

# 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.

### Overpressure dampers



JNŽ-6



ANŽ-3, ANŽ-4

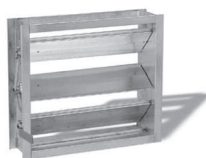


JNŽ-6W

## 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.

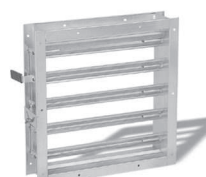
### Volume control dampers



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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**Shut-off dampers ZL-1, ZL-2**

**Application**

Shut-off dampers ZL-1 and ZL-2 are used to close the air supply or air exhaust in ventilating systems which require high level of sealing and very pure air. Mainly they are used in systems fitted with absolute filters.

During the operation, filters soil, causing the pressure drop to increase. If constant air flow through the filter is to be ensured, pressure drop must be compensated. Absolute filters are usually constructed with the initial pressure drop  $\Delta pZ$  (on a new filter) of 140 or 250 Pa. When pressure drop reaches the double value of initial pressure drop, filter is to be replaced. To compensate the pressure difference adjust the shut-off damper to obtain the total pressure drop on the filter and damper  $\Delta p_{cel}$  which equals double initial pressure drop on absolute filter.

When pressure drop on the filter increases, open the shut-off damper to keep the pressure  $\Delta p_{cel}$  constant ( $2 \times \Delta pZ$ ).

When replacing absolute filters, ducts must be sealed tight. Shut-off dampers are produced according to DIN 1946.

**Description**

Shut-off dampers consist of housing and blade, both made of galvanised sheet steel, rubber sealant brass bearings and control mechanism. Damper can be manually controlled or by the means of electric or pneumatic actuator. In case damper is manually controlled, locking mechanism is attached.

On the outer side, ZL-2 is fitted with a rubber seal.

ZL-1

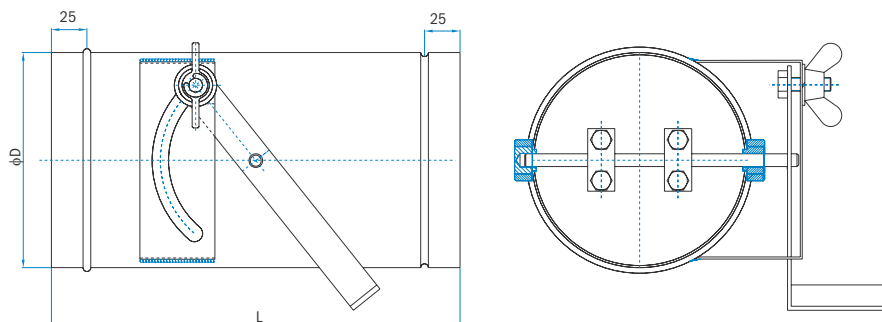


ZL-2



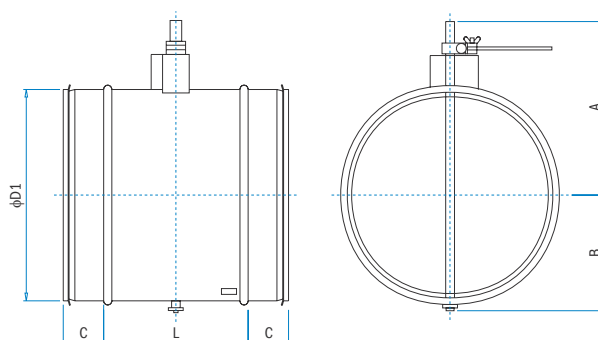
**Dimensions for ZL-1**

Size	100	150	200	250	300	315	350	400	500	600	650	700
$\Phi D$	98	148	198	248	298	313	348	398	498	598	648	698
L	300	450	500	600	700	750	800					



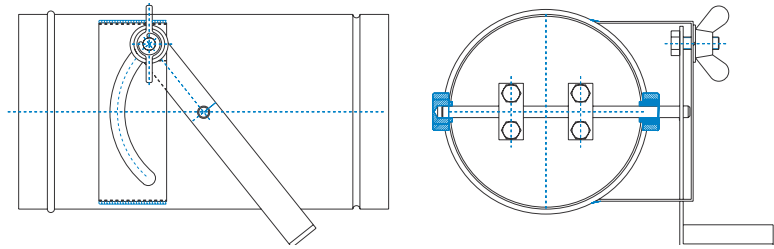
**Dimensions for ZL-2**

Size	80	100	125	140	150	160	180	200	225	250	280	315	400	500	630
$\Phi D1$	78	98	123	138	148	158	178	198	223	248	278	313	398	498	628
A	105	115	125	135	140	145	155	165	175	190	205	220	295	345	410
B	55	65	75	85	90	95	105	115	125	140	155	170	215	265	330
C	40												65		
L	100						130				130				



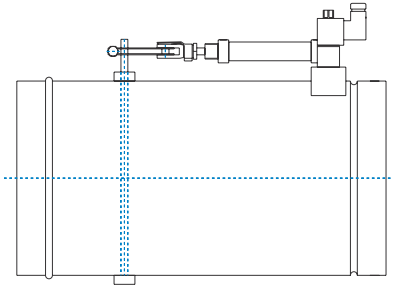
## Regulation types

### Manual version with handle and locking mechanism



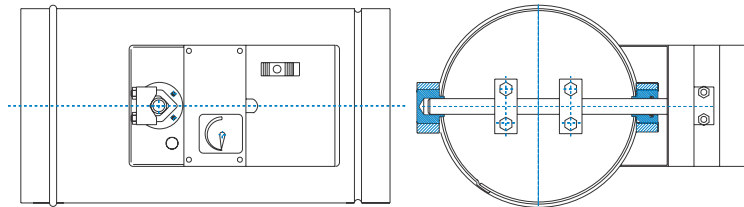
### Pneumatic version

Design determined after consulting with customer.



### Version with electric actuator

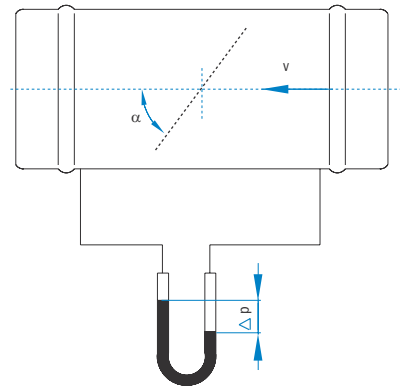
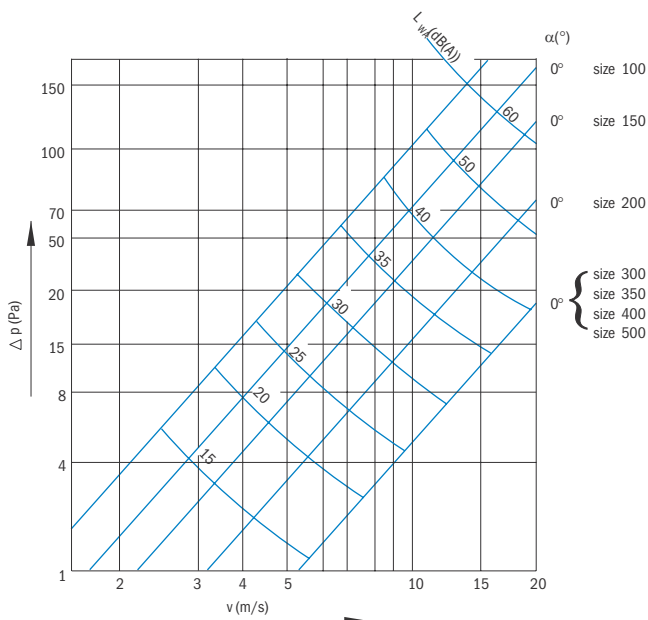
BELIMO or JOVENTA electric actuators are installed (see page 333).



### Recommended:

- Up to size 200: actuator SM (15 Nm)
- Larger dampers: actuator GM (30 Nm)

## Pressure drop and sound power level diagram



### Definition of symbols

$\alpha$ °	Blade angle
$v$ (m/s)	Average discharge velocity
$\Delta p_{cel}$ (Pa)	Pressure drop over the damper
$L_{WA}$ (dB(A))	Sound power level

### Ordering key

#### ZL-1 / R Size 200

- R** Manual control
- B** Power driven but without actuator
- 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
- P** Pneumatic control
- B10/J10** Actuator SM 230A SR/DM 2.2
- 1, 2** Shut-off damper type

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