

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

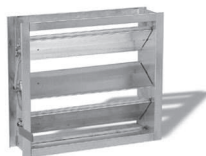


JNŽ-6W

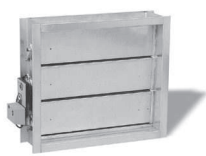
Volume control dampers

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.

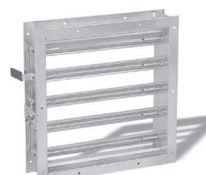
Volume control dampers



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

Content

	Page
OVERPRESSURE DAMPERS	296
Overpressure dampers JNŽ-6, ANŽ-3, ANŽ-4	296
Louvre for maintaining the preset pressure difference JNŽ-6W	299
VOLUME CONTROL DAMPERS	301
Volume control dampers RŽ-1, RŽ-2, RŽ-3	301
Volume control dampers RŽ-7	308
COMBINATIONS	311
Combination of Protection louvres JZR-6 and AZR-4 with Overpressure damper JNŽ-6	311
Combination of Protection louvres JZR-6 and AZR-4 with Volume control damper RŽ-1	311
THROTTLING, SHUT-OFF AND NON-RETURN DAMPERS	312
Throttling dampers DL	312
Throttling dampers DL-1, DL-2	314
Shut-off dampers ZL-1, ZL-2	316
Non-return damper RSK	318
MECHANICAL FLOW RATE CONTROLLERS	319
Mechanical flow-rate controller MRP-1 (Circular)	319
Mechanical flow-rate controller MRP-2 (Rectangular)	321
Mechanical flow-rate controller MRP-3 (Circular)	323
Mechanical flow-rate controller MRP-4 (Square)	328
MOTOR ACTUATORS BELIMO AND JOVENTA	333
Motor actuators	333

Mechanical flow-rate controllers

■ Mechanical flow-rate controller MRP-1 (Circular)

Description

With the circular air flow controllers with automated action, the air flow rate is controlled via an asymmetrical control flap pivoting on a smoothly running bearing, so as to provide highly sensitive response and control even with low flow rates. Manual flow rate setting is also available, by adjusting the tension of the drawing spring according to a scale denoting the desired flow rate. In selecting the controller and sizing of the ducting, the minimum air flow velocity of 2.7 m/s should be ensured.

Application

These controllers are designed to control air flow rate in circular duct systems.

Material

Mechanical flow rate controllers MRP-1 are made of galvanised steel sheet. They are laser butt-welded to eliminate sharp seams both inside and outside. The joining ends are calibration pressed in conformance with DIN 24147 to provide their extreme stability and accurate fitting. Cushioned control flap: a piston damper prevents vibrations and oscillations of the control flap. On order, mechanical air flow rate controllers are also available with 25 or 50 mm acoustic or thermal insulation.

Installation

The controller can be installed at any location of the ventilation system. Access to the ducting and the controller shall be provided in conformance with DIN 1946 T2, for the purposes of actuation and maintenance. A minimum 3xL length straight duct section shall be provided on both sides of the controller, to ensure flow stabilisation and efficient controller operation. Inlet and outlet ducting sections should be of equal diameter. The indicated reference air flow velocity is approx. 4.5 m/s. Air flow velocity should be within the range of optimum flow rate. A circular rubber seal provides secure sealing, since the gap between the duct section and the joining end of the controller is thus equalised and kept constant by the weights of joining components.

Standard Designs

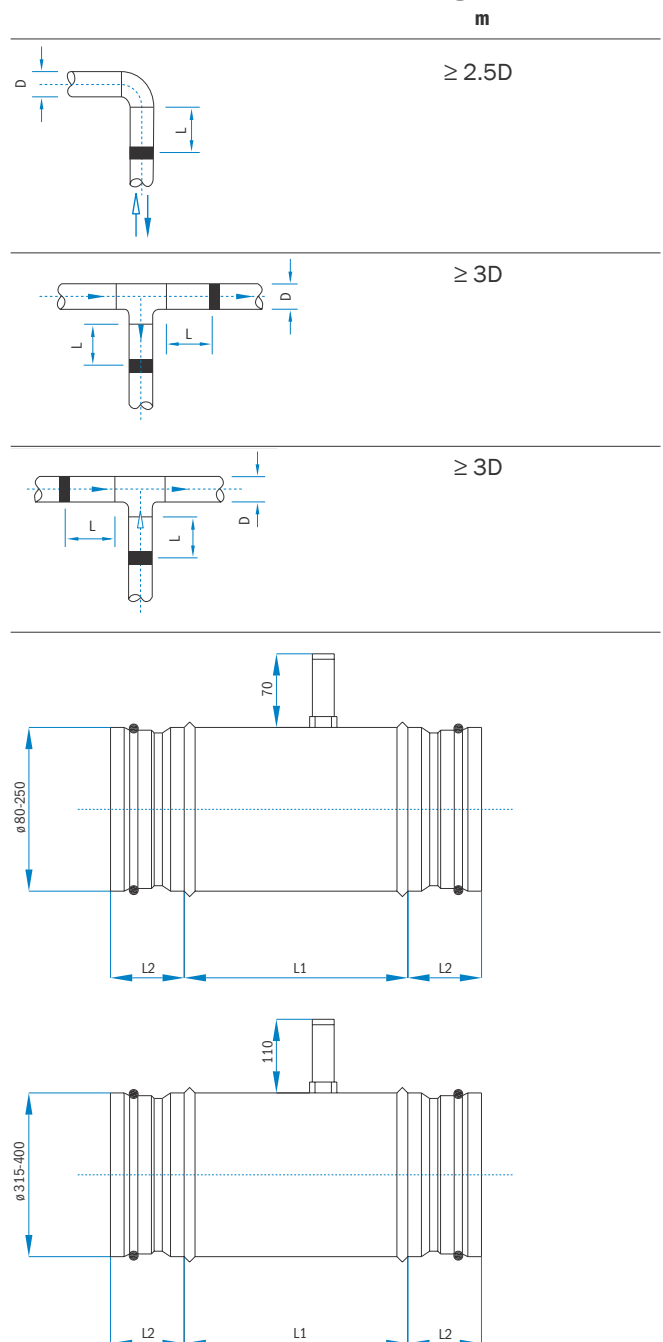
Constant flow air flow rate controller with tight insertion seating (joint dimension only):

1. Automatic control autonomous of external energy sources, with basic factory settings or user selected settings of reference air flow rate;
2. Optional post-installation setting, by means of the setting device;
3. Maximum pressure drop across the controller 1000 Pa;
4. Special controller variants available, without the setting device, for unobtrusive installation, suitable for installation in open ducting (this design, however, does not allow flow rate setting after installation);
5. L_1 = length of the insertion section, total length = $L_1 + 2 \times L_2$



Examples of installation

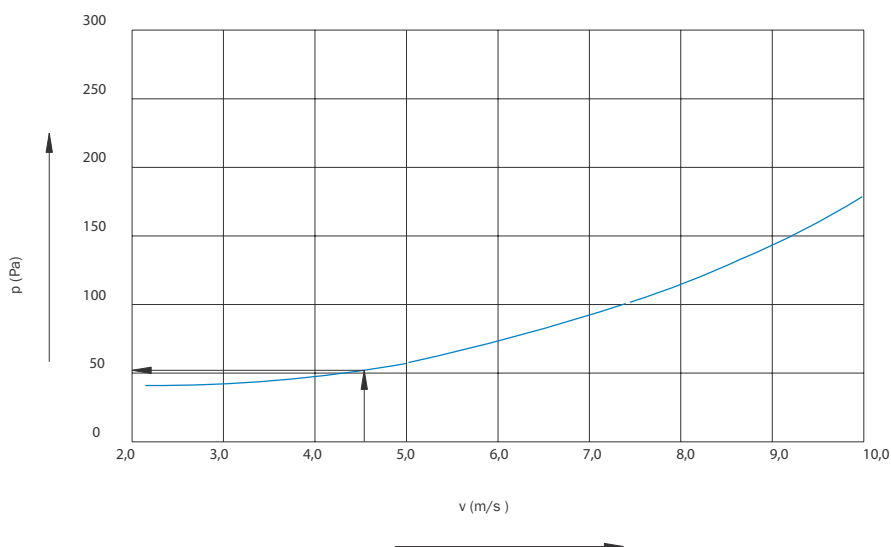
Recommended straight ducting sections L



Dimensions – air flow rate

Nominal dimension mm	Allowable air flow range m ³ /h		Optimum air flow range m ³ /h		Max. static pressure drop Pa	Recommended duct air velocity m/s	Dimension mm	
	min	max	min	max			L ₁	L ₂
80	40	125	50	108	1000	ca. 2.7 to 6.0	120	40
100	70	200	75	170	1000	ca. 2.7 to 6.0	170	40
125	100	280	120	265	1000	ca. 2.7 to 6.0	170	40
140	140	400	150	330	1000	ca. 2.7 to 6.0	170	40
160	180	500	200	430	1000	ca. 2.7 to 6.0	240	40
200	250	900	300	670	1000	ca. 2.7 to 6.0	240	40
250	500	1500	480	1050	1000	ca. 2.7 to 6.0	240	40
315	600	2200	770	1900	1000	ca. 2.7 to 6.0	220	60
400	1000	3800	1240	2850	1000	ca. 2.7 to 6.0	295	60

Diagram: static pressure drop resulting in the controller response



In sizing the air ducting, one shall observe the minimum pressure drop to result in the controller response.

Calculation example

Air flow rate controller: type MRP-1
Nominal length: ND 160
Air flow velocity: 4.5 m³/h
Air flow rate: 325 m³/h
Static pressure drop Δp in Pa, from the diagram 1: 50 Pa

Ordering key

MRP - 1 / Q / I / Size Φ 80, 100, 125, 140, 160, 200, 250, 315, 400

- I19** Insulation 19 mm
- I25** Insulation 25 mm
- I50** Insulation 50 mm

Example: flow rate setting to 120 m³/h

1 Circular design