ОФЕРТА

TROX® TECHNIK
The art of handling air

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20.06.2025 Стр. 1 от 3

Проект
CP BG NPP KOZLODUY 55858 ARK 2

Sofia
2019-000087

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Клиент BG0251128
Референция Клиент
Референтна дата
Ваш референт

Вашият TROX контакт:
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Благодаря за вашето запитване.

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Цена:	EBPO, DAP България, съгласно Incoterms 2010, в стандартна опаковка неразтоварено от превозното средство, валидни при поръчка на цялата оферта., без ДДС
Валидност:	30 дни от датата на офертата
Начин на плащане:	100% аванс или по споразумение.
Срок на Доставка:	4-6 седмици за стандартни вентилационни компоненти. За системни решения, вентилатори и климатични камери по запитване.
Гаранционен срок:	24 месеца от дата на доставка
Забележки:	При поръчки задължително упоменете № на нашата оферта! Настоящата оферта е изготвена въз основа на предоставеното от Вас запитване и в цитираните цени са включени единствено елементите, описани по позиции. Изборът на компоненти в нашата оферта е препоръка, не замества проверката от клиента по отношение на тяхната пригодност за конкретното приложение, където условията не са ни известни в детайли. При неточност в количествата се взема под внимание единичната цена.

Ако имате въпроси, моля, обадете ни се или изпратете имейл:

trox-bg@troxgroup.com или 02/9812574, 02/9862065

Благодарим за доверието Ви и ще се радваме да работим по този проект с Вас.
С най-добри пожелания,

Delyan Ivanov

ОФЕРТА

TROX® TECHNIK
The art of handling air

Проект
CP BG NPP KOZLODUY 55858 ARK 2

Sofia

Оферта AT4092185
Клиент BG0251128
Ценова листа 2025 (ab 01.01.2025)

Техн. Спец. №	Артикул	К-во	Ценова Група	Бруто-/Нето- Ед. Цена	Нето/ Ед. Цена	Сума EUR
1	**Rückschlagklappe** ARK2-G/400x400/50Pa/P1-RAL5012-70% 2: Permanent-magnet-execution G: Casing both flanges drilled P1: Powder coated according to RAL	6	332A	2.038,40	2.038,40	12.230,40

*** - Алтернативните позиции не са включени в крайната цена**

ОБЩО без ДДС **НЕТО** **12.230,40**

ОФЕРТА

TROX® TECHNIK
The art of handling air

Проект
CP BG NPP KOZLODUY 55858 ARK 2

Sofia

Оферта AT4092185
Клиент BG0251128
Ценова листа 2025 (ab 01.01.2025)

Ценова група	Описание	Сума EUR
332-	Shut-off Damper	12.230,40

ОБЩО без ДДС **НЕТО** **12.230,40**

Installation manual GB/en

Non-return dampers

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

TROX® TECHNIK
The art of handling air

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Product overview

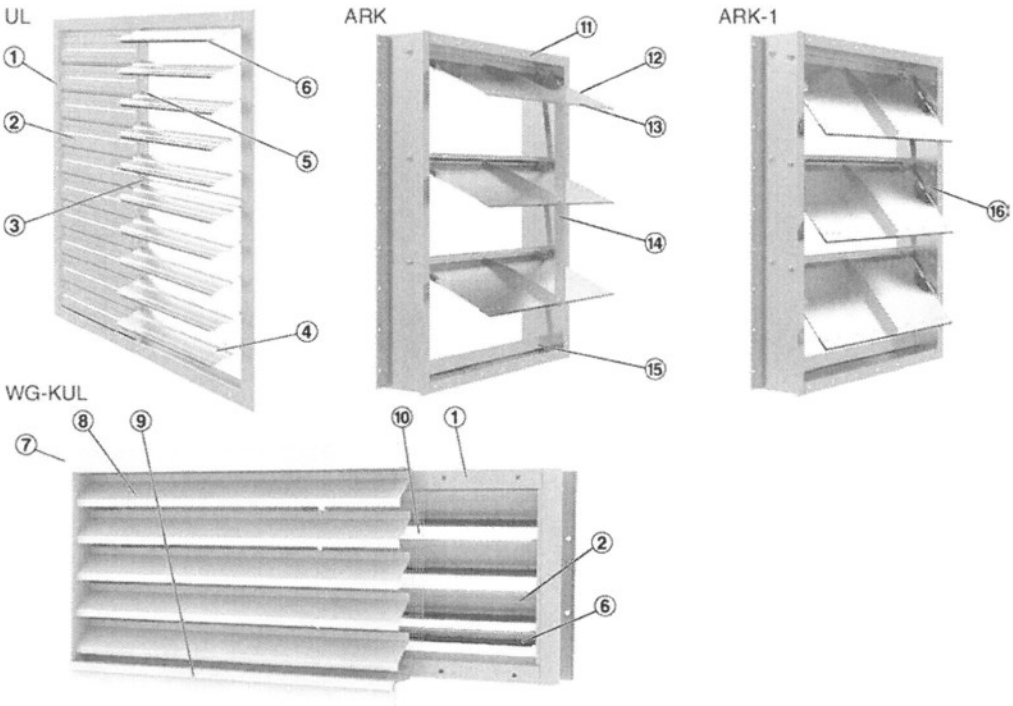


Fig. 1: Schematic illustration

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

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

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

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

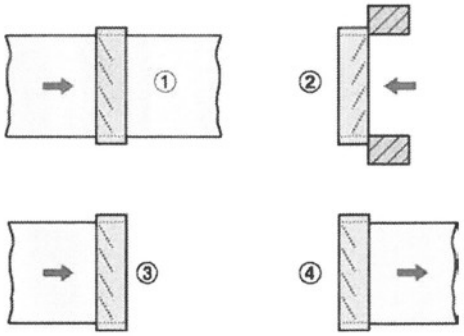


Fig. 2: Installation types

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)

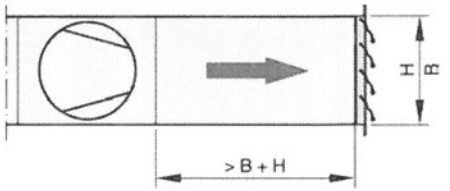


Fig. 3: Upstream section

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).

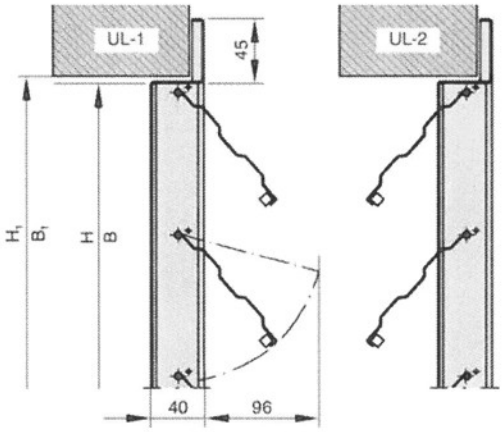


Fig. 4: Wall installation

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 ≈∅9 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).

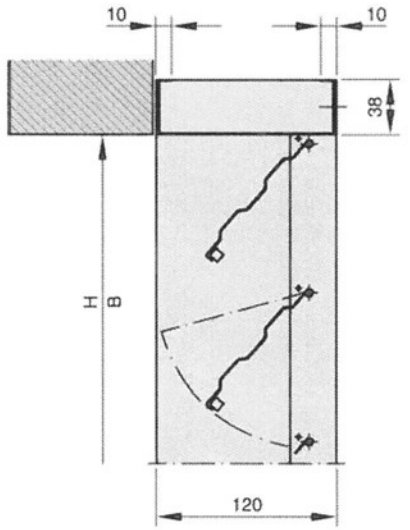


Fig. 5: Wall installation without installation subframe (KUL shown)

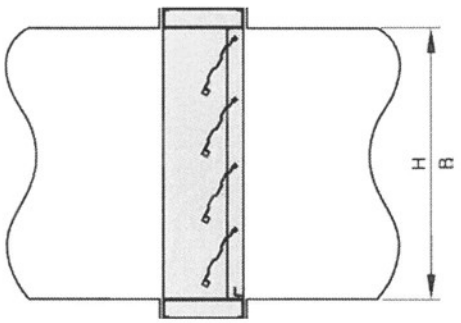


Fig. 6: Duct installation (KUL shown)

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

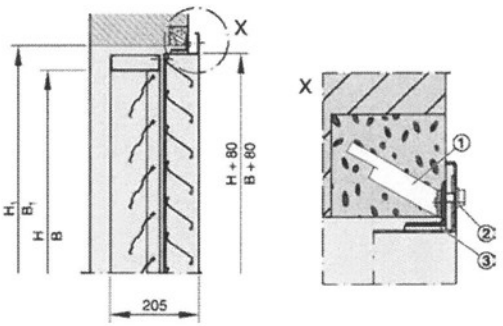


Fig. 7: Installation with installation subframe (WG-KUL-1 shown)

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.

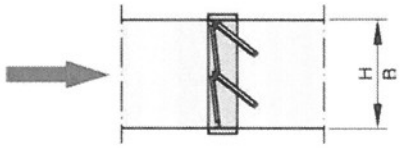


Fig. 8: Horizontal airflow

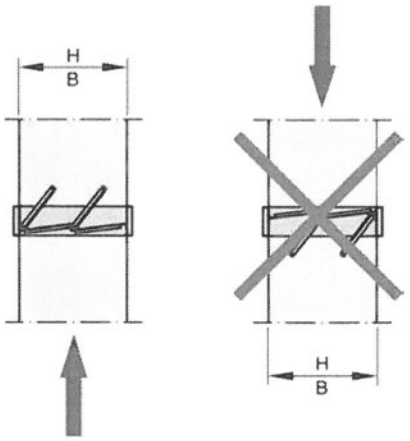


Fig. 9: Vertical airflow

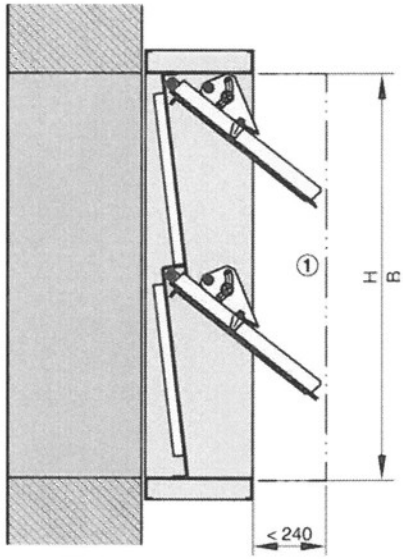


Fig. 10: Wall installation without installation sub-frame (ARK-1 shown)

① Blade movement area must be kept clear

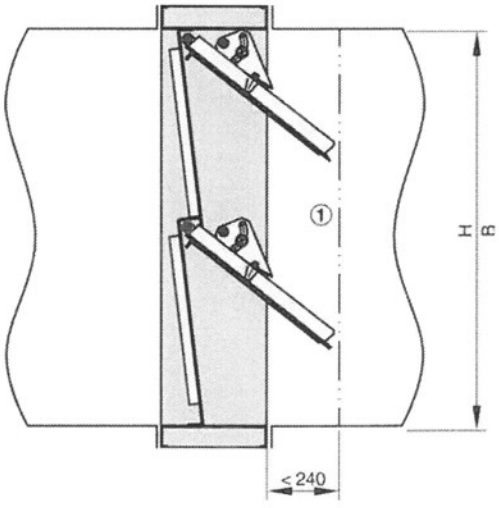


Fig. 11: Duct installation (ARK-1 shown)

① Blade movement area must be kept clear

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

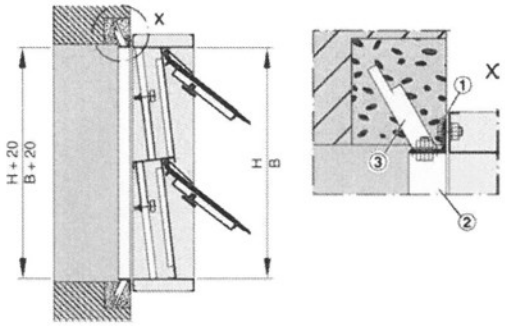


Fig. 12: Wall installation with installation subframe (steel/stainless steel construction)

① Threaded stud
② Fixing tab
③ Installation subframe

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

Installing the installation subframe

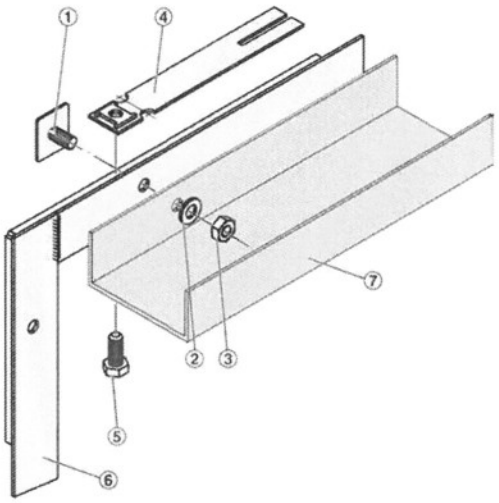


Fig. 13: Installation subframe and damper assembly

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

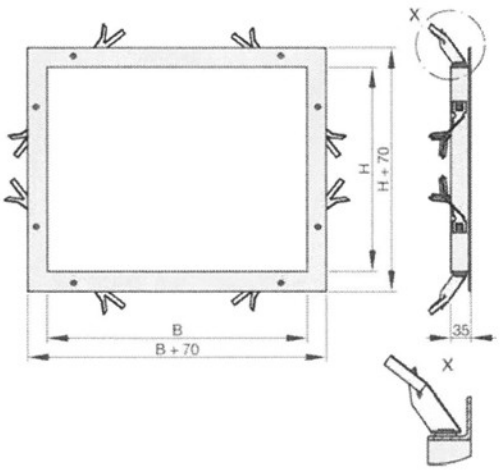


Fig. 14: Bend and spread the fixing tabs before installation

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.

Manufacturer's statement / certificate

Specification	Leakage classification of TROX ventilation components
Manufacturer	TROX GmbH Heinrich-Trox-Platz • 47504 Neukirchen-Vluyn • Germany Phone +49(0)2845 2020 • Fax +49(0)2845 202265 E-Mail trox-de@troxgroup.com • Internet www.trox.de
Technical rules	Casing leakage measurement: EN 1751, EN 15727 Closed blade leakage measurement: EN 1751

Description

In the course of global energy saving targets, the seal tightness requirements for air handling systems and components are increasingly rising.
With this certificate, TROX certifies compliance with the leakage classes in the following overview. The quality standard of TROX ventilation components with regard to their leakage properties is ensured by means of statistical leakage measurements during production.
Based on production quantities and previous test results of different product variants, statistical test volumes are determined annually. The devices to be tested are compared with the production orders, taken out of production and tested on a daily basis.

The tests are carried out on a special leakage test rig in accordance with EN 1751. The measurement technology meets the requirements of EN ISO 5167-1 to -4 at minimum and is inspected annually.

Leakage tests on fire dampers and smoke control dampers are subject to separate specifications according to their proof of usability and are also monitored by third parties. In the course of these daily tests, the casing and closed blade leakage is classified according to EN 1751.

Product category	No.	Standard
Constant air terminal units	1	DIN EN 1751
Variable air terminal units	2	
Flow adjustment dampers	3	
Shut-off dampers	4	
Multileaf dampers	5	
Non-return dampers	6	
Fire dampers	7	
Smoke control dampers	8	
Smoke protection damper	9	
Sound attenuators	10	DIN EN 15727
Secondary silencers	11	
Volume flow rate measuring units	12	
Heat exchanger	13	

Manufacturer's statement / certificate

Max. permissible differential pressures can be found in the product leaflets.

PC Nr.	Type	Casing leakage air class ------> better ----->				Air leakage class with closed damper ------> better ----->				Standard
		A	B	C	D	1	2	3	4	
1	RN (-EX)			x						DIN EN 1751
	VFC			x						
	EN (-EX)			x						
2	LVC			x		x	Ø 125			
	TVE			x				Ø ≤ 160	x	
	TVE-Q			x			(B+H) ≤ 400	x		
	TVR			x			Ø 100	Ø ≤ 160	x	
	TVJ		x			(B+H) ≥ 600				
	TVT		(B+H) ≤ 400	x				x		
	TZ-Silenzio			x					x	
	TA-Silenzio			x					x	
	TVZ		Ø ≥ 250	x				Ø ≤ 160	x	
	TVA		Ø ≥ 250	x					x	
	TVM		x					Ø ≤ 160	x	
	TVRK		x					x		
	TVLK			x					x	
	TVR-Ex			x				Ø ≤ 160	x	
3	VFR			x						
4	AKK		x					x		
	AK-Ex			x				Ø ≤ 160	x	
5	JZ-HL-AL			x			x			
	JZ-HL			x		B ≤ 600	x			
	JZ-LL / JZ-LL-A2			x				B ≤ 600	x	
	JZ-LL-AL			x					x	
	JZ-S /-P /-AL			x						
	JZ-S-A2 /-P-A2			x						
6	ARK /-2 (!)			x					x	
7	FK2-EU		(B+H) ≤ 700	x			x			
	FKRS-EU			x			Ø 100	Ø ≤ 250	x	
	FKR-EU			x					x	
8	EK2-EU			x				x		
	EK-JZ			x				x		
9	JZ-RS			x		x				
10	MS / XS			x						DIN EN 15727
11	CA / CAH			NW > 400	x					
	CK			NW > 400	x					
	CF				x					
	TS		Ø ≥ 250	x						
	TX			x						
	CAK				x					
12	VMR			x						
	VME		(B+H) ≤ 400	x						
	VMRK			x						
	VMLK			x						
13	WL			x						
	EL			x						
	WT			H ≤ 400	x					

(!) Note: Air leakage with back pressure, in closing direction.

Neukirchen-Vluyn, the 01.09.2023

Dipl.-Ing. Jan Heymann
Manager quality management

Adjustable restrictor

Linkage

Mechanical self-powered dampers

ARK

For heavy-duty applications

Non-return dampers prevent unwanted airflows against the intended airflow direction when the system is not in operation

- Air leakage with back pressure to EN 1751, class 4
- Maximum differential pressure: 5000 Pa
- Blades made of aluminium, casing made of galvanised steel
- Available in standard sizes and many intermediate sizes
- Variant ARK (with linked blades) for variable volume flows
- Variant ARK-1 (with adjustable blade restrictors) for constant volume flows
- Installation in horizontal or vertical ducts

Optional equipment and accessories

- Installation subframe
- Powder coating (RAL or DB)
- Stainless steel construction with stainless steel casing; blades made of aluminium
- Temperature resistant up to 200 °C with Viton seal

General information

Application
- Non-return dampers for the fresh air and exhaust air ducts of ventilation and air conditioning systems
- Prevention of unwanted airflows against the intended airflow direction when the system is not in operation
- Blades close automatically when the system is shut down
- Maximum differential pressure: 5000 Pa

Special features
- Robust, maintenance-free construction
- Maximum differential pressure: 5000 Pa
- Closed blade air leakage with back pressure, in closing direction, to EN 1751, class 4
- Damper for negative or positive pressure (air extract or discharge)
- Operating temperature 0 to 80 °C
- Optional temperature resistant construction for up to 200 °C, with Viton seal
- Installation in horizontal or vertical ducts
- Maintenance-free DU bearings with Teflon coating, bearing shafts made of stainless steel

Nominal sizes
- B: 200, 400, 600, 800, 1000, 1200 mm (intermediate sizes: 201 – 1199 mm, in increments of 1 mm)
- H: 345, 675, 1005, 1335, 1665, 1995 mm (intermediate sizes 355 – 505, 685 – 835, 1015 – 1165, 1345 – 1495, 1675 – 1825 mm in increments of 1 mm)
- Any combination of B × H

Variants
- ARK: Non-return damper with linked blades, preferably for variable volume flows
- ARK-1: Non-return damper with adjustable blade restrictors, preferably for constant volume flows

Construction
- Galvanised sheet steel, duct connection without flange holes
- A2: Stainless steel
- G: Duct connection with flange holes

Accessories
- Installation subframe for the fast and simple installation of mechanical self-powered dampers

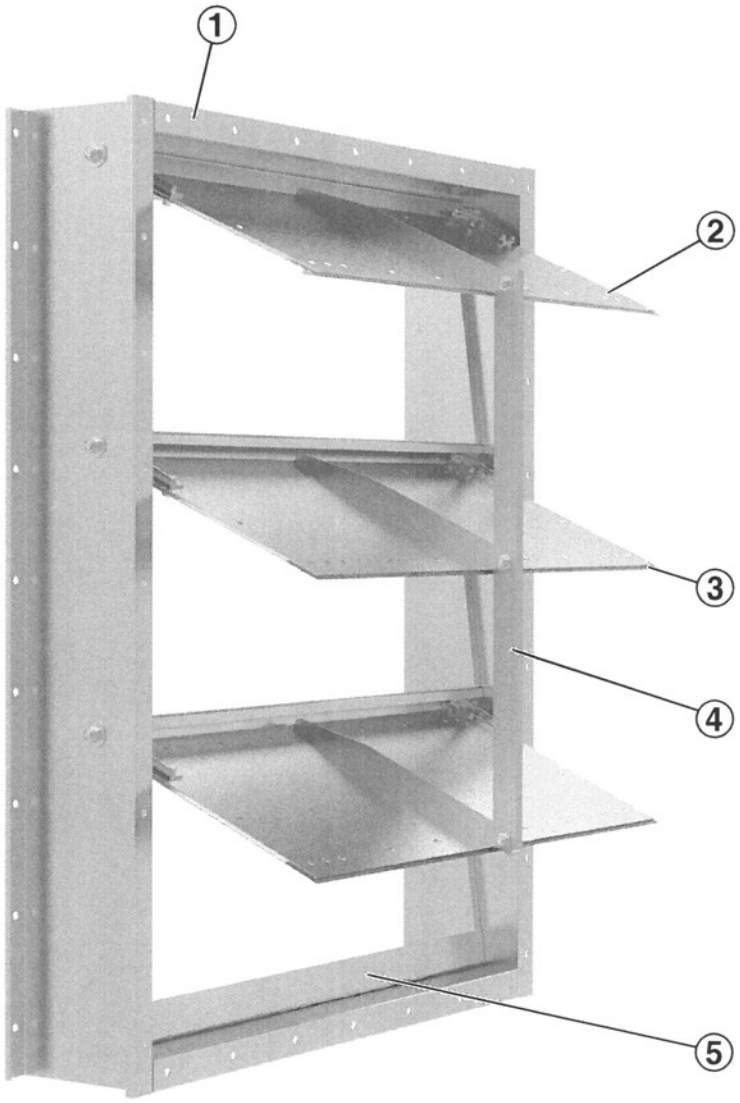
Standards and guidelines
- Closed blade air leakage (against the intended airflow direction) to EN 1751, class 4
- Casing air leakage to EN 1751, class C

Maintenance
- Maintenance-free as construction and materials are not subject to wear
- Contamination should be removed as it may lead to corrosion and to increased closed blade air leakage

Function

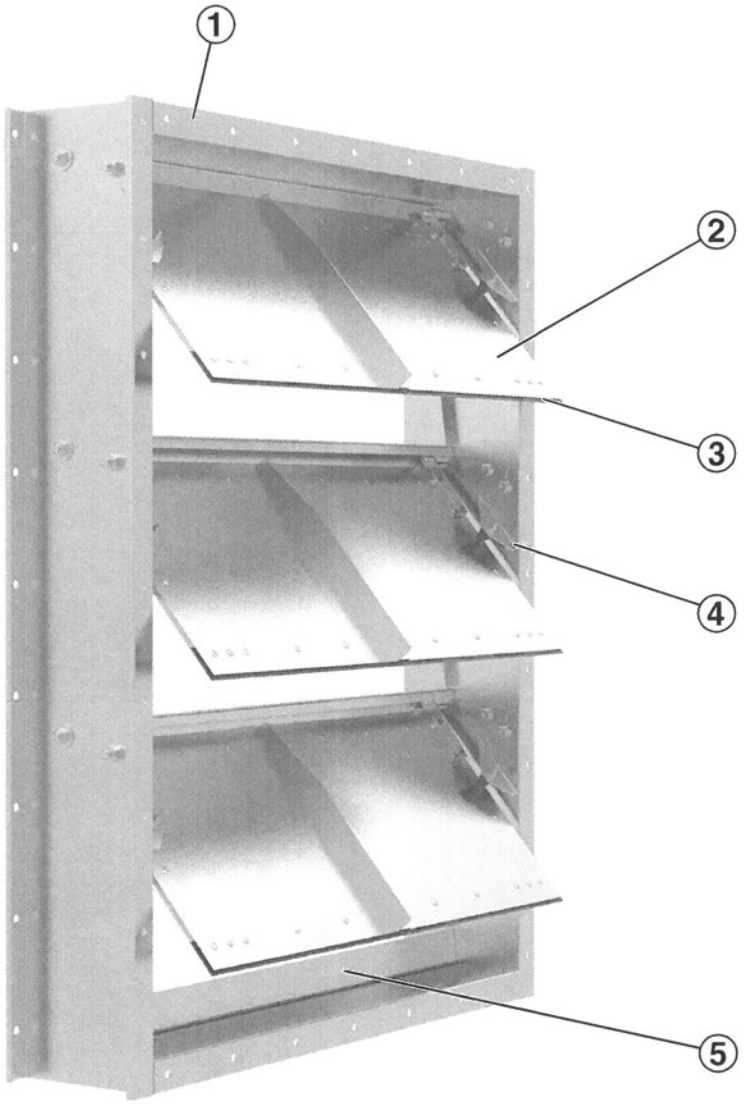
Non-return dampers open and close automatically. When the system is in operation, the blades open when air flows. The blade opening angle depends on the differential pressure and the volume flow rate; for variant ARK-1 the opening angle is limited by adjustable blade restrictors. When the system is shut down, the blades close due to their weight. They safely prevent air from flowing against the intended airflow direction.

Schematic illustration of ARK



① Casing
② Blade
③ Seal
④ Linkage
⑤ Travel stop (angle section)

Schematic illustration of ARK-1



① Casing
② Blade
③ Seal
④ Adjustable blade restrictor
⑤ Travel stop (angle section)

Technical data

Nominal sizes	200 × 345 – 1200 × 1995 mm
Volume flow rate range	690 – 23,950 l/s or 2484 – 86,220 m³/h at 10 m/s
Total differential pressure (horizontal airflow)	115 Pa at 10 m/s
Total differential pressure (vertical airflow)	45 Pa at 10 m/s
Maximum permissible differential pressure in closing direction	5000 Pa
Operating temperature	0 to 80 °C

ARK, free cross-sectional area [m²]

H	B					
	200	400	600	800	1000	1200
345	0.043	0.097	0.152	0.206	0.26	0.314
675	0.088	0.198	0.309	0.419	0.529	0.639
1005	0.133	0.299	0.466	0.632	0.798	0.964
1335	0.178	0.4	0.622	0.845	1.067	1.289
1665	0.223	0.501	0.779	1.058	1.336	1.614
1995	0.268	0.602	0.936	1.271	1.605	1.94

Intermediate sizes: Interpolate values between widths.

Quick sizing

Quick sizing tables provide a good overview of the volume flow rates with an airflow velocity of 10 m/s. Values for intermediate widths can be interpolated.

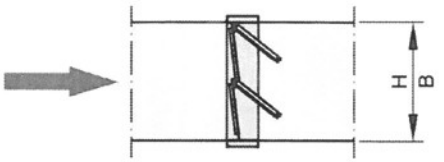
ARK, maximum volume flow rate

H	B											
	200		400		600		800		1000		1200	
	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h
345	690	2484	1380	4968	2070	7452	2760	9936	3450	12420	4140	14904
675	1350	4860	2700	9720	4050	14580	5400	19440	6760	24336	8100	29160
1005	2010	7236	4020	14472	6040	21744	8040	28944	10050	36180	12050	43380
1335	2670	9612	5340	19224	8020	28872	10700	38520	13350	48060	16000	57600
1665	3330	11988	6660	23976	10000	36000	13300	47880	16650	59940	20000	72000
1995	3990	14364	7980	28728	11950	43020	15950	57420	19950	71820	23950	86220

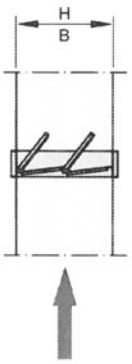
Differential pressure Δp_{st} [Pa]

v [m/s]	Airflow	
	horizontal	vertical
2	50	135
4	75	125
6	95	105
8	110	65
10	115	45

Horizontal airflow



Vertical airflow



Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design program.

Specification text
Rectangular non-return dampers to prevent air from flowing against the intended airflow direction through fresh air and exhaust air ducts of air conditioning systems.
Ready-to-install component which consists of a casing, blades with low-friction bearings, and travel stop and sealing parts.

Special features
- Robust, maintenance-free construction
- Maximum differential pressure: 5000 Pa
- Closed blade air leakage with back pressure, in closing direction, to EN 1751, class 4
- Damper for negative or positive pressure (air extract or discharge)
- Operating temperature 0 to 80 °C
- Optional temperature resistant construction for up to 200 °C, with Viton seal
- Installation in horizontal or vertical ducts
- Maintenance-free DU bearings with Teflon coating, bearing shafts made of stainless steel

Construction
- Galvanised sheet steel, duct connection without flange holes
- A2: Stainless steel
- G: Duct connection with flange holes

Technical data
- Nominal sizes: 200 × 345 to 1200 × 1995 mm
- Volume flow rate range: 690 – 23,950 l/s or 2484 – 86,220 m³/h at 10 m/s
- Total differential pressure (horizontal airflow): 115 Pa at 10 m/s
- Total differential pressure (vertical airflow): 45 Pa at 10 m/s
- Maximum differential pressure in closing direction: 5000 Pa
- Operating temperature: 0 to 80 °C
- Maximum pressure: 5000 Pa

Sizing data
- q_v [m³/h]
- Δp_{st} [Pa]

Air-regenerated noise
- L_{WA} [dB(A)]

Order code

ARK – 1 – A2 – G / 600 × 1005 / ER / P1 – RAL ...
1 2 3 4 5 6 7

1 Type
ARK Non-return damper

2 Blade mechanism
No entry required: linked blades
1 Blades with adjustable restrictors

3 Material
No entry required: galvanised steel, with aluminium blades
A2 Stainless steel with aluminium blades

4 Construction
No entry required: duct connection without flange holes
G Duct connection with flange holes

5 Nominal size [mm]
B × H

6 Installation subframe
No entry required: None
ER With (only for construction G)

7 Surface
No entry required: standard construction
P1 powder-coated, specify RAL CLASSIC colour

Gloss level
RAL 9010 50 %
RAL 9006 30 %
All other RAL colours 70 %

Order example: ARK–1–A2/1000×1995/P1–RAL 7001

Blade mechanism	Blades with adjustable restrictors
Material	Stainless steel with aluminium blades
Construction	Without holes
Nominal size	1000 × 1995 mm
Installation subframe	Without
User interface	Powder-coated, RAL 7001, silver

Variants

Non-return damper, variant ARK

Non-return damper with linkage

ARK

Variant

- Non-return damper with linked blades, preferably for variable volume flows

Nominal sizes
- B: 200, 400, 600, 800, 1000, 1200 mm (intermediate sizes: 201 – 1199 mm, in increments of 1 mm)
- H: 345, 675, 1005, 1335, 1665, 1995 mm (intermediate sizes 355 – 505, 685 – 835, 1015 – 1165, 1345 – 1495, 1675 – 1825 mm in increments of 1 mm)
- Any combination of B × H

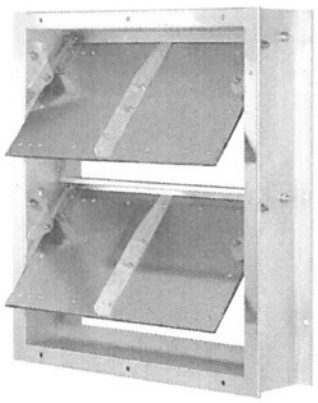
Parts and characteristics
- Ready-to-install non-return damper
- Blades with low-friction bearings
- Seal
- Travel stop (angle section)
- Linkage

Construction features
- Rectangular casing, material thickness 2 mm
- Blades, material thickness 3 mm
- Flanges on both sides, suitable for duct connection, with or without flange holes
- Linkage for synchronous blade movement
- Blades with perimeter seal, pressed against travel stop (angle section) when closed
- Blade shafts with maintenance-free plastic bearings

Materials and surfaces
- Casing and travel stop (angle section) made of galvanised sheet steel, material no. EN 10346-DX51D+Z140-200
- A2 construction: Casing and travel stop (angle section) made of stainless steel, material no. 1.4301
- Blades and linkage made of aluminium, material no. AlMg3
- Blade holders made of stainless steel, material no. 1.4301
- Blade shafts made of stainless steel, material no. 1.4104
- Plastic bearing made of PPS

- Neoprene seals
- P1: Powder-coated, RAL CLASSIC colour
- PS: Powder-coated, DB colour

Non-return damper, variant ARK-1



Non-return damper with adjustable blade restrictor

ARK-1

Variant

- Non-return damper with adjustable blade restrictors, preferably for constant volume flows

Nominal sizes
- B: 200, 400, 600, 800, 1000, 1200 mm (intermediate sizes: 201 – 1199 mm, in increments of 1 mm)
- H: 345, 675, 1005, 1335, 1665, 1995 mm (intermediate sizes 355 – 505, 685 – 835, 1015 – 1165, 1345 – 1495, 1675 – 1825 mm in increments of 1 mm)
- Any combination of B × H

Parts and characteristics
- Ready-to-install non-return damper
- Blades with low-friction bearings
- Seal
- Travel stop (angle section)
- Two adjustable restrictors per blade

Construction features
- Rectangular casing, material thickness 2 mm
- Blades, material thickness 3 mm
- Flanges on both sides, suitable for duct connection, with or without flange holes
- Restrictors, adjustable from the outside, to limit the opening angle for each blade
- Blades can be moved independently of one another
- Blades with perimeter seal, pressed against travel stop (angle section) when closed
- Blade shafts with maintenance-free plastic bearings

Materials and surfaces
- Casing and travel stop (angle section) made of galvanised sheet steel, material no. EN 10346-DX51D+Z140-200
- A2 construction: Casing and travel stop (angle section) made of stainless steel, material no. 1.4301

- Blades made of aluminium, material no. AlMg3
- Blade holders and restrictors made of stainless steel, material no. 1.4301
- Blade shafts made of stainless steel, material no. 1.4104
- Plastic bearing made of PPS
- Neoprene seals
- P1: Powder-coated, RAL CLASSIC colour
- PS: Powder-coated, DB colour

Dimensions

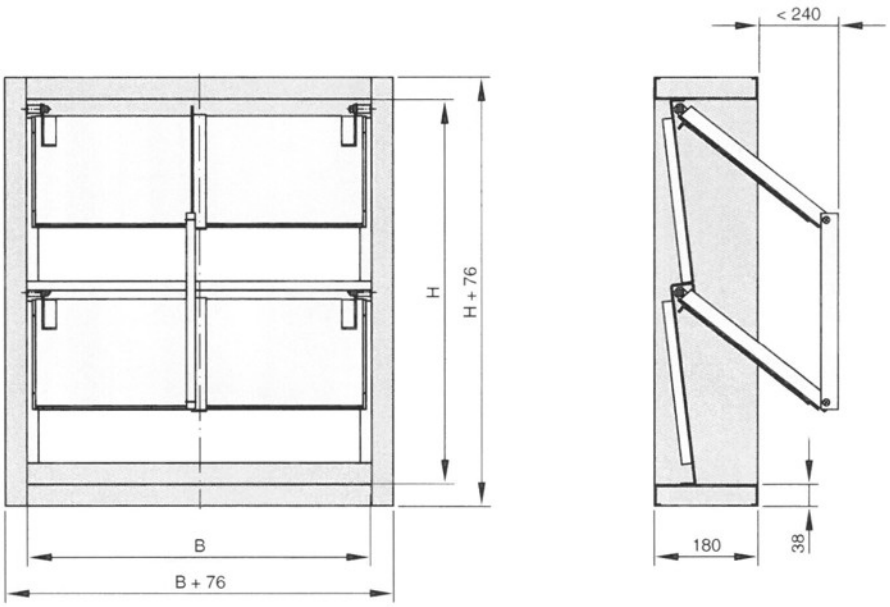
- B: 200 – 1200 mm, intermediate sizes 201 – 1199 in increments of 1 mm
- H: 345 – 1995 mm, intermediate sizes 355 – 505, 685 – 835, 1015 – 1165, 1345 – 1495, 1675 – 1825 mm in increments of 1 mm
- The weight for the next larger size applies

Flow cross section to calculate the airflow velocity

- A = B × H

Unit of measure for B and H: m

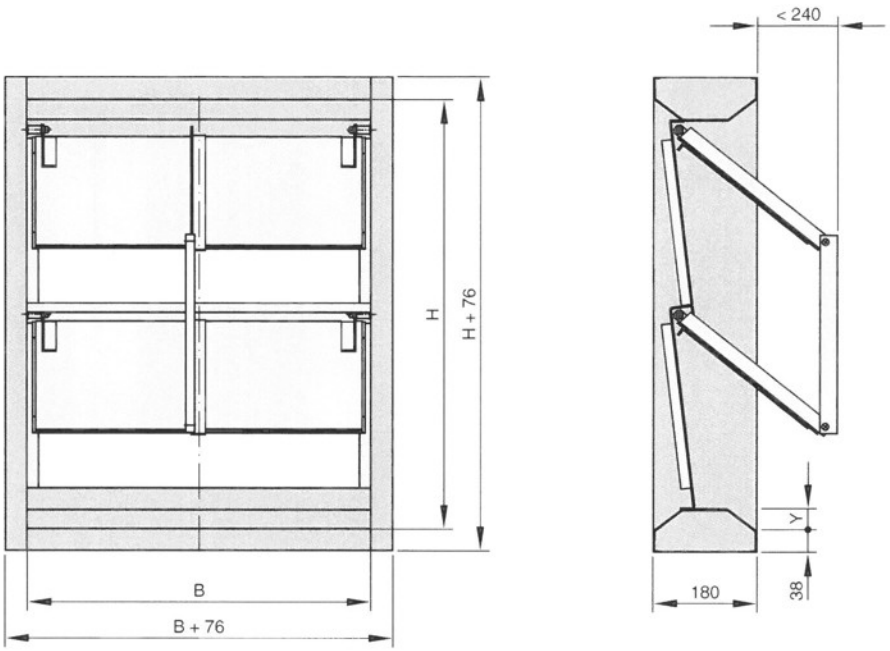
ARK, standard sizes



ARK: Standard sizes, dimensions

H	No. of blades	No. of coupling rods
345	1	
675	2	1
1005	3	1
1335	4	2
1665	5	2
1995	6	2

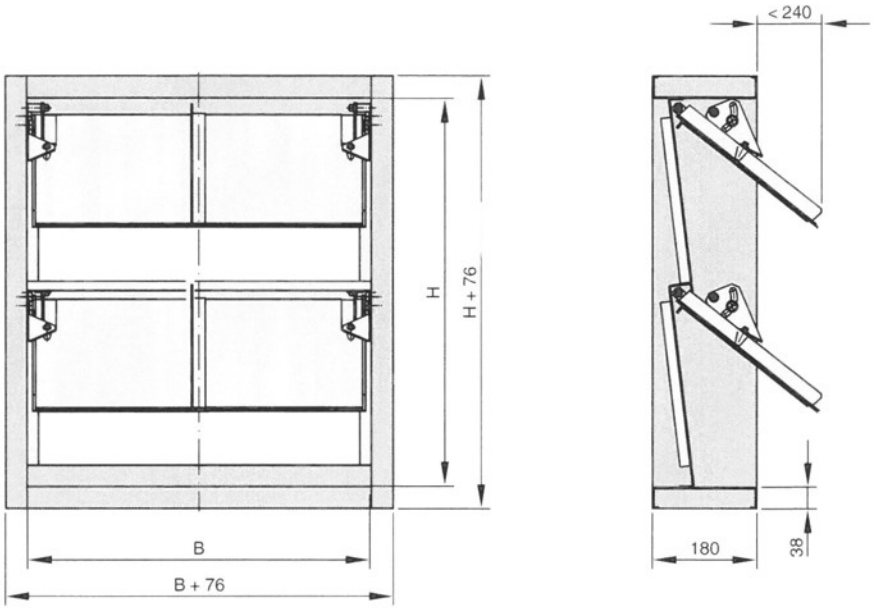
ARK, intermediate sizes



ARK: Intermediate sizes, dimensions

H	No. of blades	No. of coupling rods	Y
355 – 505	1	0	5 – 80
685 – 835	2	1	5 – 80
1015 – 1165	3	1	5 – 80
1345 – 1495	4	2	5 – 80
1675 – 1825	5	2	5 – 80

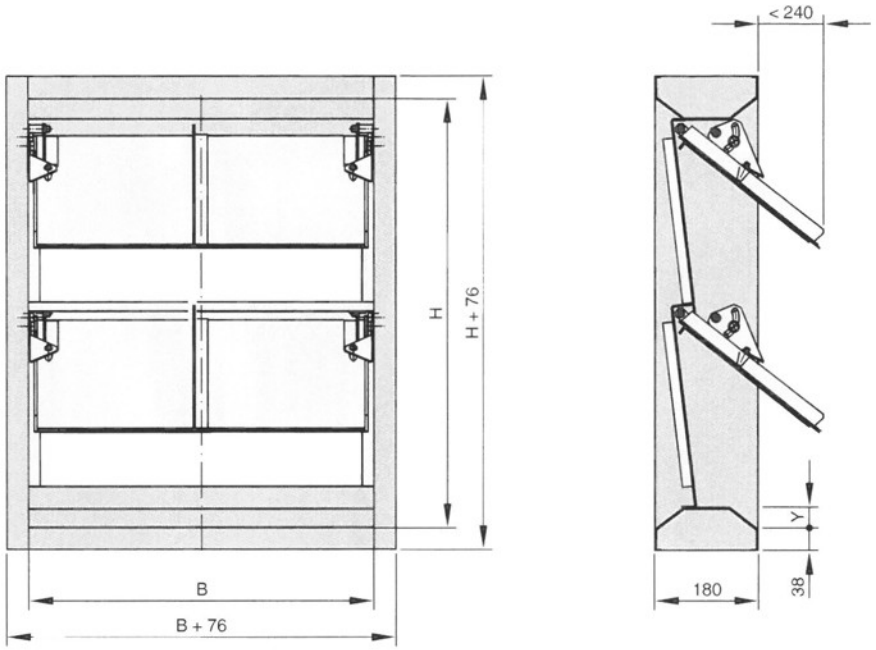
ARK-1, standard sizes



ARK-1: Standard sizes, dimensions

H	No. of blades
345	1
675	2
1005	3
1335	4
1665	5
1995	6

ARK-1, intermediate sizes



ARK-1: Intermediate sizes, dimensions

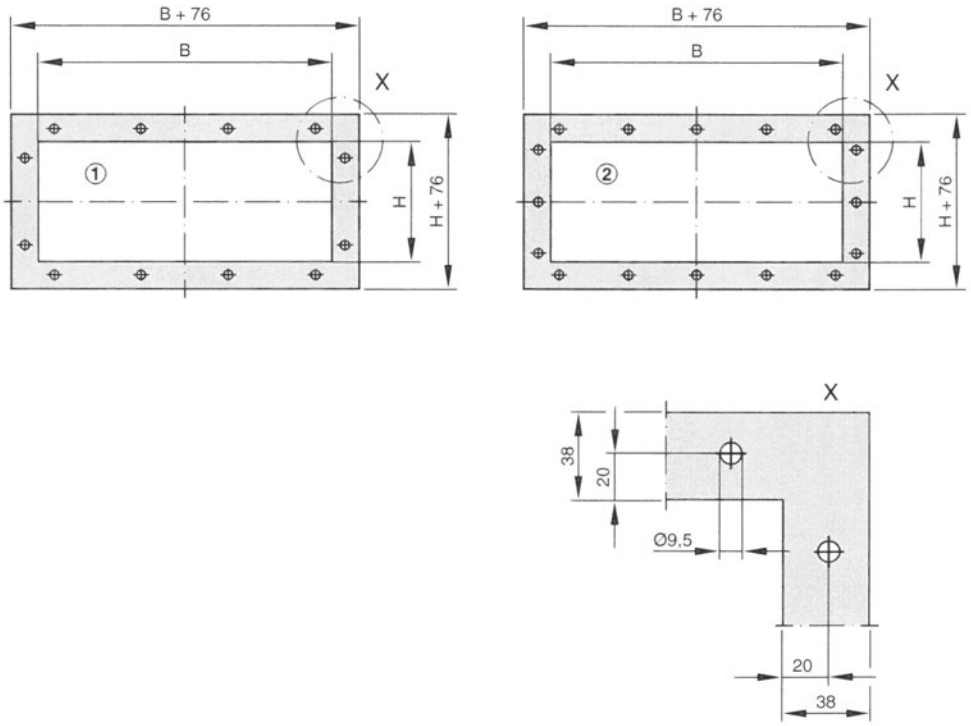
H	No. of blades	Y
355 – 505	1	5 – 80
685 – 835	2	5 – 80
1015 – 1165	3	5 – 80
1345 – 1495	4	5 – 80
1675 – 1825	5	5 – 80

ARK, ARK-1, weights [kg]

H	B					
	200	400	600	800	1000	1200
345	8	10	12	15	18	21
675	12	16	19	23	27	32
1005	17	22	26	31	36	41
1335	22	28	33	39	45	51
1665	27	34	40	47	54	61
1995	32	40	47	55	63	71

Product details

Flange holes, ARK



① Even number of holes (hole pitch = 250 mm)
② Uneven number of holes (hole pitch = 250 mm)

ARK, ARK-1, ARK2: width, no. of flange holes

H	Number of holes n
200 – 287	1
288 – 537	2
538 – 787	3
788 – 1037	4
1038 – 1200	5

ARK, ARK-1, ARK2: height, no. of flange holes

H	Number of holes n
345 – 461	2
462 – 711	3
712 – 961	4
962 – 1211	5
1212 – 1461	6
1462 – 1711	7
1712 – 1961	8
1962 – 1995	9

Installation and commissioning

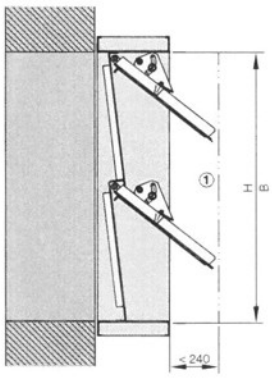
ARK

- Installation orientation: Horizontal airflow, any airflow direction; or vertical airflow with airflow from bottom to top
- Only for installation in internal spaces

ARK-1

- Installation orientation: Horizontal airflow, any airflow direction; or vertical airflow with airflow from bottom to top
- Only for installation in internal spaces
- Adjusting the restrictors to limit the opening angle for each blade

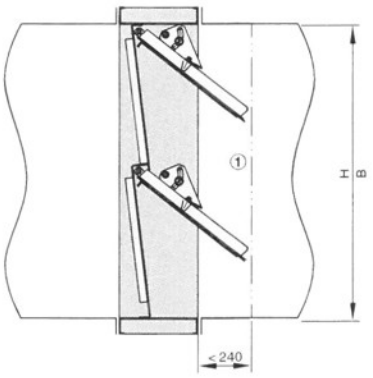
Installation into an internal wall, without installation subframe



① Blade movement area must be kept clear

Illustration shows ARK-1

Duct installation



① Blade movement area must be kept clear

Illustration shows ARK-1

Nomenclature

Definitions

L_{WA} [dB(A)]
Sound power level of air-regenerated noise for the mechanical self-powered damper, A-rated

A [m²]
Upstream cross section

v [m/s]
Airflow velocity based on the upstream cross section

q_v [m³/h]; [l/s]
Volume flow rate

Δp_{st} [Pa]
Static differential pressure

Δp_t [Pa]
Total differential pressure

Principal dimensions

B [mm]
Duct width

H [mm]
Duct height

n [ ]
Number of flange screw holes

m [kg]
Weight

Lengths
All lengths are given in millimetres [mm] unless stated otherwise

Декларация на производител

Тип	ARK
Продукт	Обратна клапа
Производител	TROX GmbH Heinrich-Trox-Platz • 47504 Neukirchen-Vluyn • Germany Phone +49(0)2845 2020 • Fax +49(0)2845 202265 E-Mail trox-de@troxgroup.com • Internet www.troxtechnik.com
Продукти, освободени от маркировка поради липса на приложими хармонизирани стандарти	
Технически правила	РЕГЛАМЕНТ НА ЕО № 765/2008 Член 30 "Общи принципи на маркировката CE"

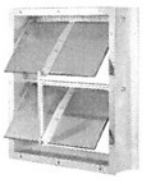
Понастоящем не съществуват хармонизирани стандарти (Директива на ЕО) за и приложими за продуктите, изброени по-горе. Следователно не е възможно да се приложи CE маркировка или да се издаде ЕС декларация за съответствие по правни причини.

Маркировката, както е представена в допълнение II, се нанася само върху продукти, върху които нейното поставяне е предвидено от специално законодателство на Общността за хармонизация, и не се нанася върху други продукти.

Neukirchen-Vluyn, the 11.01.2022

Dipl.-Ing. Jan Heymann
Мениджър управление на качеството

Manufacturer's statement



Type	ARK
Product	Mechanical self-powered damper
Manufacturer	TROX GmbH Heinrich-Trox-Platz • 47504 Neukirchen-Vluyn • Germany Phone +49(0)2845 2020 • Fax +49(0)2845 202265 E-Mail trox-de@troxgroup.com • Internet www.troxtechnik.com
Products exempt from marking due to lack of applicable harmonised standards	
Technical rules	EC REGULATION No. 765/2008 Article 30 "General principles of the CE marking"

At present, no harmonised standards (EC Directive) are available for and applicable to the products listed above. Consequently, it is not possible to apply a CE mark or issue an EC declaration of conformity, for legal reasons.

The marking as presented in Appendix II shall be affixed only to products to which its affixing is provided for by specific Community harmonisation legislation, and shall not be affixed to any other product.

Neukirchen-Vluyn, the 11.01.2022

Dipl.-Ing. Jan Heymann
Manager quality management

Йотова, Цветелина А.

From: Богоева, Юлия К.
Sent: 20 юни 2025 г. 13:07
To: Йотова, Цветелина А.
Cc: Александров, Пламен Г.; Лазарова, Милена Т.
Subject: FW: ПК 55858. Доставка на гравитационни клапани за хоризонтален монтаж към въздуховодната мрежа на вентилатори 5UW79D81,D82,D83; 6UW79D81,D82,D83
Attachments: BG0251128-AT4092185-001-P.pdf; IM_2018_10_A00000053072_UL_KUL_WG-KUL_ARK-1_V2_GB_en.pdf; LC_v1_2023_11_DE_en--3-.pdf; ARK_PD_2022_02_22 _DE_en.pdf; ARK_NotCE_2022_02_08_14_43_11_DE_en- BG.pdf; ARK_NotCE_2022_02 _08_14_43_11_DE_en.pdf

Importance: High

ВХ-Е-4119/20.06.2025

From: Ivanov, Delyan <Delyan.Ivanov@troxgroup.com>
Sent: Friday, June 20, 2025 11:37 AM
To: commercial <commercial@npp.bg>
Cc: TROX BG, Office <trox-bg@troxgroup.com>
Subject: ПК 55858. Доставка на гравитационни клапани за хоризонтален монтаж към въздуховодната мрежа на вентилатори 5UW79D81,D82,D83; 6UW79D81,D82,D83
Importance: High

Здравейте колеги,

Относно горната пазарна консултация, приложено изпращаме ви офертата на TROX, както и съответните документи за ARK клапите.

Относно сеизмичното изпитване и съответния сертификат:

1. Клапите ARK не са изпитвани сеизмично и нямат този сертификат.

2. Цената за сеизмично изпитване и издаване на съответния сертификат съгласно изискванията в **„Техническа Спецификация №23.ЕП-2.ТЗ.1335“** е 15 000 евро. (с думи петнадесет хиляди евро). Офертата за това изпитване и сертифициране получихме преди малко и моля да ни извините забавянето на офертата ни към вас.

Ако имате въпроси оставаме на ваше разположение.

Сърдечни поздрави / Kind Regards

Delyan Ivanov
Мениджър продажби / Sales Manager

TROX Austria GmbH
Rep. Office Bulgaria

123 Rakovski Str.
1000 Sofia, Bulgaria

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