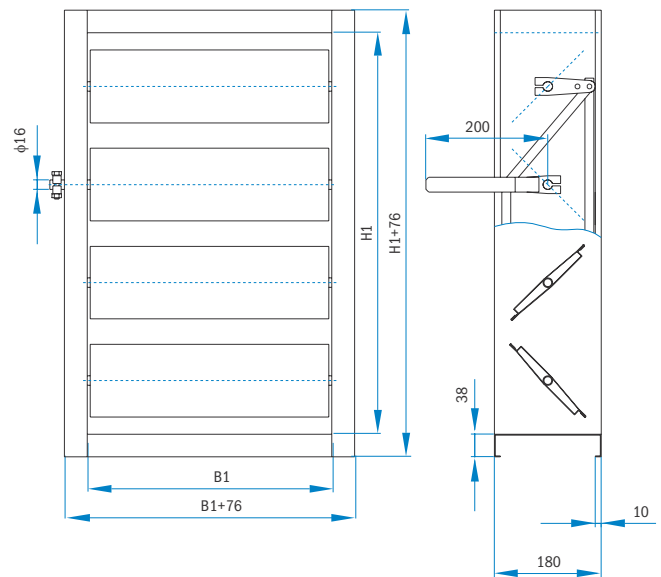
EXTERNAL ELEMENTS

AIR FLOW
CONTROL UNITS

SOUND ATTENUATORS,
SOUND ATTENUATING
LOUVRES

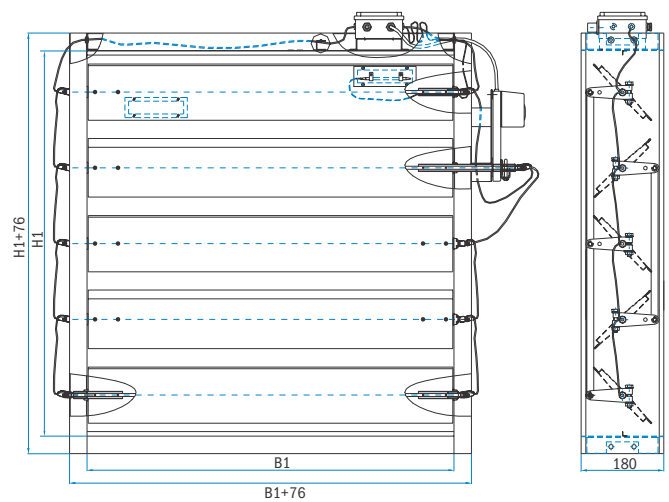
Type RŽ-1B

- The same construction as RŽ-1A
- Counterdirectional blades



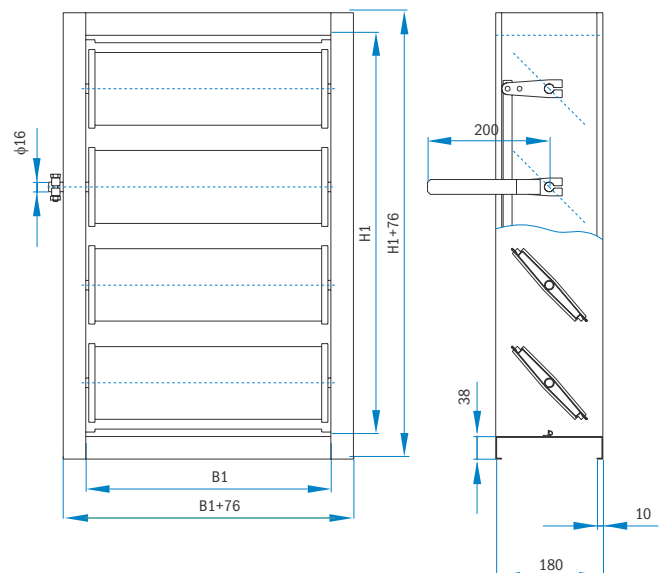
Type RŽ-1A, B/G

- Same design as RŽ-1A or RŽ-1B
- Heaters built in blades
- Operation thermostat 0-40 °C
- Temperature limiter 85 °C
- Manual or motor control
- Heater capacity depending on the dimension



Type RŽ-2

- The same construction as RŽ-1A
- Special sealing stripe between blades as well as between blades and frame
- Air-tight construction



Type RŽ-3A, B

- Type A parallel blades
- Type B counterdirectional blades
- Blade made of sectional sheet steel
- Bearings made of PVC or brass (higher operating temperatures)

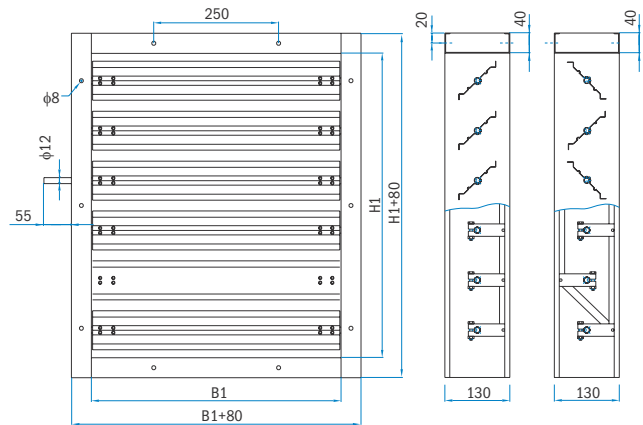


Table of dimensions:

Sizes RŽ-1

H1 (mm)	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
B1 (mm)			200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
n	1	1	2	2	2	3	3	4	4	5	5	6	7	7	8	9	9	10	10	11	12	13

n - number of vanes

Sizes RŽ-2

H1 (mm)	200		300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
B1 (mm)	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
n	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

n - number of vanes

Sizes RŽ-3

H1 (mm)	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
B1 (mm)			200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
n	1	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

n - number of vanes

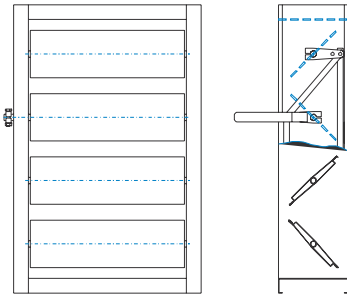
All combinations of B1 and H1 according to the table of dimensions are possible.

Volume control dampers RŽ-1/A and RŽ-1/B are available in all sizes.

Regulation types

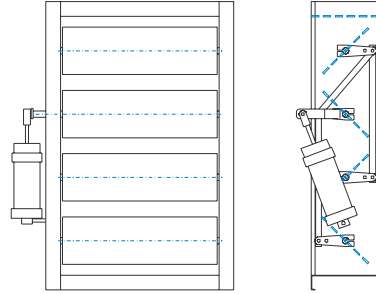
Manual control with handle

- Mechanism for locking selected position
- Type RŽ-1/R



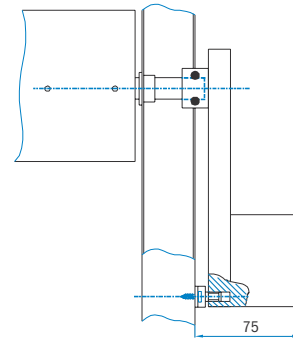
Pneumatic control with cylinder

- Operating pressure 1.2 or 6 bar
- Type RŽ-1/P



Motor control with electric actuator

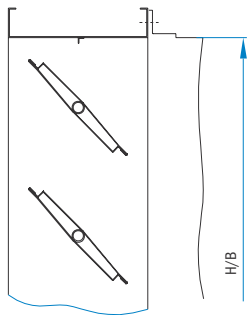
- Control via the electric actuator according to the table of motor actuators on page 333



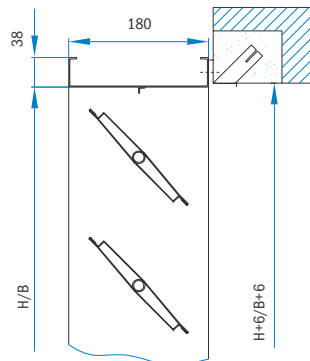
Pneumatic control

- One-way pneumatic cylinder with return spring
- Output power over 18 Nm
- Type RŽ-2/P

Installation

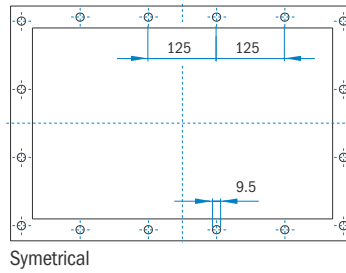
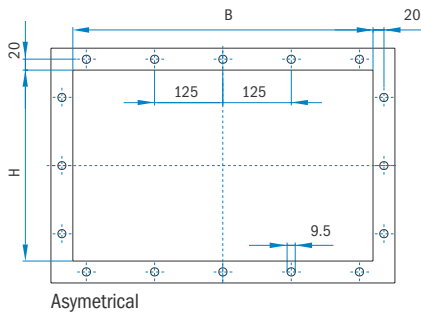


Direct installation in duct.
Fastening accessories are not supplied.

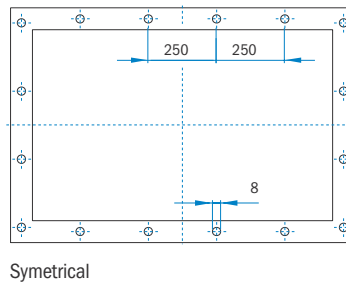
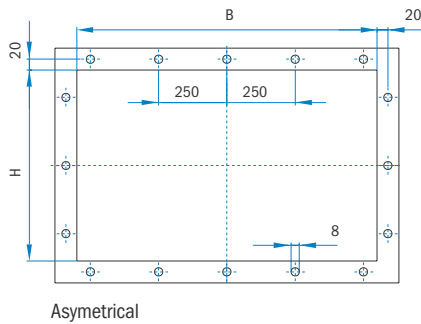


Installation in built-in frame (fastened with screws).
Built-in frame is made of galvanised sheet steel with point-welded mounting anchors.
Designation: RŽ-1, 2/3

Hole arrangement on dampers RŽ-1A, B and RŽ-2:

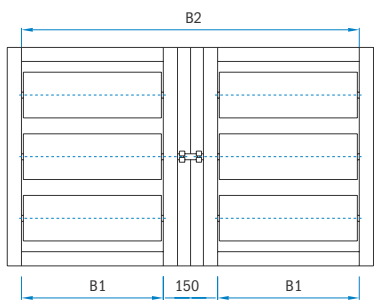


Hole arrangement on dampers RŽ-3:

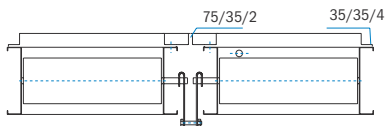


Installation of volume control dampers of larger dimensions:

Combinations according to the width:



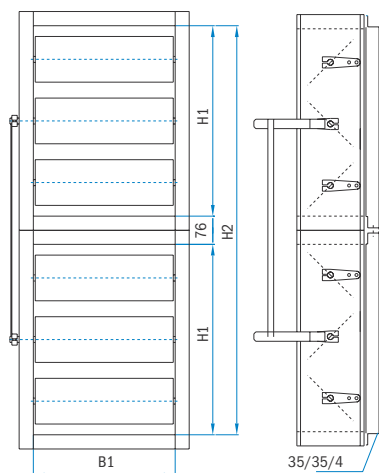
Connection frame supplied as per order.
Dimension upon customer's request.
 $B2 = (2 \times B1) + 150$



Ordering example

Volume control damper: **RŽ-1A** divided acc. to B
 Sizes: **B2=4150 H1=840**
 Connection frame: **H1=840**
 Pcs: **3, 6**

Combinations according to the height:



Connection frame supplied as per order.
Dimension upon customer's request.
 $H2 = (2 \times H1) + 76$

Ordering example

Volume control damper: **RŽ-1A** divided acc. to H
Sizes: **B1=400 H2=4066**
Pcs: **H2=4066**
No. of pieces: **3**

Ordering key

RŽ-1A / G / 3 / RB1 x H1

- R** Manual control
- B** Power driven but without actuator
- B1/J1** Actuator LM24A / DAN 1.N
- B2/J2** Actuator LM230A / DAN 2.N
- B3/J3** Actuator LM 24A SR / DMN 1.2N
- B4/J4** Actuator NM 24A / DAS 1.N
- B5/J5** Actuator NM 230A / DAS 2.N
- B6/J6** Actuator NM 24A-SR / DMS 1
- B7/J7** Actuator SM 24A / DA 1
- B8/J8** Actuator SM 230A / DA 2
- B9/J9** Actuator SM 24A SR (continuous regulation) / DM 1.1
- B10/J10** Actuator SM 230A SR (continuous regulation) / DM 2.2
- B11/J11** Actuator GM 24A / DAG 1
- B12/J12** Actuator GM 230A / DAG 2
- B13/J13** Actuator GM 24A SR (continuous regulation) / DMG 1.1
- P** Pneumatic control
- 3** Installation frame
/ Without installation frame
- G** Heaters built in blades
- A** Parallel blades
- B** Counterdirectional blades
- 1, 2, 3** Type of the volume control damper RŽ

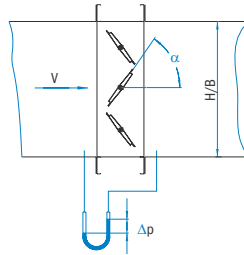
Note:

The range of applicability of individual actuators – see table on page 333.

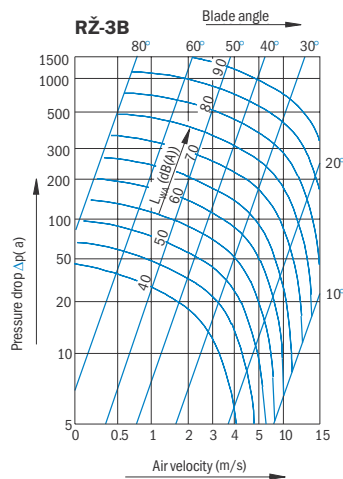
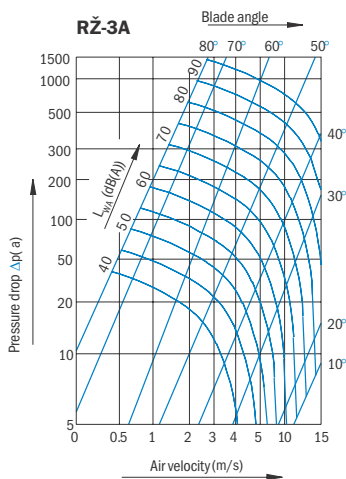
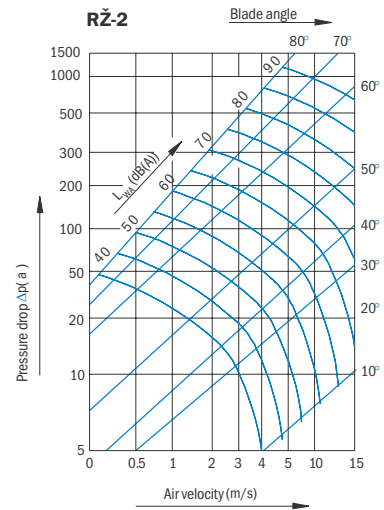
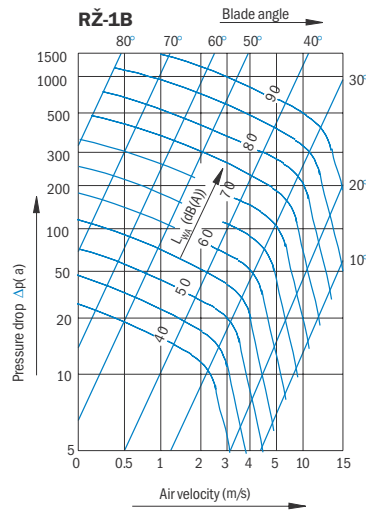
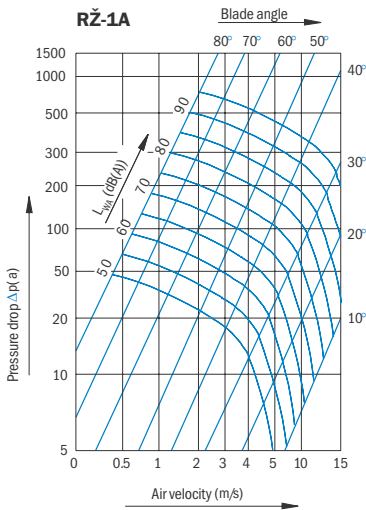
Technical data

Definition of symbols

Q (m³/h)	Air flow volume
α (°)	Blade inclination
Δp_{cel} (Pa)	Pressure drop
L_{WA} (dB(A))	Sound power level
v (m/s)	Air velocity at the sectional area B x H



Pressure drop and sound power level diagrams



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LOUVRES

■ Volume control damper RŽ-7

Application

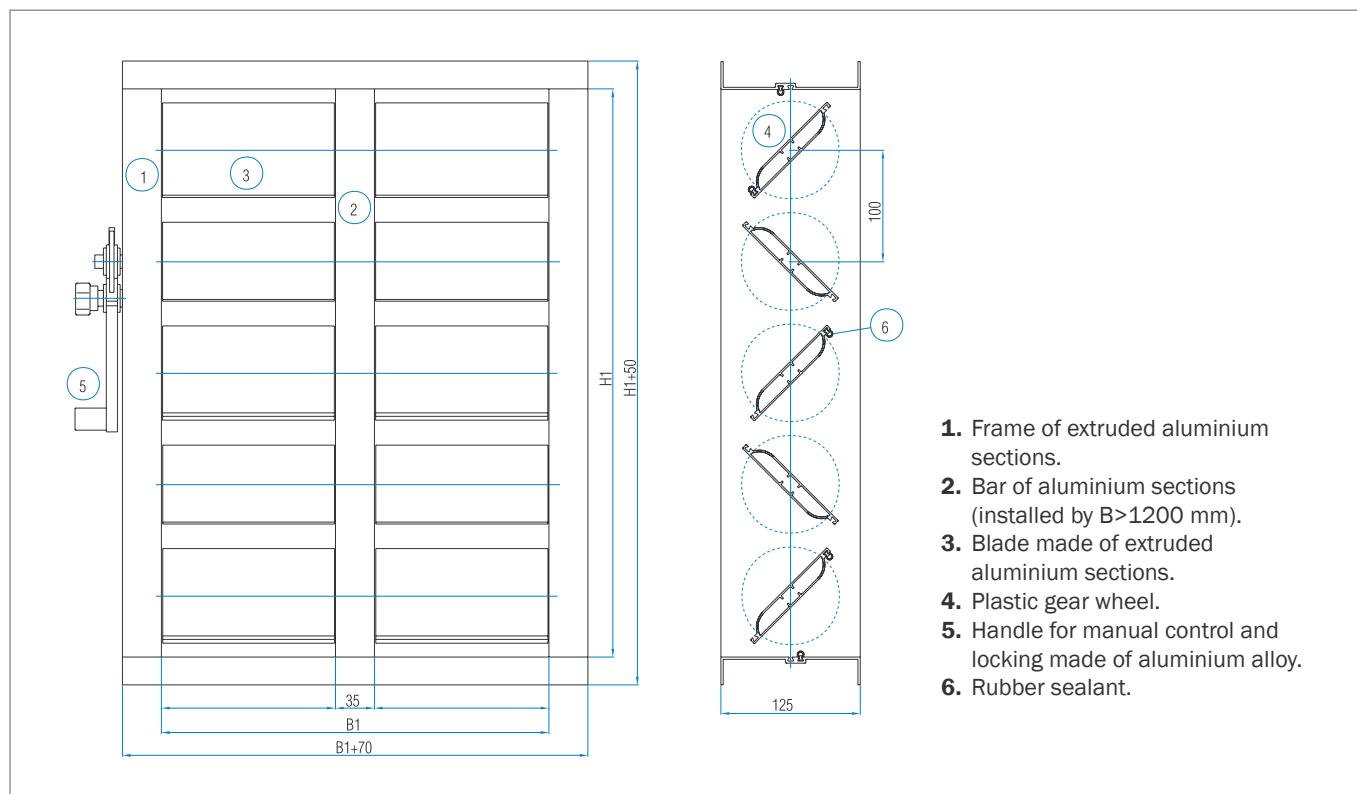
Volume control dampers are designed for regulation of air flow and pressure in ventilating ducts and air handling units.

Description

Frame and blades are made of extruded aluminium sections. Blades are inserted in plastic bearings. They are driven via the plastic gear wheels, fixed in the frame section with plastic holders. Mechanism is encased in separate housing and therefore protected from dust and other influences. A rubber strip attached on blades provides better sealing. Blades open in opposed direction only. The dampers can be regulated manually (standard version) or power operated by pneumatic or electric actuator. Volume control damper is temperature resistant to 70 °C.



Construction and dimensions



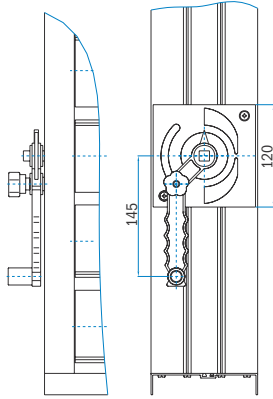
Sizes RŽ-7

H1 (mm)	110	210	310	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010
B1 (mm)	100	150	200	300	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

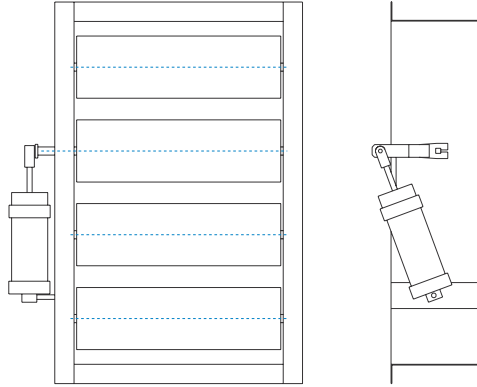
n – number of vanes

Regulation types:

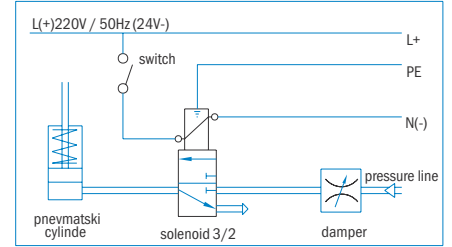
Manual control with handle and locking mechanism



Pneumatic actuator (1, 2 bar)



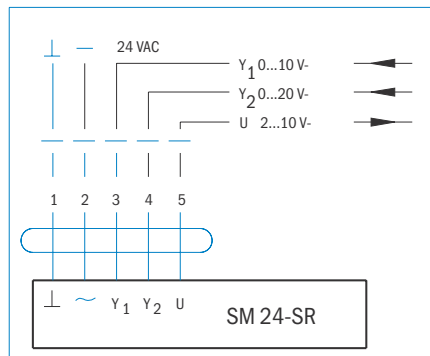
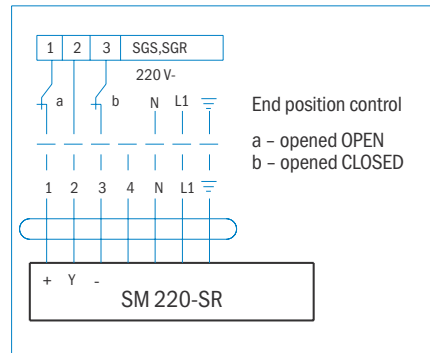
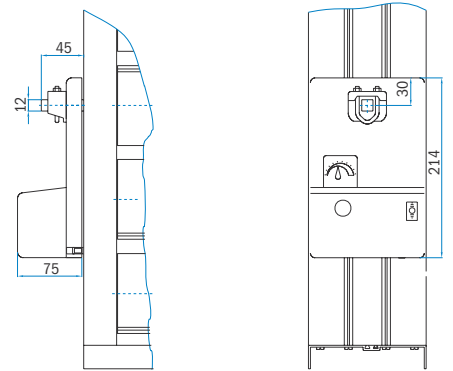
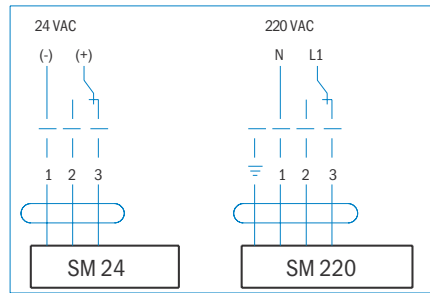
Wiring scheme



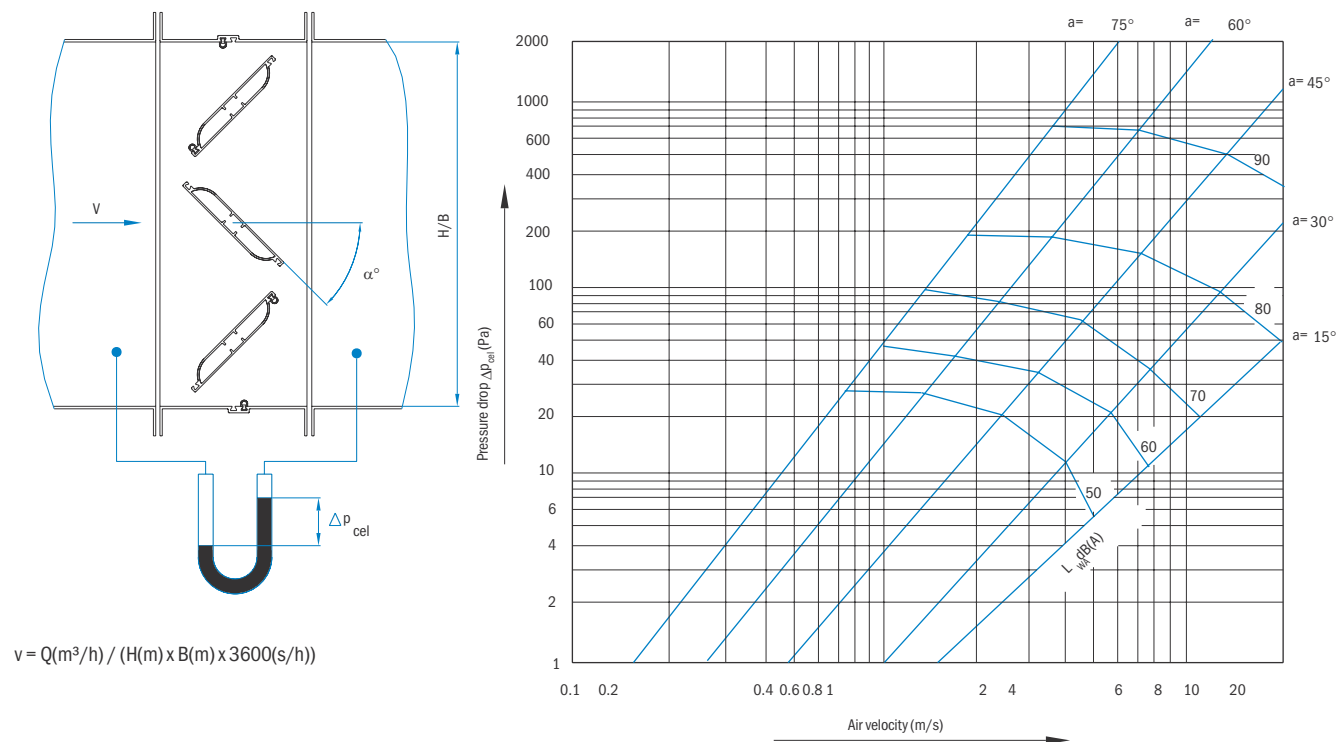
Power driven by electric actuator BELIMO

Wiring scheme

Two position control requires actuators type SM 24 or SM 220 with 15 Nm. of output power (see page 46) Continuous control and blades position of 0° – 90° is achieved with actuators SM 24-SR or SM 220-SR.



Pressure drop and sound power level diagram



Volume control damper sealing:

Closed volume control damper of 1 m² area has a leakage of approx. 50 m³/h at the pressure of 100 Pa.

(Standard DIN 1946 permits leakage of 10 m³/h at equal conditions).

Ordering key

RŽ-7 / R B1 x H1

- R** Manual control
- B** Power driven but without actuator
- B1/J1** Actuator LM24A / DAN 1.N
- B2/J2** Actuator LM230A / DAN 2.N
- B3/J3** Actuator LM 24A SR / DMN 1.2N
- B4/J4** Actuator NM 24A / DAS 1.N
- B5/J5** Actuator NM 230A / DAS 2.N
- B6/J6** Actuator NM 24A-SR / DMS 1
- B7/J7** Actuator SM 24A / DA 1
- B8/J8** Actuator SM 230A / DA 2
- B9/J9** Actuator SM 24A SR (continuous regulation) / DM 1.1
- B10/J10** Actuator SM 230A SR/DM 2.2
- P** Pneumatic control

Note: The range of applicability of individual actuators – see table on page 333.

Definition of symbols

- α ° Blade angle
- Δp_{cel} (Pa) Pressure drop difference
- v (m/s) Velocity in duct
- Q (m³/h) Air flow
- L_{wa} (dB(A)) Sound power level