



Non-return dampers

Types UL, KUL, WG-KUL, ARK, ARK-1

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Product overview

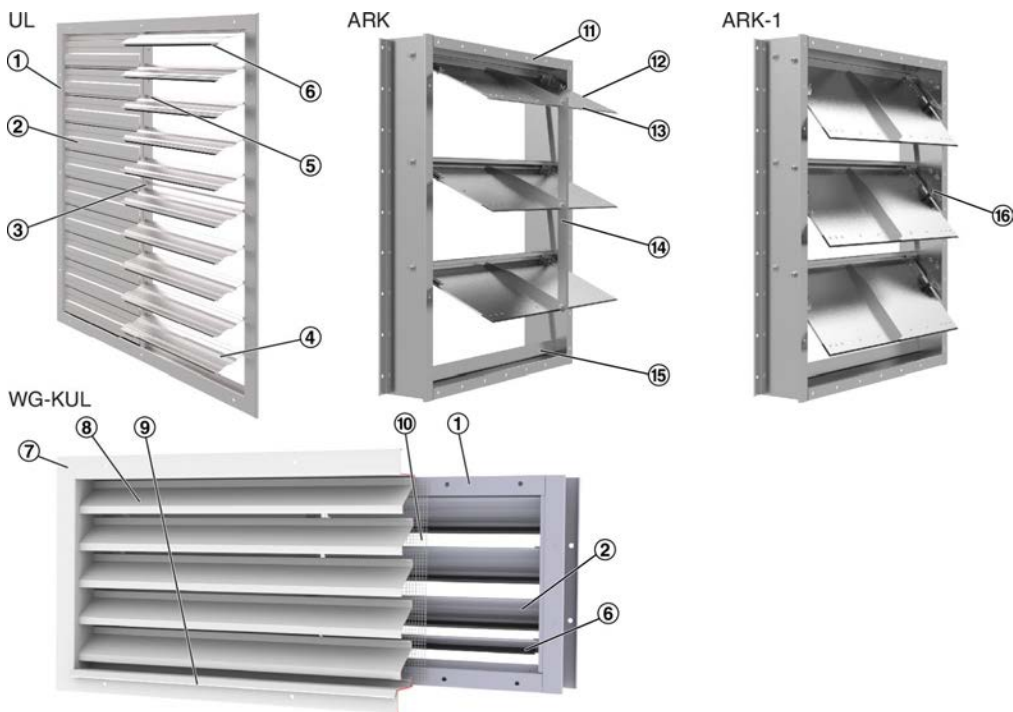


Fig. 1: Schematic illustration

- | | | | |
|---|--|---|--|
| ① | Front frame, UL with L-sections, KUL with U-sections | ⑨ | WG bottom blade |
| ② | Blades (closed) | ⑩ | Crimped wire mesh, with or without insect screen |
| ③ | Centre mullion (B ≥ 1000 mm) | ⑪ | Casing |
| ④ | Blades (open) | ⑫ | Blades |
| ⑤ | Blade restrictor | ⑬ | Seal |
| ⑥ | Seal | ⑭ | Linkage |
| ⑦ | WG border | ⑮ | Travel stop (angle section) |
| ⑧ | WG regular blades | ⑯ | Adjustable blade restrictor |

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.

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.

Copyright

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Violators will be held liable for any damage. The right to further claims remains reserved.

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

Non-return dampers are used to prevent air from flowing against the intended airflow direction. They open and close automatically and are used for supply air or extract air in ventilation and air conditioning systems.

Incorrect use**WARNING!****Danger due to incorrect use!**

Incorrect use of the damper can lead to dangerous situations.

Never use the damper:

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

- Storage temperature: –10 to 50 °C
- Relative humidity: 95 % max., non-condensing

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 damper 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

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.

Personnel:

- HVAC technician

NOTICE!

Contamination or damage will impair the function of the damper.

Protect the damper from contamination and damage.

Please note:

- Installation should be vertical and without torsion
- Installation only into horizontal ducts, with the blades horizontal
- Installation in vertical ducts only with the damper opening against gravity (extract air ducts)
- Note the airflow direction
- Duct connection on one side or on both sides (with UL only on one side)
- Dampers that are not screw-fixed to the wall or ceiling slab require suspensions.
- The function of the damper must be checked before installation.

General installation information

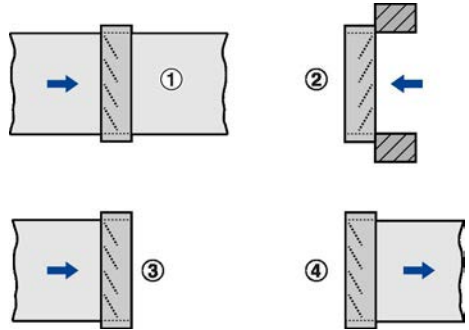


Fig. 2: Installation types

- ① Ducts on both sides (only with KUL, ARK-1)
- ② Without duct (air transfer)
- ③ Duct on one side (air outlet)
- ④ Duct on one side (air inlet)

The non-return dampers are installed away from walls (in ducts), or adjacent to or on the face of walls and ceiling slabs.

Installation on the discharge side of a fan (only UL, KUL)

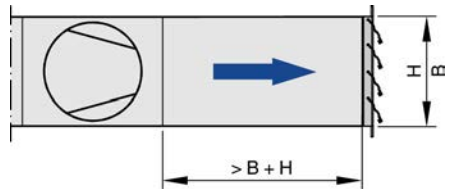


Fig. 3: Upstream section

Turbulence on the discharge side of a fan may damage the blades of the non-return damper. A straight upstream section $>B+H$ is hence required on the discharge side of a fan.

Installing UL

! NOTICE!

Risk of damage due to incorrect use.

Do not use the UL non-return damper in external walls or as an exhaust air or fresh air damper.

For external walls use only WG-KUL (with factory mounted external weather louvre).

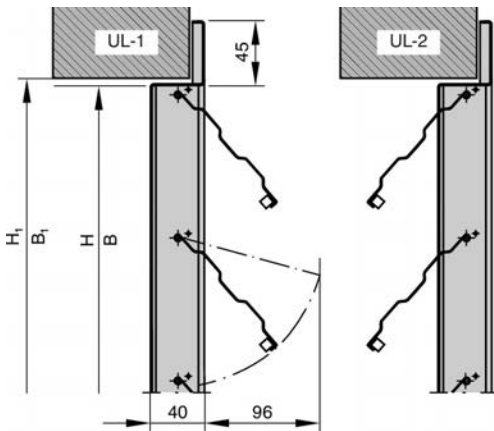


Fig. 4: Wall installation

UL1 Extract opening

UL2 Supply opening

Note the airflow direction (blade opening direction)

Installation opening	H ₁	B ₁
Without installation sub-frame	H + 15	B + 15
With installation sub-frame	H + 35	B + 35

Fix the damper with suitable screws (by others);
 flange holes ≈Ø9 mm.

Installing KUL / WG-KUL

! NOTICE!

Risk of damage due to incorrect use.

Do not use the KUL non-return damper in external walls or as an exhaust air or fresh air damper.

For external walls use only WG-KUL (with factory mounted external weather louvre).

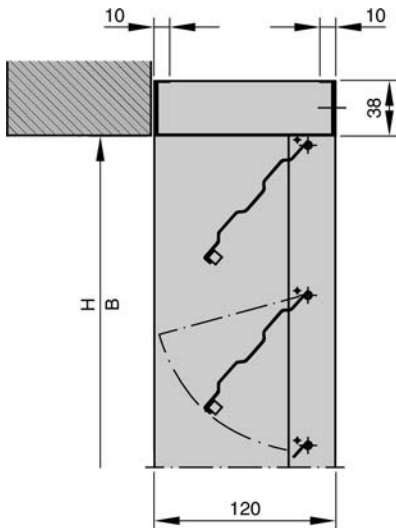


Fig. 5: Wall installation without installation subframe (KUL shown)

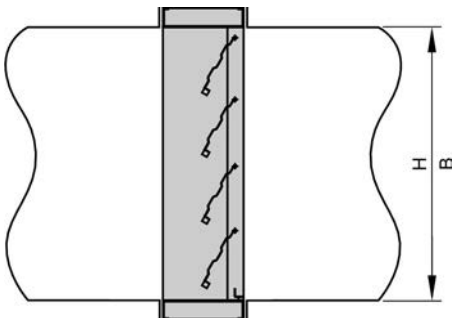


Fig. 6: Duct installation (KUL shown)

Fix the damper with suitable screws (by others); flange holes $\varnothing 9.5$ mm.

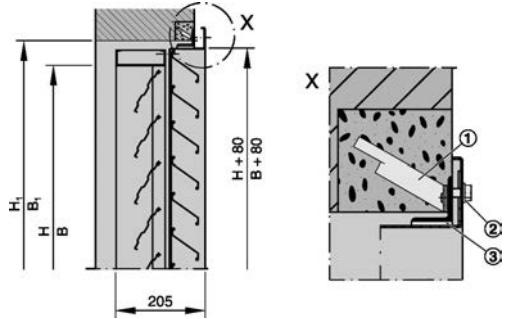


Fig. 7: Installation with installation subframe (WG-KUL-1 shown)

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

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

Installation opening	H1	B1
Without installation subframe	H + 95	B + 95
With installation subframe	H + 115	B + 115

Installing ARK-1

! NOTICE!

Risk of damage due to incorrect use.

Do not use the ARK-1 non-return damper in external walls or as an exhaust air or fresh air damper.

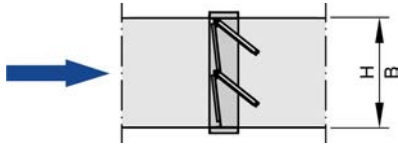


Fig. 8: Horizontal airflow

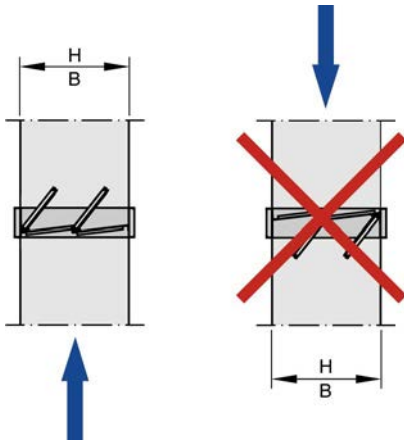


Fig. 9: Vertical airflow

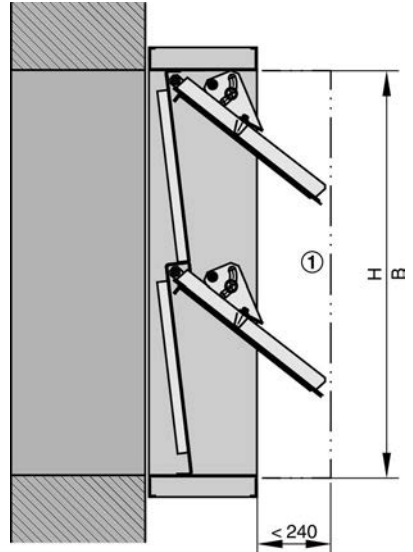


Fig. 10: Wall installation without installation sub-frame (ARK-1 shown)

① Blade movement area must be kept clear

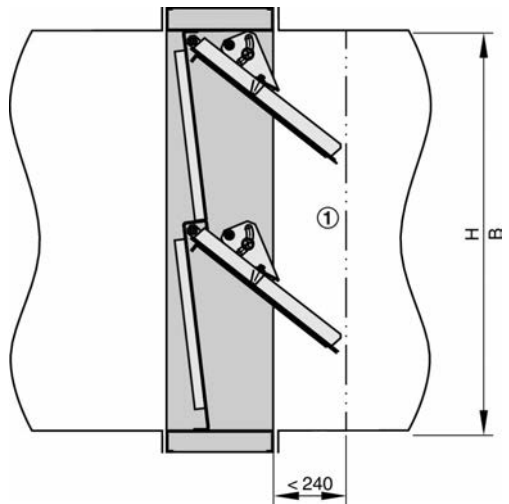


Fig. 11: Duct installation (ARK-1 shown)

① Blade movement area must be kept clear

Fix the damper with suitable screws (by others);
flange holes (only KUL-G) $\varnothing 9.5$ mm.

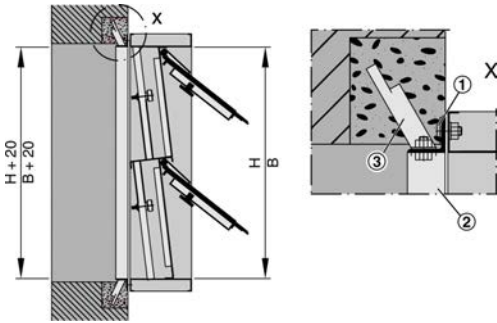


Fig. 12: Wall installation with installation subframe
(steel/stainless steel construction)

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

Items 1 to 3 are included in the installation sub-
frame supply package

Installing the installation subframe

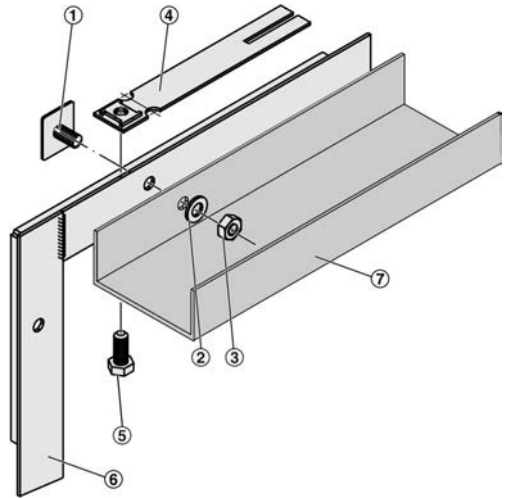


Fig. 13: Installation subframe and damper assembly

- ① Threaded stud
- ② Washer
- ③ Hexagon nut
- ④ Fixing tab
- ⑤ Hexagon head screw
- ⑥ Installation subframe
- ⑦ Damper casing

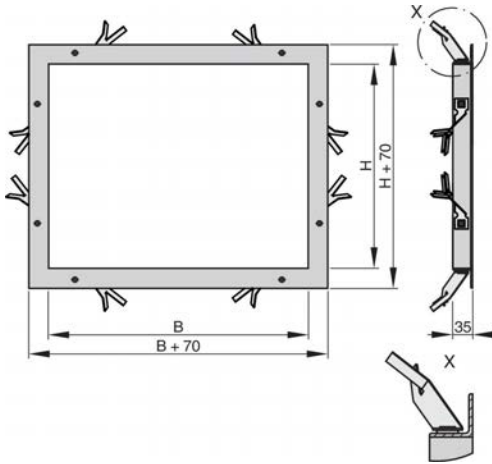


Fig. 14: Bend and spread the fixing tabs before installation

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.

Commissioning and maintenance

Commissioning

Personnel:

- HVAC technician

As part of commissioning, the non-return damper must be tested for correct functioning.

! NOTICE!

Start-up of fans with UL/KUL

Ensure a gradual start-up of fans to avoid a sudden pressure increase.

! NOTICE!

ARK-1 blade restrictors

Type ARK-1 non-return dampers have adjustable blade restrictors, which can be adjusted as part of commissioning.

Maintenance

Non-return dampers are maintenance-free with regard to wear but must still be included in the regular cleaning of the ventilation system.

Technical data

UL/KUL

Data	Value	Unit
Max. pressure	100	Pa
Operating temperature	-20 – 80	°C
Total differential pressure at 2.5 m/s	25	Pa

WG-KUL

Data	Value	Unit
Max. pressure	100	Pa
Operating temperature	-20 – 80	°C
Total differential pressure – exhaust air at 2.5 m/s	55	Pa
Total differential pressure – fresh air at 2.5 m/s	60	Pa

ARK-1

Data	Value	Unit
Max. pressure	5000	Pa
Operating temperature (galvanised steel)	0 – 80	°C
Operating pressure (galvanised steel with optional Viton seal)	0 – 120	°C
Operating pressure (stainless steel with optional Viton seal)	0 – 200	°C
Total differential pressure at 10 m/s (horizontal airflow)	115	Pa
Differential pressure at 2 m/s (vertical airflow)	135	Pa
Differential pressure at 10 m/s (vertical airflow)	45	Pa
Closed blade air leakage (against the intended airflow direction) to EN 1751 (class)	4	
Casing air leakage to EN 1751 (class)	C	

For more technical data see the technical leaflet.

