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.

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.

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.

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

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

Overpressure dampers


JNŽ-6


ANŽ-3, ANŽ-4


JNŽ-6W

Volume control dampers


RŽ-1

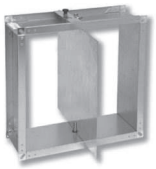

RŽ-2


RŽ-3


RŽ-1/G


RŽ-7

Throttling, shut off and non return dampers


DL

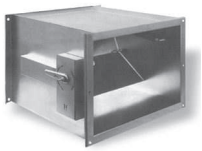

DL-2


ZL-2


RSK

Mechanical flow rate controllers


MRP-1

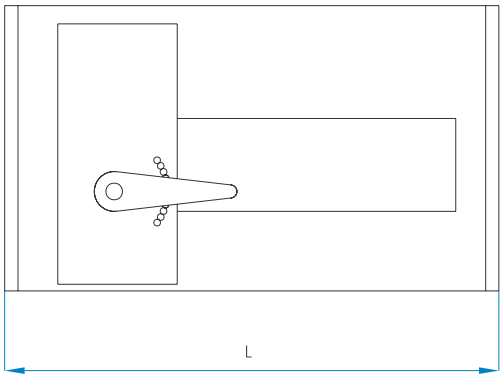

MRP-2

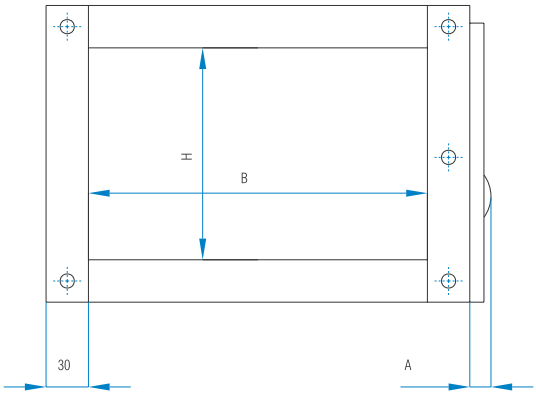

MRP-3


MRP-4

Content

Mechanical flow-rate controller MRP-2 (Rectangular)





Description

Rectangular or square air flow controller is an autonomous control component that maintains, within a defined range, a specified constant air flow rate. The air flow rate is controlled via a control flap pivoting on bearings on both sides, a system of levers and a setting spring. The flap geometry ensures prompt response even under low pressure drops across the controller. The appropriate selection of the spring and the lever geometry lead to a defined correlation between the pressure drop and the position of the flap, thus maintaining a constant air flow rate.

Application

These controllers are designed to control air flow rate in rectangular duct systems. Their application temperature range is -20 to +110 °C. The controller operation starts at the minimum response pressure drop, which is a function of the air flow rate (Diagram 2), and operates up to the maximum pressure drop of 1000 Pa, in a stable control range. Across this operation rate, the air flow rate deviations are limited to ±10 %. The controller cross section dimensions (width and height) should be selected equal to the ducting dimensions in order to avoid mechanical deficiencies: excessive pressure drops and increased operation noises. Each flow rate controller is factory set to the flow rate requested by the customer. Within a certain range, the flow rate setting can be changed, by means of the setting device.

Material

The flow rate controller frame is made of galvanised steel sheet. The control flap is sated in special bearings made of PTFE for resistance against wear. To compensate any air flow oscillations, the controller is fitted by a damper fixed to the control flap, serving to damp any frequencies arising during fast opening or closing of the control flap. In this way, resonance vibrations are avoided. The controller frame and connection parts conform to the sealing requirements for the angular components and class C components of the prEN 1751 standard.

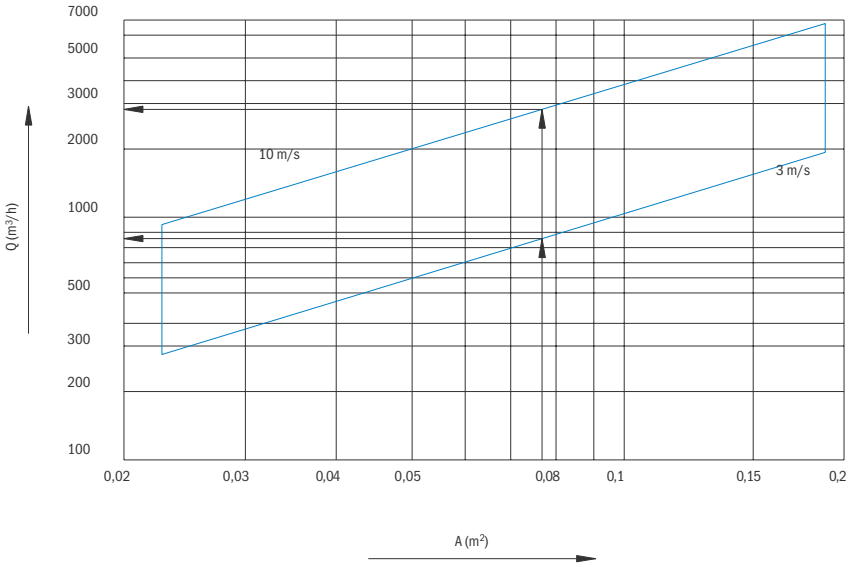
Installation

The controller can be easily installed in the ventilation system by means of its flange section. An important requirement is stable fixing of the ducting system, to prevent oscillations of the ducting in the flexible part during fast opening or closing of the control flap. According to the general rules for the ventilation systems, DIN 1946 Part 2 (VDI rules for ventilation), access shall be provided to the system ducting, for the purposes of adjusting and maintenance.

Dimensions – air flow rate

Width B [mm]	Height H [mm]	Length L [mm]	Air flow velocity m/s	Max. static pressure drop Pa	Dimensions mm		
					500	501-502	503-511
150-330	150-200	385	3-10	1000	40	75	95
301-400	150-200	385	3-10	1000	40	95	95
200-350	201-250	420	3-10	1000	40	75	95
351-500	201-250	420	3-10	1000	40	95	95
250-400	251-300	460	3-10	1000	40	95	95
401-500	251-300	460	3-10	1000	40	95	95
501-600	251-300	460	3-10	1000	40	95	95

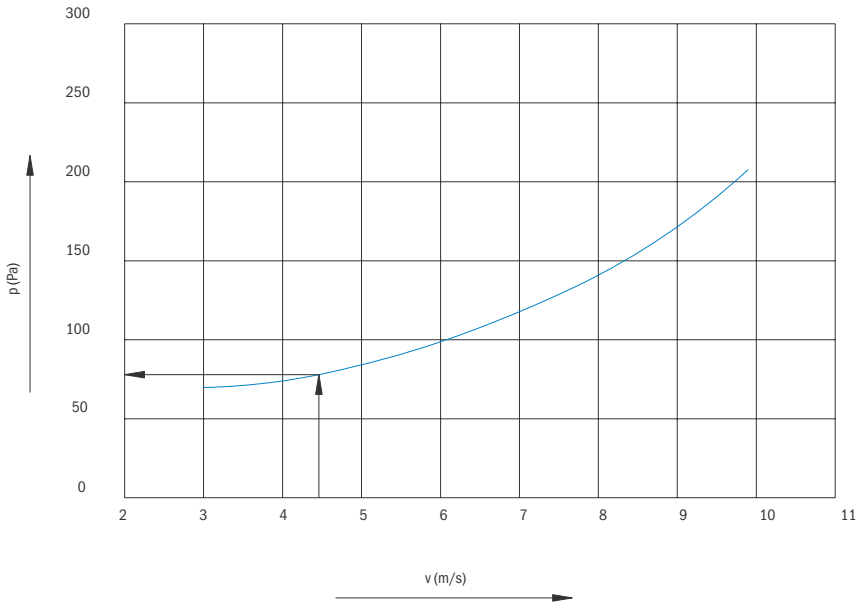
Diagram 1: fast selection of air flow rate range according to the duct cross-section



Calculation example

Existing system:
air flow rate controller type MRP-2
Width: 400 mm, height: 200 mm
(duct cross.section: 0.08 m²)
Parameter to be determined:
air flow rate setting range
From diagram 1:
V (3m/s) = 865 m³/h
V (10m/s) = 2880 m³/h

Diagram 2: static pressure drop resulting in the controller response



Calculation example

Existing system:
air flow rate controller type MRP-2
Width: 250 mm, height: 200 mm
Air flow rate 810 m³/h
(at air flow velocity 4.5 m/s)
Parameter to be determined:
static pressure drop
Δp in Pa
From the selection diagram:
Δp = 80 Pa

Ordering key

MRP – 2 / Q / I / Size B x H (example: 400 x 200)

I19 insulation 19 mm
I30 insulation 30 mm

Example: flow rate setting to 120 m³/h

2 Rectangular design