



# TROX JZ Multileaf Dampers Instruction Manual

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**TROX JZ Multileaf Dampers**



## Product Overview

The product is a multileaf damper that comes in two types: JZ-\* and WG-JZ-\*. It is manufactured by TROX GmbH and is located in Neukirchen-Vluyn, Germany. The damper has an enclosure, opposed blades (parallel blades for JZ-P\*), blade tip seal (JZ-HL\*, JZ-LL-\* only), travel stop (angle section with seal) (JZ-HL\*, JZ-LL-\*, only), actuator (optional), transverse link, external linkage, crimped wire mesh, with or without insect screen, WG border, WG bottom blade, and WG regular blades.

## Important Notes

It is essential to read and fully understand the installation manual before starting any work. Compliance with the safety notes and all instructions in the manual is necessary for safe working. The local regulations for health and safety at work and general safety regulations also apply.

## Limitation of Liability

The manufacturer does not accept any liability for damages resulting from non-compliance with the manual, incorrect use, operation or handling by untrained individuals, or unauthorized modifications. The actual scope of delivery may differ from the information in this manual for special constructions, additional order options, or as a result of recent technical changes.

## Qualified Staff

The work described in this manual has to be carried out by individuals with the qualification, training, knowledge, and experience described below:

- HVAC technicians who have sufficient professional or technical training, knowledge, and actual experience to enable them to work on HVAC systems, understand any potential hazards related to the work under consideration, and recognize and avoid any risks involved.
- Skilled qualified electricians who have sufficient professional or technical training, knowledge, and actual experience to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognize and avoid any risks involved.

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## Personal Protective Equipment

Personal protective equipment must be worn for any work in order to reduce health or safety hazards to the minimum.

## Installation Manual

The installation manual enables operating or service personnel to correctly install the product described above and to use it safely and efficiently. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

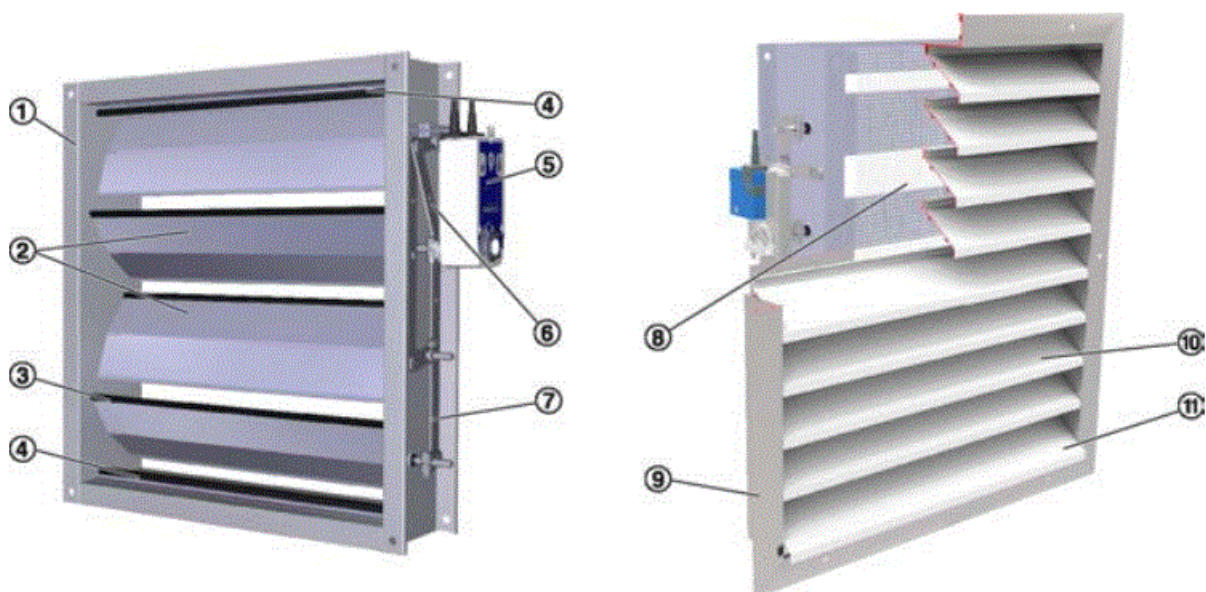
**Fig. 1: Schematic illustration of JZ-HL and WG-JZ**

## Product Usage Instructions

Follow the installation manual to correctly install the product and use it safely and efficiently. Make sure to comply with all safety notes and instructions in the manual. Wear personal protective equipment for any work in order to reduce health or safety hazards to the minimum.

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## Product overview



*Fig. 1: Schematic illustration of JZ-HL and WG-JZ*

2. Opposed blades (JZ-P\*: parallel blades)
3. Blade tip seal (JZ-HL\*, JZ-LL-\* only)
4. Travel stop (angle section with seal) (JZ-HL\*, JZ-LL-\*, only)
5. Actuator (optional)
6. Transverse link
7. External linkage
8. Crimped wire mesh, with or without insect screen
9. WG border
10. WG bottom blade
11. WG regular blades

## **Important notes**

### **Information on the installation manual**

This manual enables operating or service personnel to correctly install the product described below and to use it safely and efficiently. It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual. The local regulations for health and safety at work and general safety regulations also apply.

### **Qualified staff**

The work described in this manual has to be carried out by individuals with the qualification, training, knowledge and experience described below:

### **HVAC technician**

HVAC technicians are individuals who have sufficient professional or technical training in the field they are working in to enable them to carry out their assigned duties at the level of responsibility allocated to them and in compliance with the relevant guidelines, safety regulations and instructions. HVAC technicians are individuals who have in-depth knowledge and skills related to HVAC systems; they are also responsible for the professional completion of the work under consideration. HVAC technicians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on HVAC systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

### **Skilled qualified electrician**

Skilled qualified electricians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

### **Limitation of liability**

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

**The manufacturer does not accept any liability for damages resulting from:**

- Non-compliance with this manual
- Incorrect use
- Operation or handling by untrained individuals
- Unauthorised modifications

The actual scope of delivery may differ from the information in this manual for special constructions, additional order options or as a result of recent technical changes.

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### **Personal protective equipment**

Personal protective equipment must be worn for any work in order to reduce health or safety hazards to the minimum. The appropriate protective equipment for a job must be worn for as long as the job takes.

### **Correct use**

The multileaf damper is used as a control element in the volume flow and pressure control in air conditioning systems, e.g. in ventilation plant rooms or ducts.

## **Transport and packaging**

### **Incorrect use**

#### **WARNING!**

Danger due to incorrect use!

Incorrect use of the unit can lead to dangerous situations.

#### **Never use the unit:**

- in areas with potentially explosive atmospheres
- for process air control or shut-off
- outdoors without sufficient protection against the effects of weather
- in humid rooms
- in rooms with aggressive or dust-laden air

## **Transport and packaging**

### **Transport**

#### **CAUTION!**

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes and a hard hat.

Use only lifting and transport gear designed for the required load. Always secure the load against tipping and falling.

Upon delivery, carefully remove the packaging and check the unit for transport damage and completeness.

### **Storage**

#### **Please note:**

- Store the unit only in its original packaging
- Protect the unit from the effects of weather
- Protect the unit from humidity, dust and contamination
- Storage temperature: -10 °C to 50 °C.
- Relative humidity: 95 % max., no condensation

## Installation

### General safety notes

#### CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes and a hard hat

#### NOTICE!

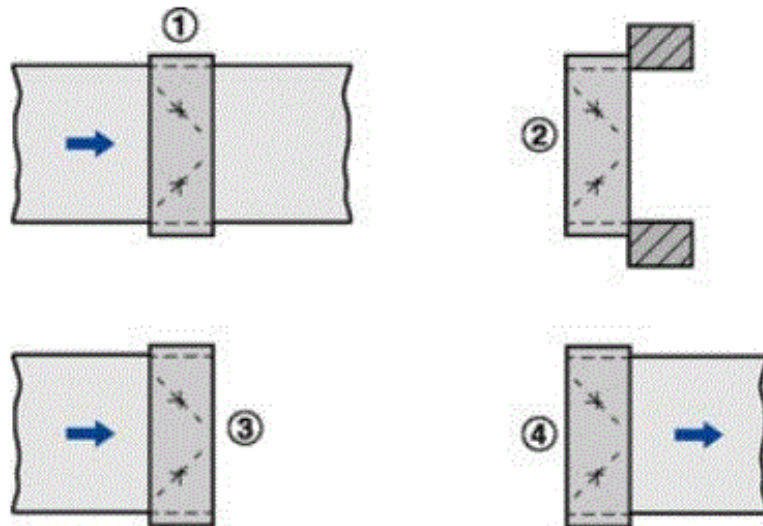
Contamination or damage will impair the function of the multileaf damper.

Protect the multileaf damper from contamination and damage.

#### Personnel:

- HVAC technician

### General installation information



*Fig. 2: Installation types*

1. Ducts on both sides
2. Without duct (air transfer)
3. Duct on one side (air outlet)
4. Duct on one side (air inlet)

The multileaf damper is installed away from walls (in ducts), or adjacent to or on the face of walls and ceiling slabs.

#### Please note:

- Installation should be vertical and without torsion
- Installation in vertical or horizontal ducting
- Installation only with the blades horizontal; JZAL, JZ-HL-AL and JZ-LL-AL also with the blades vertical

- Any airflow direction
- Duct connection on one side or on both sides
- The function of the damper must be checked before installation.

### **CAUTION!**

#### **Danger of injury!**

Danger of injury when reaching into the blades or the linkage of the multileaf damper.

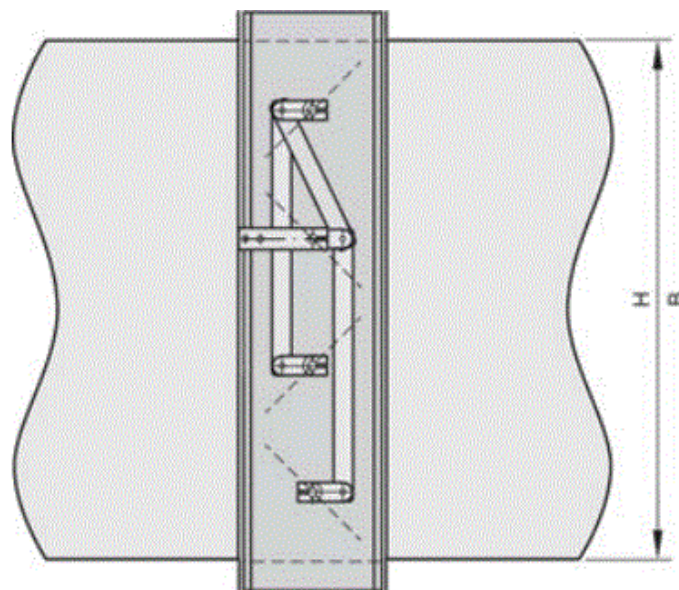
Once the multileaf damper has been installed, people must be prevented from reaching into the damper, for example by a cover grille.

### **NOTICE!**

#### **Temperatures below the dew point**

Temperatures below the dew point should be avoided as they lead to condensation which may cause damage to the building structure.

### **Duct installation**

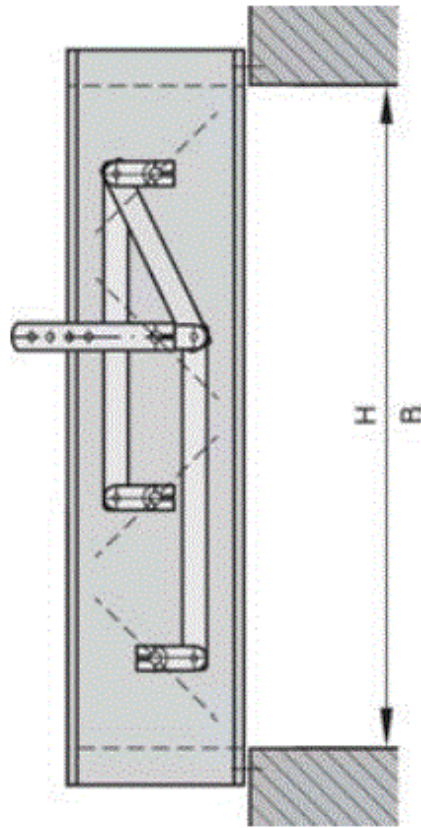


*Fig. 3: Duct installation*

Use screws (by others) to fix the multileaf damper to the duct. Due to its weight the multileaf damper must be supported, e.g. by a suspension system.

### **Wall/ceiling installation**

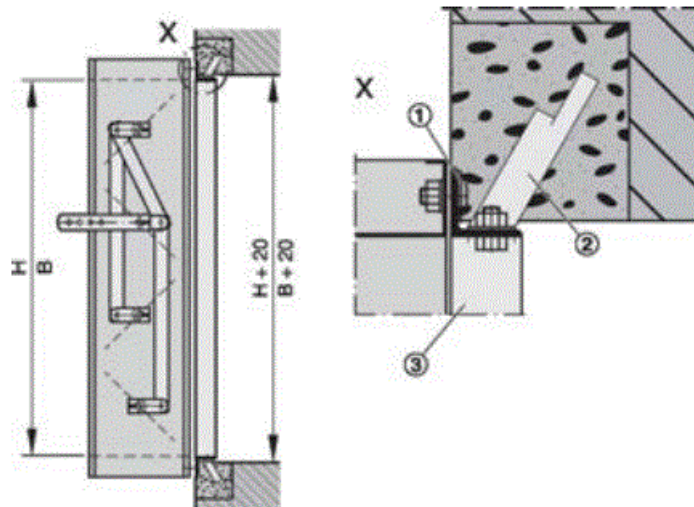
#### **Screw fix installation**



**Fig. 4: Wall installation**

Use suitable screws (by others) to attach the multileaf damper to the wall or ceiling slab.

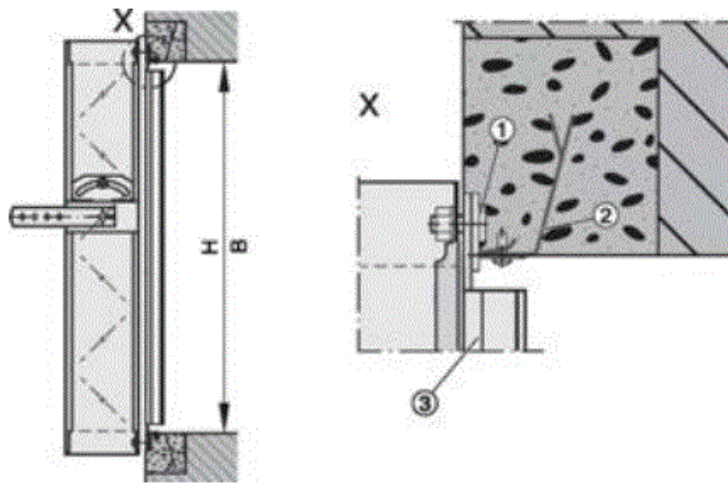
#### **Installation with installation subframe**



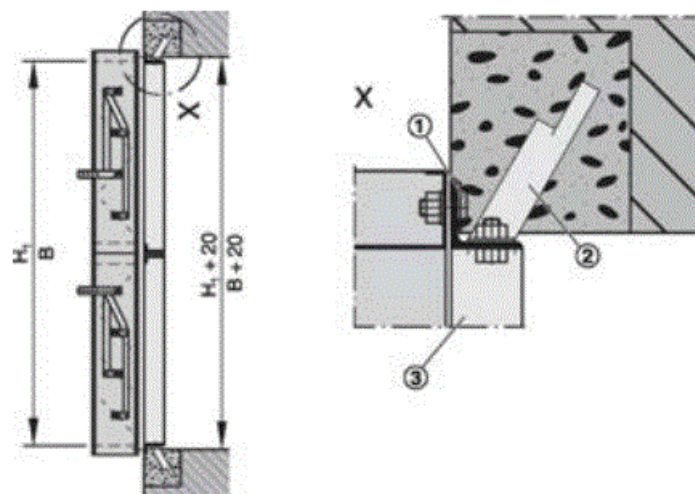
**Fig. 5: Wall installation with installation subframe  
(steel/stainless steel construction)**

1. Threaded stud
2. Fixing tab
3. Installation subframe

Items 1 to 3 are included in the installation subframe supply package

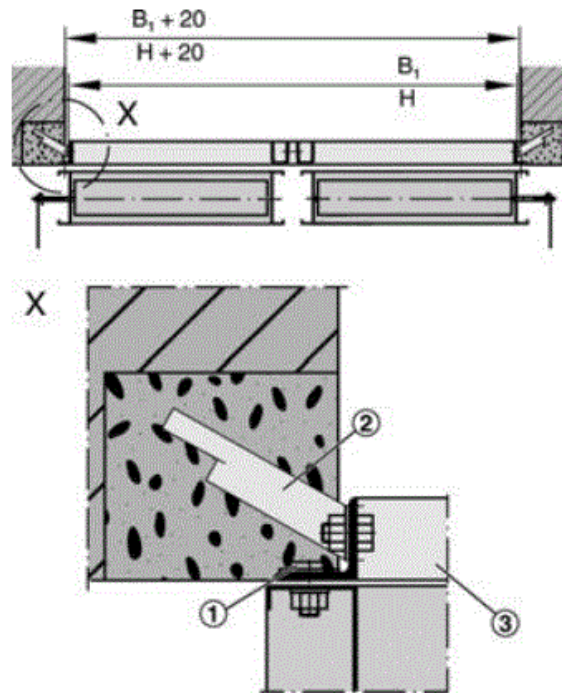


*Fig. 6: Wall installation with installation subframe (aluminium construction)*



*Fig. 7: Wall installation with installation subframe (steel/stainless steel construction), height subdivided*

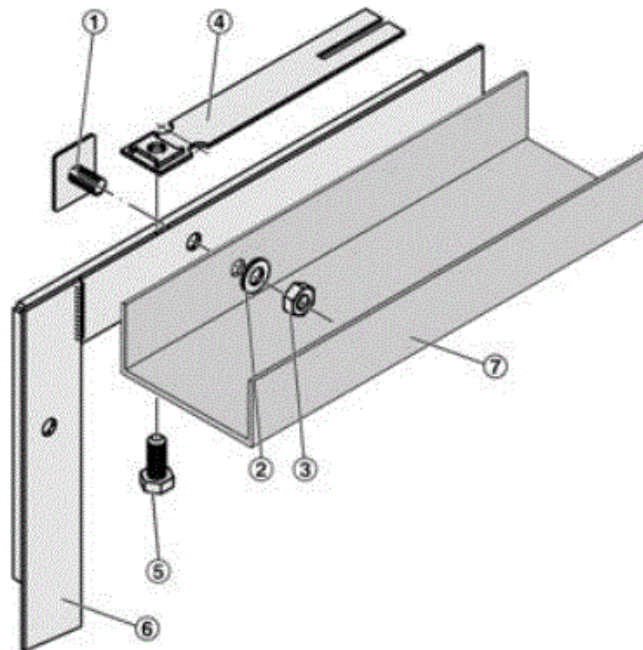
H1 See Fig. 20



*Fig. 8: Wall installation with installation subframe (steel/stainless steel construction), width subdivided*

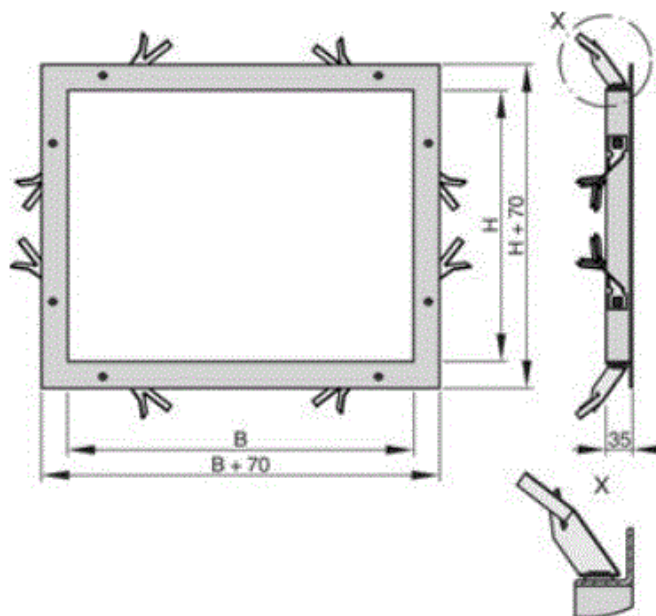
**B1 See Fig. 21**

**Assembling the installation subframe and damper**



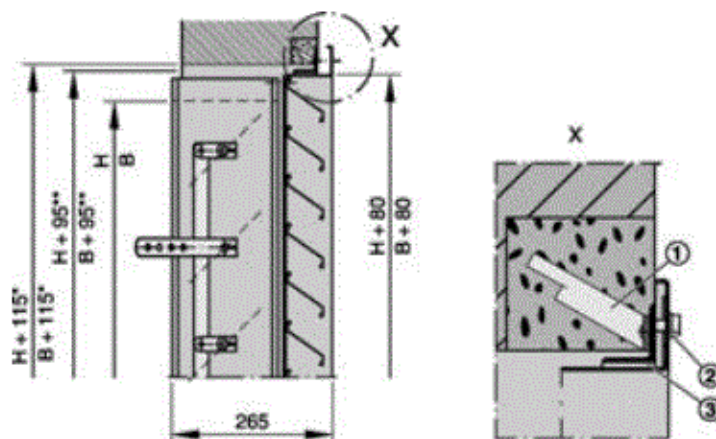
*Fig. 9: Installation subframe and damper assembly*

1. Threaded stud
2. Washer
3. Hexagonal nut
4. Fixing tab
5. Hexagon head screw
6. Installation subframe
7. Casing of the multileaf damper



*Fig. 10: Bend and spread the fixing tabs before installation*

### Installation with external weather louvre



*Fig. 11: Wall installation with external weather louvre (WG-JZ)*

\* with installation subframe

\*\* without installation subframe

1. Fixing tab
2. Hexagon head screw with washer
3. Installation subframe

The gap between the frame of the external weather louvre and the building envelope has to be professionally sealed (by others) to prevent the ingress of humidity or rain.

## Electrical/pneumatic connection

### Connecting the duct

Use screws to attach the damper to the ducting. The damper casing has flange holes for duct connection. Seal the joint between the casing flange and the duct in order to avoid pressure loss. Use sealing tape, for example, and clamps or additional screws, if necessary.

The movement of the damper blades must not be obstructed by any attachment.

**CAUTION!**

Danger of injury when reaching into the multileaf damper.

If only one end is to be ducted on site, the other end must have a cover grille (galvanised steel, mesh aperture  $\leq$  20 mm) or an external weather louvre.

**Electrical/pneumatic connection****Actuators provided by others**

If actuators are provided by others, please note:

- Minimum torque of the actuator
- Maximum differential pressure for the multileaf damper
- Remove the lever (if any) that locks the quadrant stay during transport before you install the actuator
- Install the actuator according to the manufacturer's instructions

For technical data refer to the technical leaflet.

**NOTICE!**

The blade mechanism must not be used as a travel stop for the actuator; if necessary, use a separate travel stop device.

TROX cannot guarantee leak-free dampers if the actuators are provided and installed by others.

**Connecting electric actuators****Personnel:**

- Skilled qualified electrician

Use only cables that are designed for the supply voltage for which they will be used. The power rating is given on the actuator rating plate. The length and cross section as well as any contact resistance may increase voltage losses.

A skilled qualified electrician has to select the correct cable types and sizes.

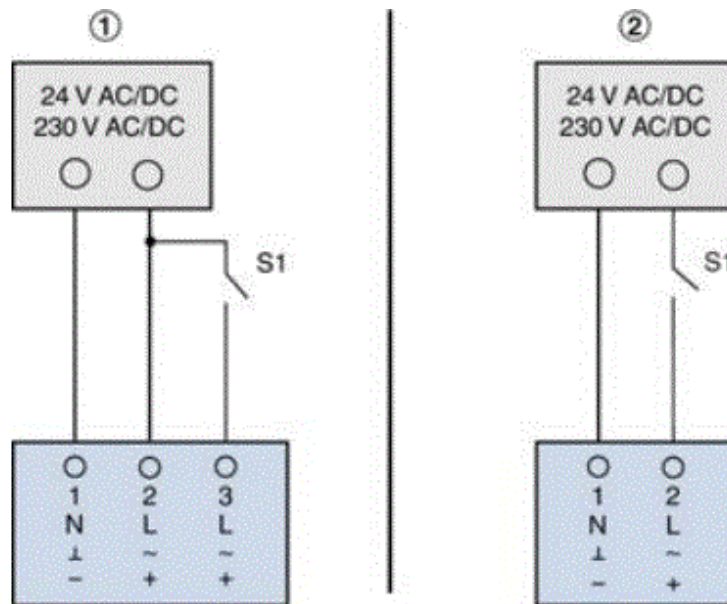
**DANGER!**

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

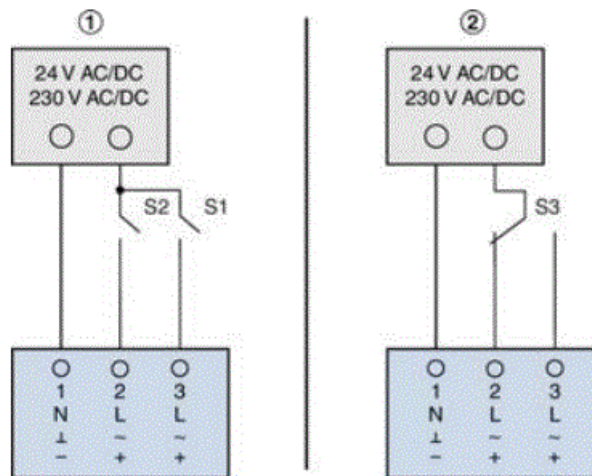
Connect the actuator as indicated on the actuator or in the manufacturer's product documentation.

**Electric open/close actuators**



*Fig. 12: 1-wire control*

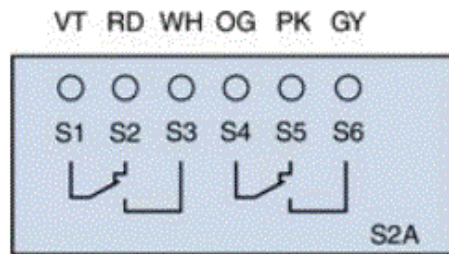
1. Actuator
2. Spring return actuator (safe damper blade position as an option)  
 S1 closed: Direction of rotation 1  
 open: Direction of rotation 2



*Fig. 13: 2-wire control*

1. 2-wire control (3-point)
  - S1 open and S2 open: Actuator has stopped (any position)
  - S1 closed: Direction of rotation 1
  - S1 open, S2 closed: Direction of rotation 2
2. 2-wire control (open/close)
  - S3 not actuated: Direction of rotation 1
  - S3 actuated: Direction of rotation 2

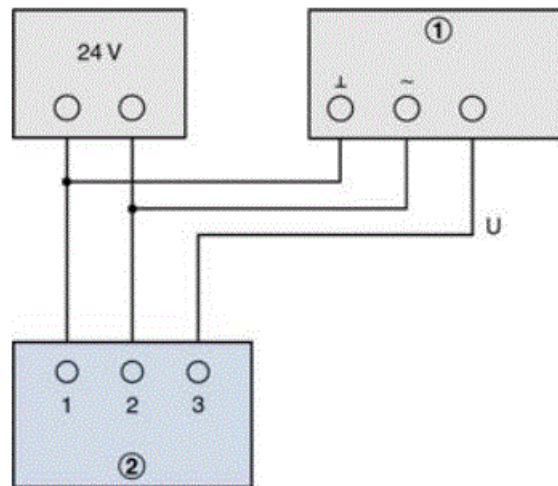
## Limit switch



*Fig. 14: Connecting cable core identification for limit switch S2A*

- S1 Common contact
- S2 Mechanical stop 1 < x
- S3 Mechanical stop 1 > x
- S4 Common contact
- S5 Mechanical stop 2 < x
- S6 Mechanical stop 2 > x

### Modulating actuators



*Fig. 15: Variable control*

1. Setpoint adjuster: U = voltage signal 0-10 V DC or 2-10 V DC
2. Modulating actuator

### Connecting pneumatic actuators

#### Personnel:

- Skilled qualified electrician

### Required

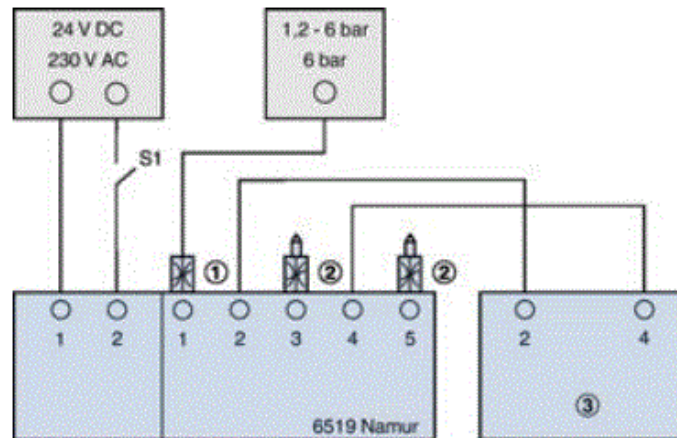
- Control medium: dust, oil-free and dry air as well as inert gases
- Supply voltage, depending on the solenoid valve, see rating plate.
- Operating pressure, depending on the actuator, see rating plate.

**DANGER!**

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

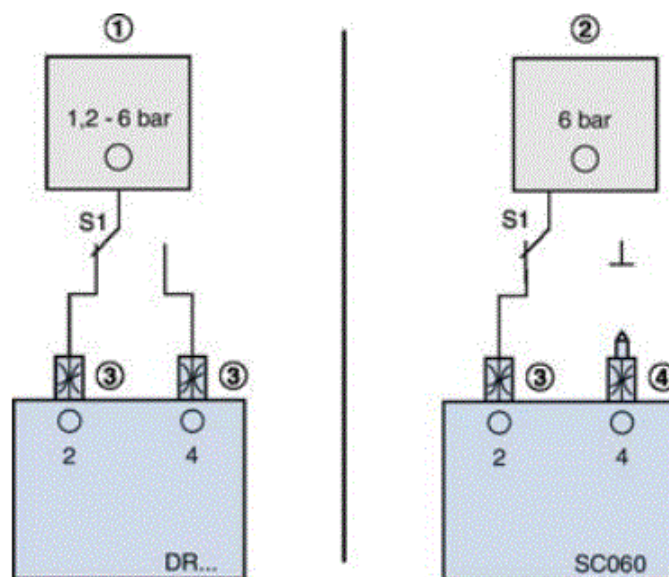
1. Connect the solenoid valve as indicated on the valve or the manufacturer's product documentation.
2. Connect the tubes according to the tubing diagram.



*Fig. 16: Pneumatic actuator with solenoid valve*

1. Throttle valve
2. Flow reducer (noise reduction)
3. Double acting or single acting actuator

## Commissioning and maintenance

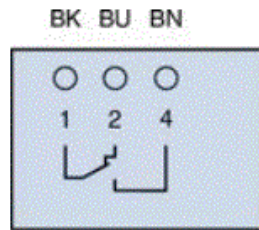


*Fig. 17: Pneumatic actuator without solenoid valve*

1. Double acting pneumatic actuator
2. Single acting pneumatic actuator

3. Throttle valve
4. Flow reducer (noise reduction)

### Limit switch



*Fig. 18: Connecting cable core identification for limit switch*

- 1 Common contact
- 2 NC contact
- 4 NO contact

### Commissioning and maintenance

#### Commissioning

##### Personnel:

- HVAC technician

As part of commissioning, the multileaf damper must be tested for correct functioning.

#### NOTICE!

JZ-LL-AL / JZ-HL-AL with quadrant stay

JZ-LL-AL / JZ-HL-AL multileaf dampers have a quadrant stay which functions as a travel stop (open/close). Using the damper without the quadrant stay may cause damage to the blades.

Do not use multileaf dampers JZ-LL-AL / JZ-HL-AL without the quadrant stay.

Before commissioning, loosen the nut of the lever that locks the quadrant stay during transport.

#### Maintenance

The multileaf damper and the actuator are maintenance-free with regard to wear but multileaf dampers must still be included in the regular cleaning of the ventilation system.

### Technical data

Multileaf dampers are manufactured according to the width (B) × height (H) ordered.

Multileaf dampers must be installed according to B × H; turning them is not usually possible, see 'General installation information'.

#### Dimensions of JZ-\*

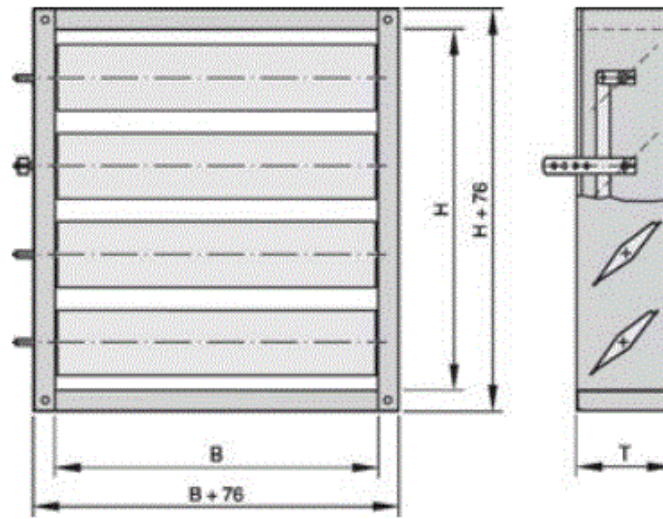


Fig. 19: JZ-\*

- T 180 mm for steel/stainless steel construction, 120 mm for aluminium construction

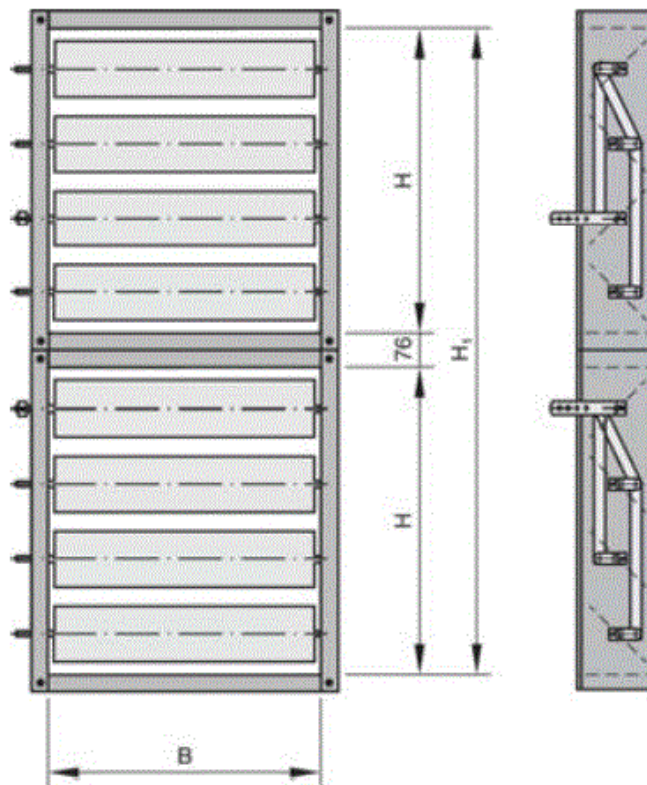


Fig. 20: JZ with height subdivided

$$H1 = 2 H + 76 \text{ mm}$$

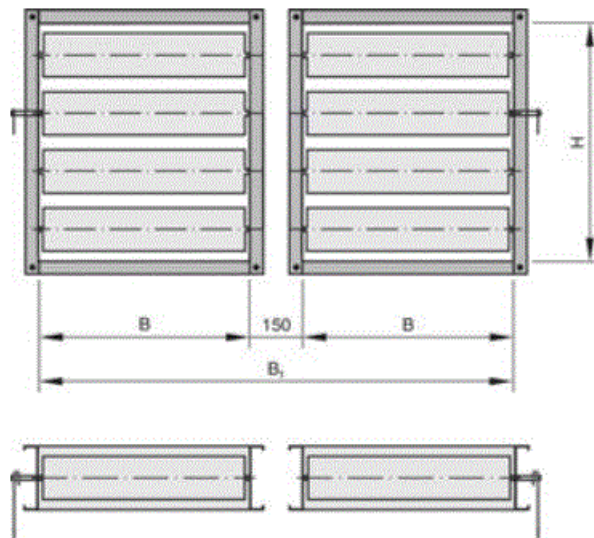


Fig. 21: JZ with width subdivided

$$B_1 = 2 B + 150 \text{ mm}$$

#### Dimensions of WG-JZ-\*

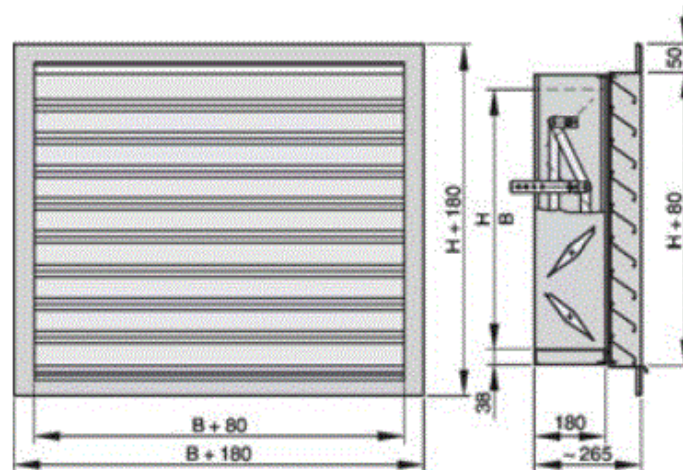


Fig. 22: WG-JZ

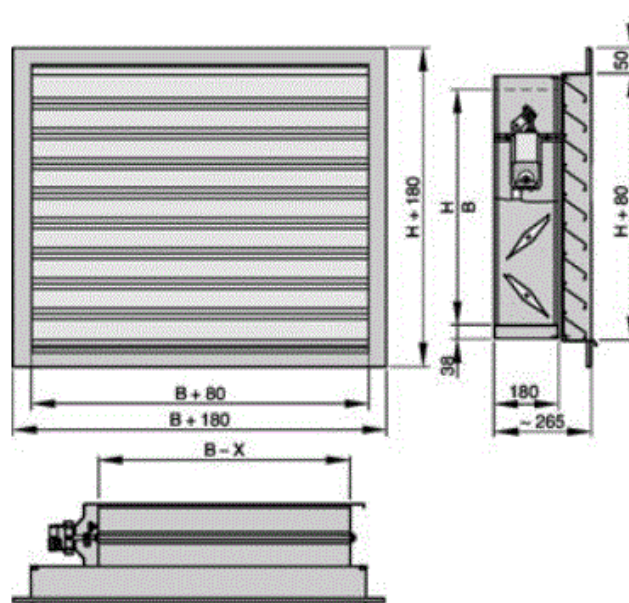



Fig. 23: WG-JZ with actuator

Attachments	Dimension X [mm]
Z12 - Z 51, ZF01 - ZF15, ZS21 - ZS22, ZS99	180
Z60 - Z77	200

	JZ-S	JZ-P	JZ-S-A2	JZ-P-A2	JZ-AL	JZ-LL	JZ-HL	JZ-LL-A2	JZ-LL-AL	JZ-HL-AL
Steel, galv.	●	●				●	●			
Stainless steel			●	●				●		
Aluminium					●				●	●
Parallel		●		●						
Opposed	●		●		●	●	●	●	●	●
Closed blade air leakage to EN 1751 (class) <sup>1</sup>						3 – 4	1 – 2	3 – 4	4	2
Casing air leakage to EN 1751 (class)	C									
Maximal airflow velocity in free cross-sectional area	8 m/s									
Operating temperature	-20...100 °C <sup>2</sup> -20...150 °C <sup>3</sup>				0... 60 °C	0...100 °C			0...60 °C	
1) Not for actuators provided by others, <a href="#">Ä7</a>  2) With plastic bearings   3) With brass bearings										

For more technical data see the technical leaflet.

## Documents / Resources

	<p><b><a href="#">TROX JZ Multileaf Dampers</a></b> [pdf] Instruction Manual JZ Multileaf Dampers, JZ, Multileaf Dampers, Dampers</p>
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## References

- [🌐 Homepage | TROX GmbH](#)

Manuals+.