VENTS WORLD VENTILATION LEADER

VENTILATION SYSTEMS
www.ventilation-system.com

Smoke Extraction and Ventilation

VENTS reserves the rights to modify any of its products' features, designs, components and specifications at any time and without notice to maintain the development and quality of manufactured goods.

05/2016

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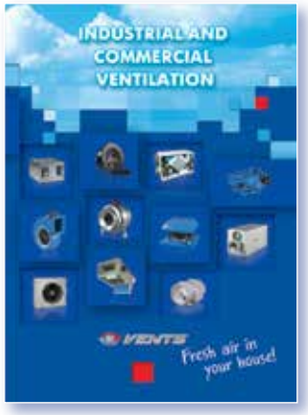
FIRE SAFETY PRODUCTS
SMOKE EXTRACT FANS
FIRE AND SMOKE DAMPERS

VENTS

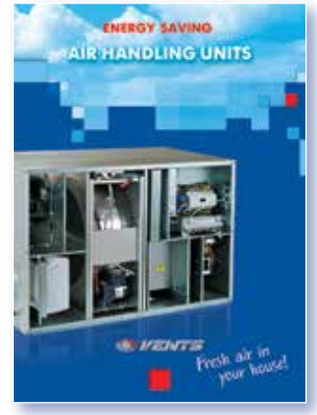
Fresh air in your house!

2016



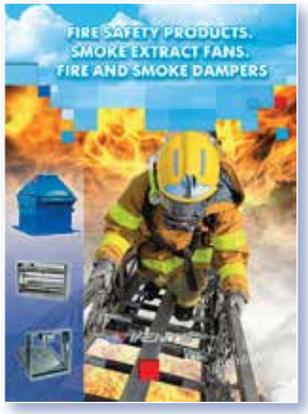
Industrial and commercial ventilation (Catalogue no. 1)

Industrial and commercial ventilation components - fans for round and rectangular ducts, sound-insulated, axial and roof fans, air handling units with heat recovery, air heating units, accessories.



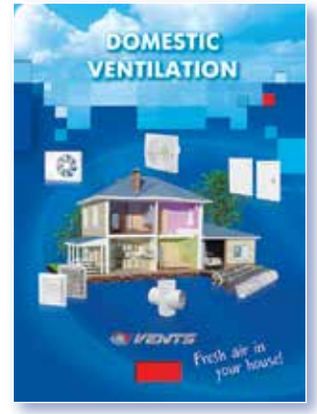
Energy saving ventilation Air handling units (Catalogue no. 2)

Energy saving supply and exhaust units and air handling units with heat recovery with air capacity up to 6500 m^3/h.



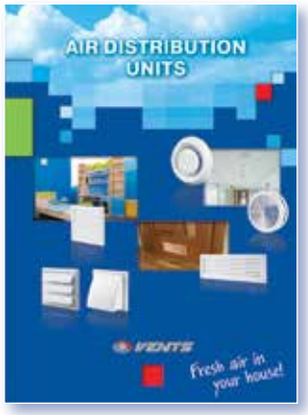
Smoke removal and ventilation (Catalogue no. 5)

Smoke protection systems of buildings and premises.



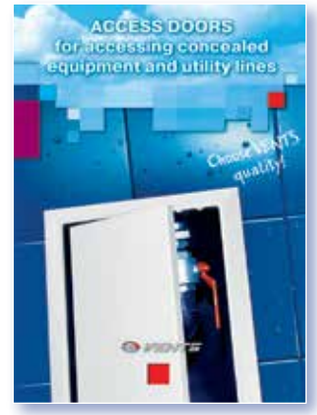
Domestic ventilation (Catalogue no. 6)

Domestic ventilation: fans, mono-pipe exhaust kitchen and bathroom fans, air distribution units, air ducts and fittings, access doors, ventilation kits.



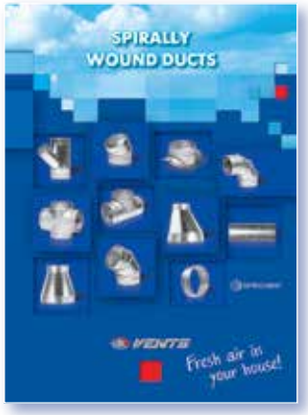
Air distribution units (Catalogue no. 9)

Plastic and metal air distribution products (grilles, disk valves, diffusers, etc.) for ventilation, air conditioning and heating.



Access doors (Catalogue no. 10)

Plastic and metal access doors for accessing concealed equipment and utility lines. Special offers for ceramic tiles.



Spiral seam air ducts (Catalogue no. 13)

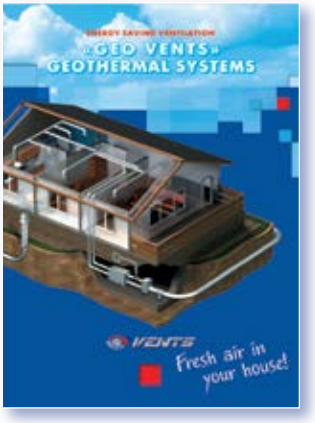
SPIROVENT spiral seam vent ducts and fittings of 100 to 1600 mm diameter.

Flexible ducts and fittings for ventilation, air conditioning and heating (Catalogue no. 14)

Flexible and semi-flexible air ducts made of polymeric materials, aluminium, galvanized or stainless steel, metal fittings for ventilation, air conditioning, heating, gas handling and abrasive particles aspiration.

Air handling units AIRVENTS (Catalogue no. 3)

Energy saving air handling units with air capacity up to 40 000 m^3/h, for use in large residential, industrial and commercial objects.

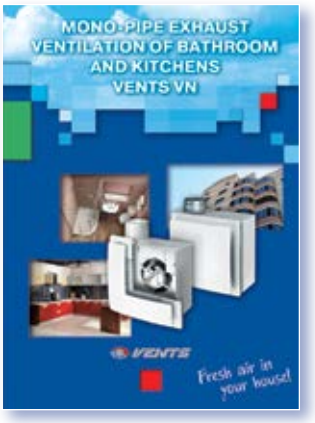


Energy saving ventilation Geothermal systems GEO VENTS (Catalogue no. 4)

Energy saving system GEO VENTS with use of the earth's surface layers heat.
High ventilation system energy efficiency and low operating costs.

Domestic fans (Catalogue no. 7)

Domestic fans with air capacity up to 365 m^3/h with extra functions: timer, humidity sensor, motion sensor, etc.
Applied for premises up to 30 m^2.



VENTS VN Mono-pipe exhaust ventilation (Catalogue no. 8)

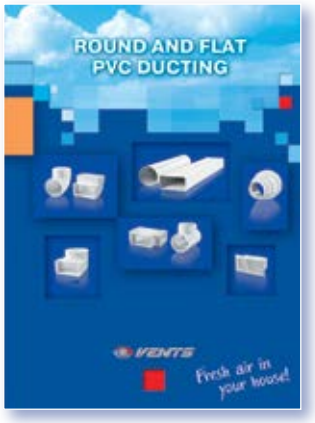
Exhaust ventilation in houses with mono-pipe ventilation system based on VENTS VN fans.

Plastic grilles for ventilation and air conditioning (Catalogue no. 11)

PROFIPLAST extruded plastic grilles for ventilation and air conditioning.

Metal grilles for ventilation, air conditioning and heating (Catalogue no. 12)

Metal grilles made of extruded metal profile for ventilation and air conditioning.



Flat and round PVC air ducts (Catalogue no. 15)

Flat and round PVC ducts PLASTIVENT for ventilation of residential, office and commercial premises and connection of exhaust ventilation equipment (kitchen extractors, hoods, exhaust boxes, etc).
Wide product range of fittings.

Energy saving ventilation. Single room energy recovery ventilators. (Catalogue no.16)

Single room reverse ventilators with energy regeneration for efficient ventilation and lowest investments in ready-built and brand new premises.

2016 CATALOGUES

VENTS

CONTENTS

WELCOME TO THE VENTS WORLD!

VENTS company was founded in the nineties of the XXth century.

Dynamic development of the enterprise and ongoing study of the consumer demand enabled rapid international leadership of the company in the ventilation industry.

VENTS is a powerful research and development enterprise with 2500 professionals working as a single team to ensure a full production cycle from idea to end product. The production base of the company is located at more than 60 000 m² area. It includes 16 workshops equipped under the latest international standards and each of them is comparable to a separate plant.

Modern equipment, active implementation of advanced technologies and highly automated production are the characteristic features of VENTS company. The company undergoes rapid dynamic development; fundamental researches and effective designs in climatic equipment industry are in the focus of the company's business strategy.

The joint cooperation of the corporate design department, test laboratories and production workshops let us introduce high quality products to the market.

Special attention is paid to the manufacturing of the goods during all manufacturing stages including monitoring of the technological conditions. Technical characteristics of supplied raw materials are thoroughly checked.

Quality control system which meets international standard requirements ISO 9001:2000 was implemented at the enterprise.

Environmental protection is one of the basic components of the corporate The technological process at the enterprise is arranged in such a way as to exclude any negative impact to the environment. To solve the global energy saving problem we develop a special climatic equipment that provides comfortable conditions for people and reduces the energy demand significantly.

Perfect quality, competitive prices, high production potential, technical capabilities and the wide product range stimulate long-term partnership and product promotion all over the world.

The VENTS ventilation products are exported to more than 90 countries and are sold through the distribution network of 120 companies worldwide. The global share of the VENTS products is above 10%.

VENTS is a member of high-rank international organizations, the leading HVAC experts.

Since 2008 VENTS has been a fully-featured member of HARDI Association (Heating, Air-conditioning and Refrigeration Distributors International, USA).

Since 2010 VENTS has been a participant of AMCA Association (the Air Movement and Control Association (AMCA) International, Inc.). In 2011 VENTS successfully passed tests for compliance with AMCA standards and the VENTS products were certified for the USA market.

In 2011 VENTS joined HVI (Home Ventilation Institute, USA) Association.


Metal processing workshop


Spiral air ducts workshop


Flexible air ducts workshop


Aluminium grilles and diffusers workshop


Powder coating workshop


Wet coating workshop


Extrusion workshop


Injection moulding workshop


Residential fans workshop


Ventilation grilles workshop


Electric motors workshop


Industrial fans workshop


Air handling units workshop


AirVents air handling unit workshop


Electrical accessories workshop


Extruded grilles workshop

Powerful production facilities, high automation level, active implementation of innovative technologies in the production process made VENTS a worldwide ventilation leader.

We manufacture our products with respect to unique geographical, climatic, technical features of each country and do our best to fulfil the client's wishes anywhere anytime.

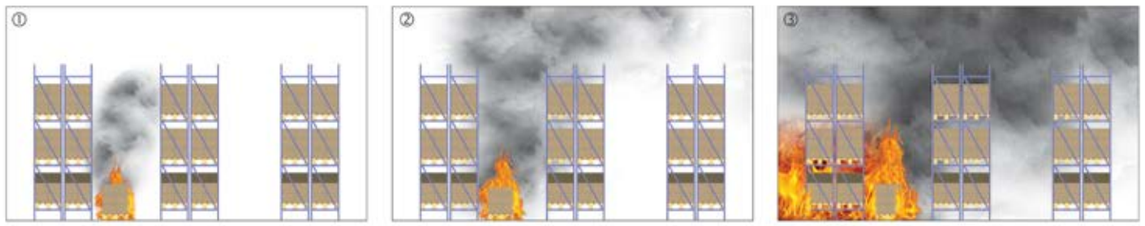
Get benefit from cooperation with VENTS™ and enjoy the maximum range of products of the top quality from one manufacturer.

Smoke control is a complex process involving smoke extraction and fresh air supply by the supply and extract ventilation system of buildings in order to ensure safe evacuation of people in case of a fire in any of the spaces.

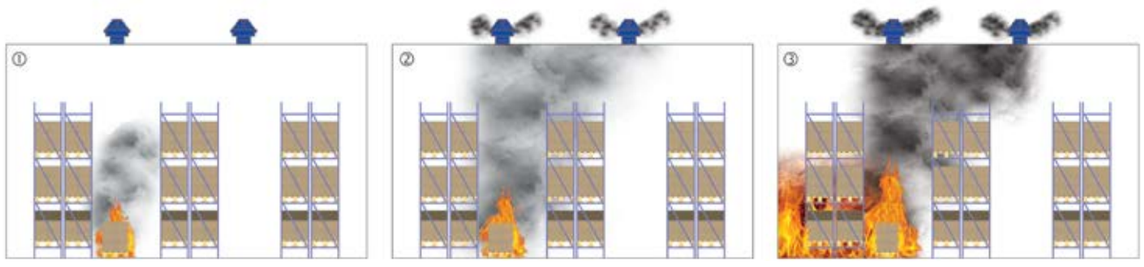
The **smoke control system** of a building or structure must ensure protection of people along the evacuation paths from the fire hazards during the time required for the personnel evacuation procedure or the entire period of fire development and control by means of extracting the combustion and thermal decomposition products and/or preventing their spreading. A smoke control system is an integral element of a utility system design including all kinds of high-rise structures, shopping and office centres, hospital facilities, production and storage spaces etc. as well as underground structures.

According to conclusive evidence the majority of mortalities in a fire are caused by poisoning from carbon monoxide and other combustion products. Carbon monoxide is one of the most toxic smoke components. It is carbon monoxide poisoning that accounts for 80% the fire accident causes. Fires in closed spaces where oxygen supply is limited are especially prone to intensive carbon monoxide generation. Carbon monoxide poisoning occurs when its concentration in the inspiratory air exceeds 0.08%. Concentration growth up to 0.32 % results in paralysis and loss of consciousness (with imminent death in about 30 minutes). Concentrations in excess of 1.2% lead to loss of consciousness after 2-3 aspirations whereas another 2-3 minutes are fatal. Smoke spreads much faster than fire, therefore causing loss of consciousness and cardiac arrest before the victim reaches the safety outdoors. Furthermore, smoke contamination impacts spatial orientation forcing the victim to negotiate obstacles by touch and, quite often, to diverge from the escape paths.

Fire in a Building Without a Smoke Control System



Fire in a Building Equipped with a Smoke Control System



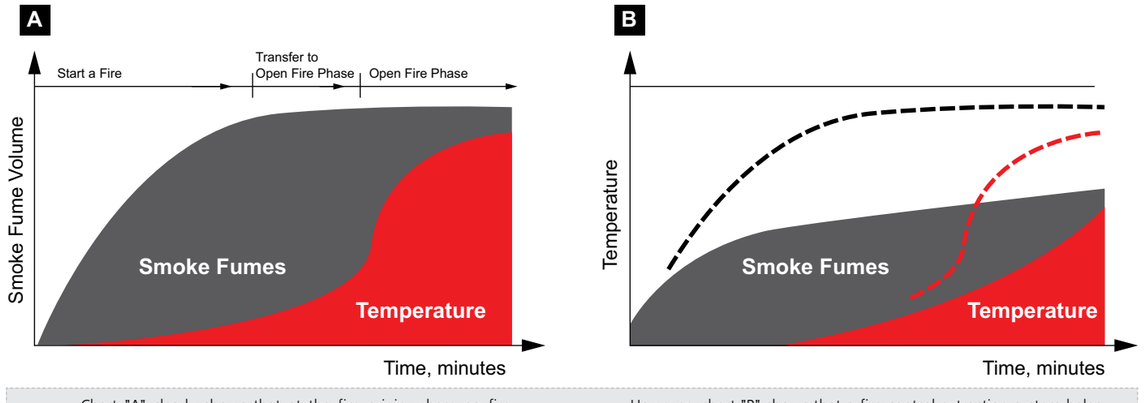


Chart "A" clearly shows that at the fire origin where no fire control systems are present the smoke fume volume rapidly becomes critical.

However, chart "B" shows that a fire control extraction system helps to significantly reduce the content of smoke in the gas environment which remains below the safety threshold during the entire duration of fire.

Smoke control system functions:

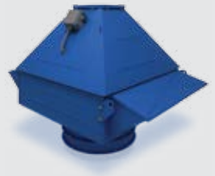
- Prevention of smoke spreading from the ignition source.
- Prevention of smoke transfer to the evacuation paths (maintaining acceptable conditions for the people being evacuated from the building).
- Maintaining a microclimate beyond the ignition source area to enable normal operation of fire-fighting teams.
- Protecting the life of people in the building.
- Protecting the property against damage.

The smoke control system elements are integrated at the initial phase of the building (residential complex, office block, warehouse facility etc.) construction. These communications must be contained in the design engineering documents specific to the life-support system. All the works specific to the design and installation of smoke control systems are strictly covered by the applicable construction standards and regulations.

Smoke control plays a paramount role in making a building safe and ensuring compliance with any and all fire safety standards and regulations. Purpose-built smoke exhaust duct lines provide additional safety and enable easy evacuation of people using corridors and stairs which are completely free of hazardous fumes.

Smoke control is a complex process affected by numerous conditions and factors, and, therefore, the design of such communication systems requires an expert qualification. Smoke control systems must only be designed by professionals since any disregard of the commonly accepted state regulations may lead to human casualties.

A smoke control systems consist of:

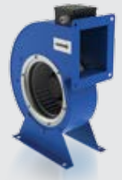


Smoke exhaust fans which are used in emergency exhaust ventilation systems for forced extraction of smoke and heated gases and simultaneous transfer of heat generated by the fire away and beyond the limits of the serviced spaces where the ignition occurs. Such units are used in production, public, residential, administrative and other spaces. Such fans are capable of handling smoke and air mixtures with temperatures up to 600 °C.

Smoke dampers installed on the protected premises accept smoke fumes and channel them into smoke shafts. Such devices are equipped with electromagnetic or electric actuators. The dampers are rated according to the fire-resistance limit which can vary up to 180 minutes at the smoke temperature of 600 °C.

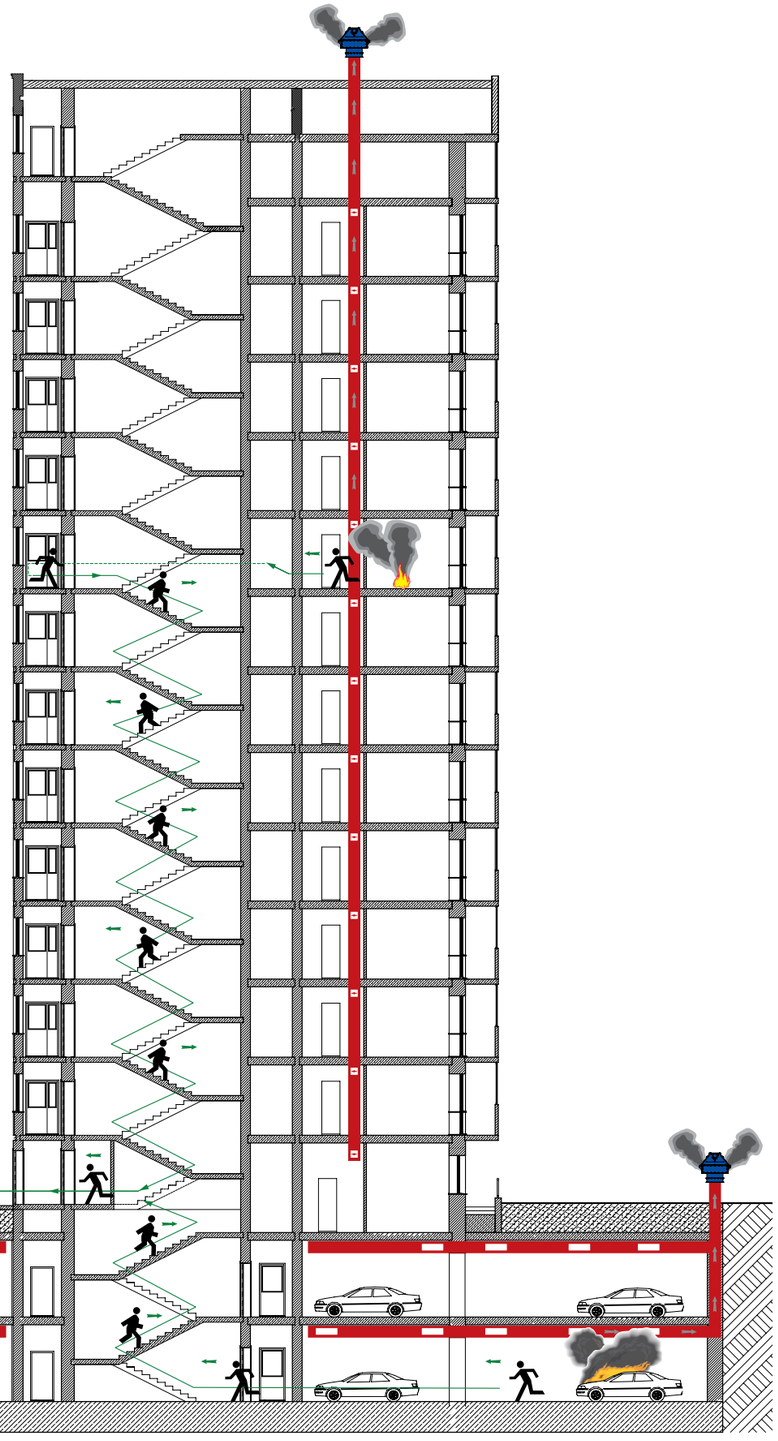
Fire-resisting dampers are installed in exhaust ventilation and general ventilation systems to prevent the spread of fire hazards (fire and smoke fumes). Such units are equipped with an electric actuator or a thermal lock.

Ventilation air ducts and shafts are intended for transferring smoke fumes from the protected premises away from the building. Air ducts are made of non-combustible materials.



Pressurization fans are intended for creating a positive pressure differential in lift shafts, at landings and in air-lock corridors to prevent their contamination by smoke.

Sample scheme and operation of a smoke-extraction system in a multi-storey residential building with an underground car park:



Typical Smoke Control System Solution

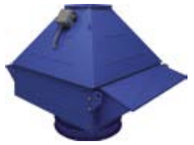
In case of a fire on Floor 2:

Ventilation system: fire-resisting dampers KP ③ and ④ block the floor 2 (closed), thus containing the fire and smoke at the ignition floor, fire-resisting dampers KP ② and ⑥ remain open enabling pressurisation of the adjacent floors 1 and 3 by the supply ventilation system while fire-resisting dampers KP ① and ⑤ in the exhaust ventilation branch remain closed.

Smoke control system: smoke extraction is handled by the VKDV (VKDH) fan via the open KPDU ⑪ damper, the supply air is fed from the air pressurisation system via the open damper ⑧ while dampers ⑦, ⑨, ⑩ and ⑫ remain closed.

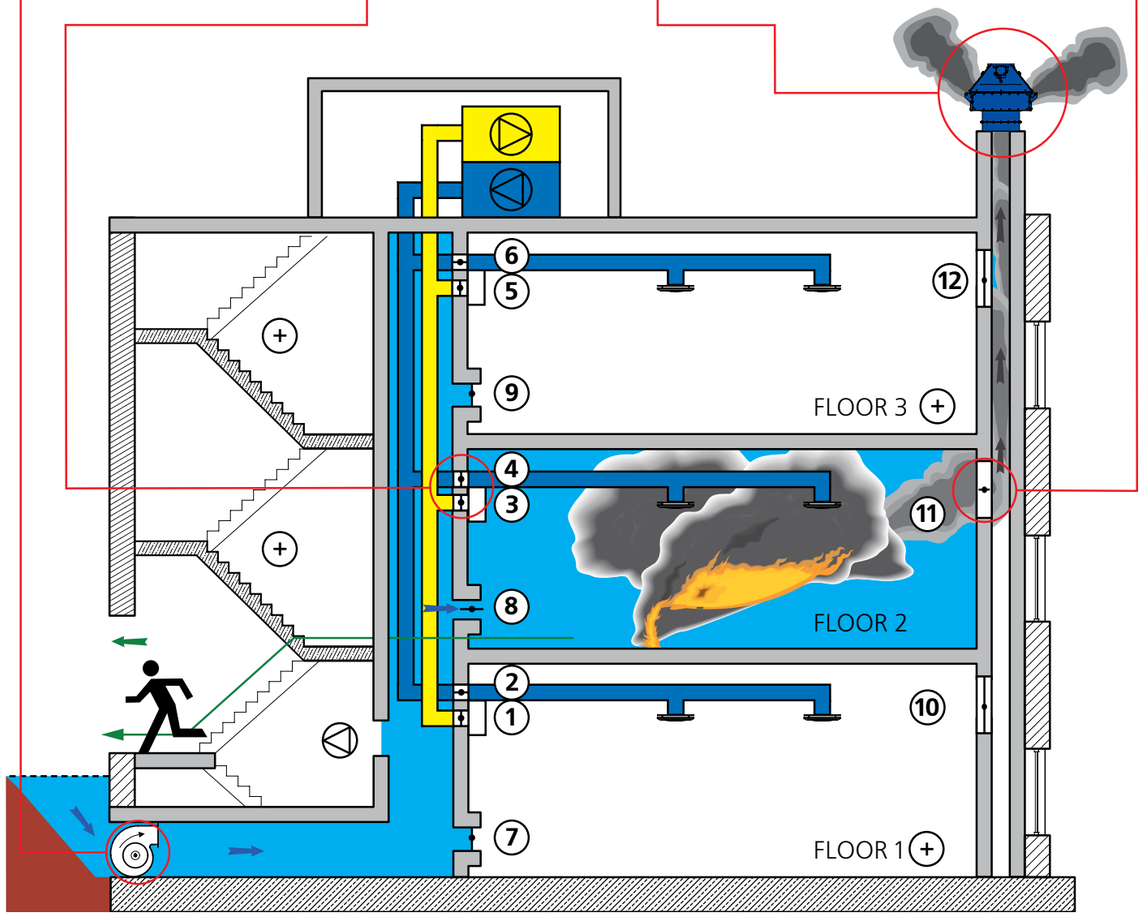
Pressurisation Fan

Fire-Resisting Damper KP



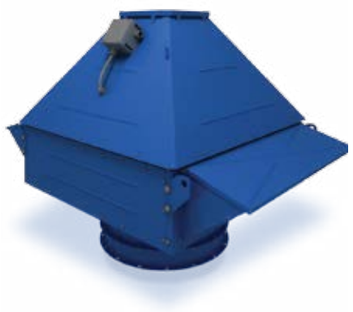
Smoke Exhaust Fan VKDV(H)

Smoke Exhaust Damper KPDU



ROOF-MOUNTED SMOKE REMOVAL FANS

Series
VKDV



Roof-mounted centrifugal fan for smoke removal with vertical air discharge

Series
VKDH

Roof-mounted centrifugal fan for smoke removal with horizontal air discharge

Applications
Used in emergency air extract systems and are designed for mechanical removal of smoke, hot gases and withdrawal of heat outside of the serviced premise in case of fire. Recommended for use in industrial, public, residential, administrative and other premises.

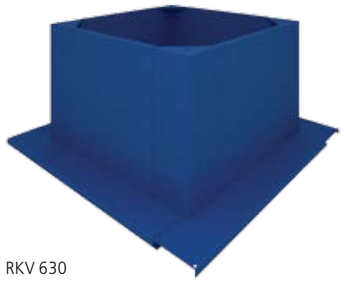
Operation
The fan is rated for removal of smoke and air mixtures up to +600 °C within 120 minutes. The fan is allowed to use for general exhaust ventilation if the minimum rotation speed is equal to 25% of the maximum air capacity. The fan is designed for operation in moderate and tropical climatic areas.

Design
The fan is made of polymer coated heat-resistant steel that enables its outdoor application and resistance to aggressive media.
The roof-mounted smoke removal fan models are available with horizontal air discharge (VKDH models) and vertical air discharge (VKDV models).
The fan with vertical air discharge is equipped with a backdraft damper. The protecting grille prevents accidental contact and ingress of foreign objects.

Motor
The fan is equipped with a three-phase electric motor rated for connection to 400 V power mains. The motor is installed in a heat-insulated section and is placed off the transported air flow. The impeller with forward curved blades is made of galvanized steel.

Mounting
The fan is suitable for installation on any roof type. Sufficient service access must be provided for the fan maintenance.

Accessory: Mounting frame RKV. The mounting frame is designed for mounting of the fan on a flat roof.



RKV 630
RKV 710-800
RKV 900
RKV1000-1100

Designation key:

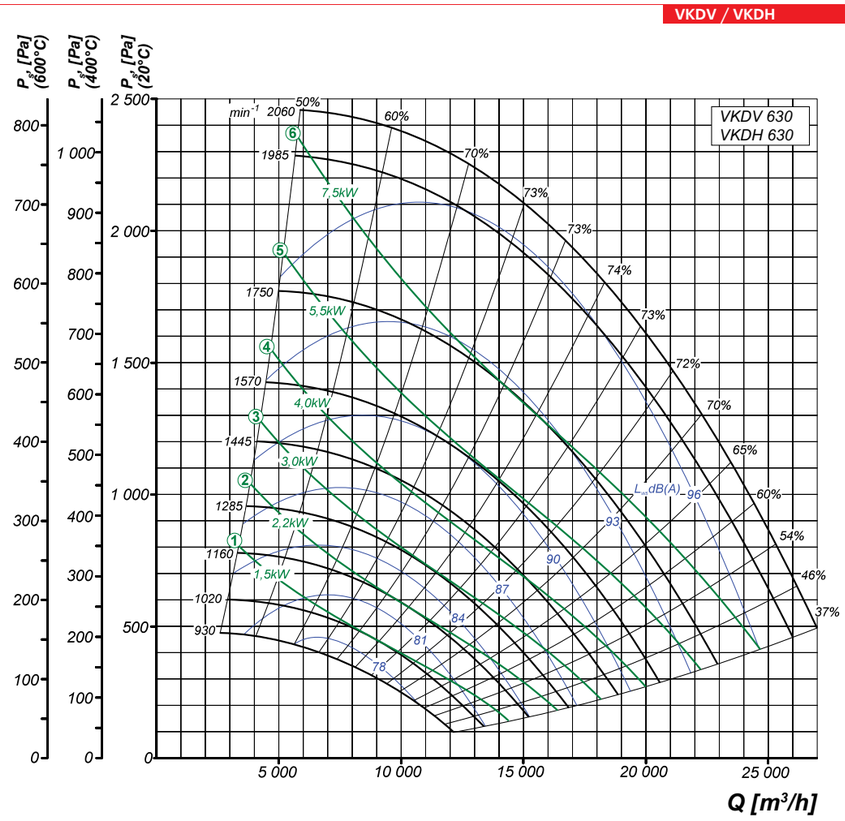
VENTS VKD X XXXX–XXX–XX/XXXX-X

- **M** – terminal block is included
- **Rotation speed [min⁻¹]**
- **Installed power capacity [kW]**
- **Maximum transported air temperature [°C]**: 600
- **Impeller diameter [mm]**: 630, 710, 800, 900, 1000, 1100
- **Air discharge direction**: V – vertical; H – horizontal
- **Fan series**: Roof-mounted smoke removal fan

Technical data:

	VKDV / VKDH 630-600-1,5/930	VKDV / VKDH 630-600-2,2/940	VKDV / VKDH 630-600-2,2/1200	VKDV / VKDH 630-600-3,0/960
Voltage [V]	3~ 400	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	60	50
Installed power capacity Ny [kW]	1,5	2,2	2,2	3,0
Rated current [A]	3,7	5,6	5,6	7,4
Rotation speed [min⁻¹]	930	940	1200	960
Max. transported air temperature [°C]	600	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54	IP 54
Weight [kg]	135	140	140	155
Curve number at the diagram	①	②	②	③

	VKDV / VKDH 630-600-4,0/1440	VKDV / VKDH 630-600-5,5/1450	VKDV / VKDH 630-600-7,5/1440
Voltage, 50 Hz [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	4,0	5,5	7,5
Rated current [A]	8,8	11,3	15,5
Rotation speed [min⁻¹]	1440	1450	1440
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	155	163	166
Curve number at the diagram	④	⑤	⑥

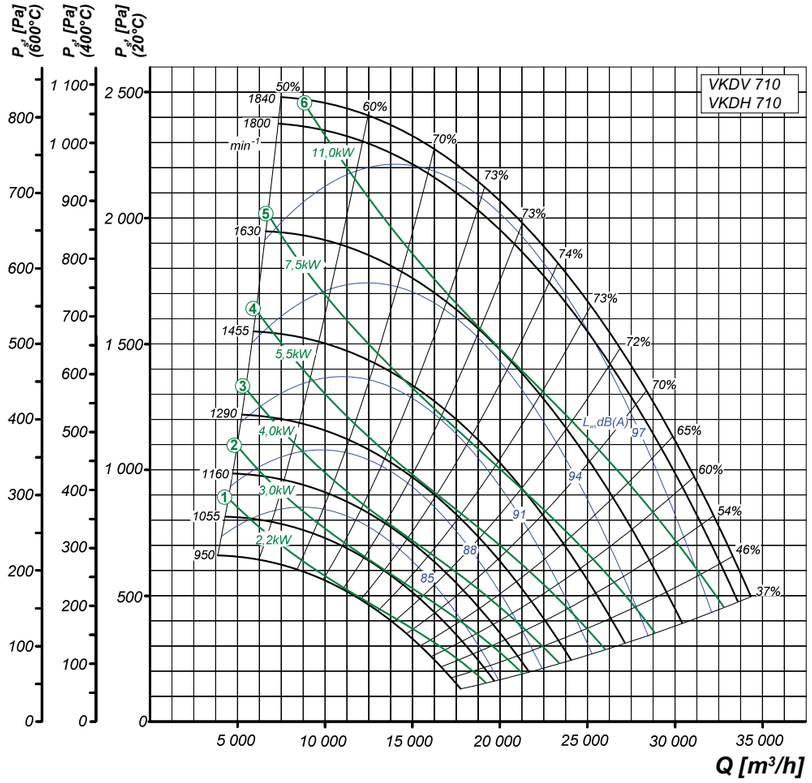


Technical data:

	VKDV / VKDH 710-600-2,2/940	VKDV / VKDH 710-600-3/960	VKDV / VKDH 710-600-4/950
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	2,2	3,0	4,0
Rated current [A]	5,3	7,4	8,4
Rotation speed [min^{-1}]	940	960	950
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	201	215	221
Curve number at the diagram	①	②	③

	VKDV / VKDH 710-600-5,5/960	VKDV / VKDH 710-600-7,5/1455	VKDV / VKDH 710-600-11/1460
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	5,5	7,5	11,0
Rated current [A]	11,2	15,1	21,2
Rotation speed [min^{-1}]	960	1455	1460
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	229	236	254
Curve number at the diagram	④	⑤	⑥

VKDV / VKDH

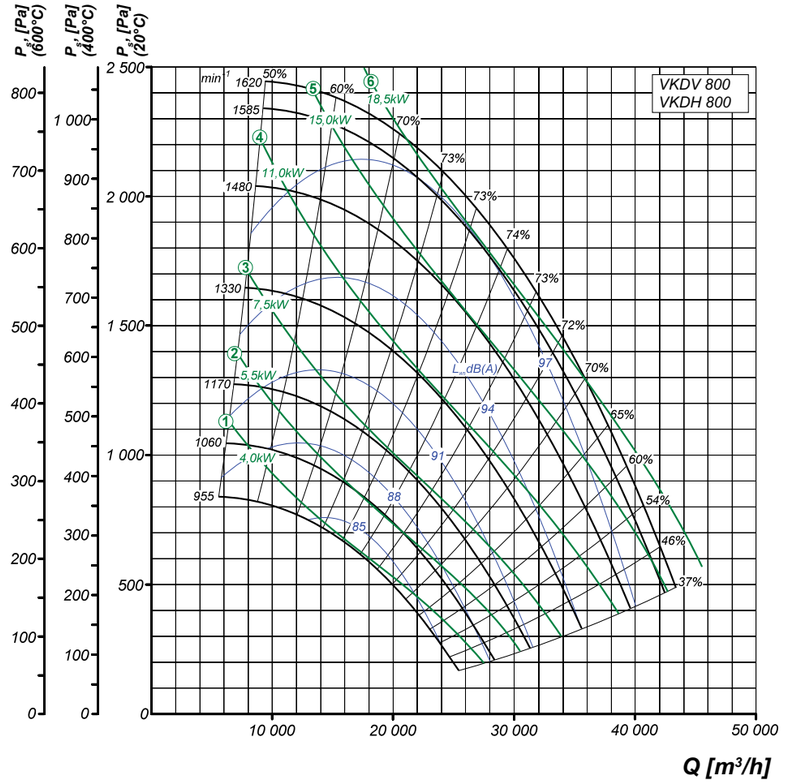


Technical data:

	VKDV / VKDH 800-600-4/960	VKDV / VKDH 800-600-5,5/950	VKDV / VKDH 800-600-7,5/970
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	4,0	5,5	7,5
Rated current [A]	9,2	12,3	15,7
Rotation speed [min^{-1}]	960	950	970
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	268	276	302
Curve number at the diagram	①	②	③

	VKDV / VKDH 800-600-11/960	VKDV / VKDH 800-600-15/1460	VKDV / VKDH 800-600-18,5/1470
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	11,0	15,0	18,5
Rated current [A]	21,2	29,5	36,4
Rotation speed [min^{-1}]	960	1460	1470
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	323	333	370
Curve number at the diagram	④	⑤	⑥

VKDV / VKDH

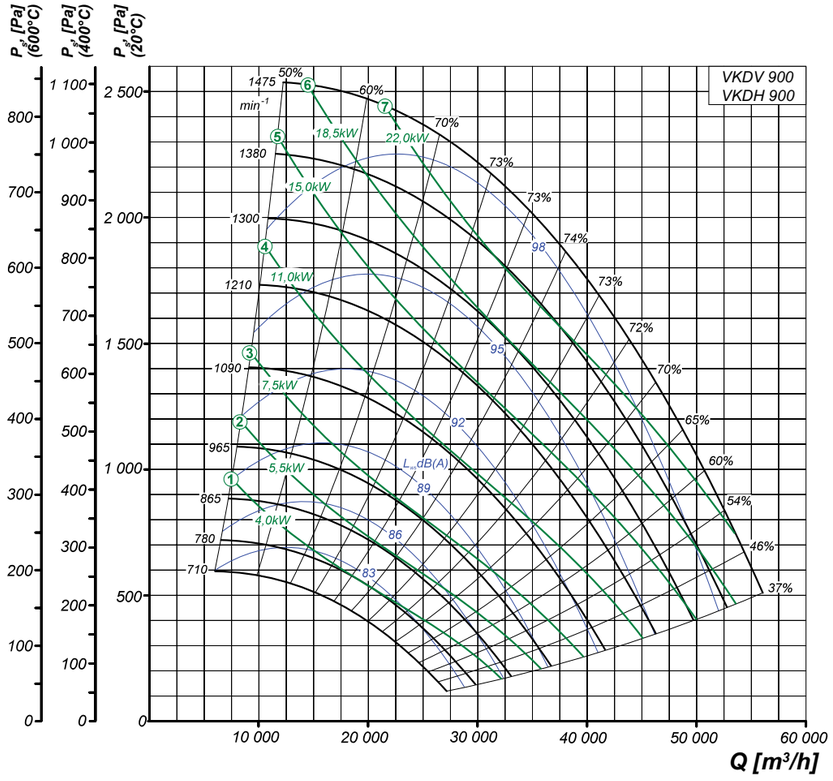


Technical data:

	VKDV / VKDH 900-600-4/720	VKDV / VKDH 900-600-5,5/960	VKDV / VKDH 900-600-7,5/970
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	4,0	5,5	7,5
Rated current [A]	10,0	12,3	15,7
Rotation speed [min^{-1}]	720	960	970
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	376	386	386
Curve number at the diagram	①	②	③

	VKDV / VKDH 900-600-11/970	VKDV / VKDH 900-600-15/960	VKDV / VKDH 900-600-18,5/960	VKDV / VKDH 900-600-22/960
Voltage [V]	3~ 400	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50	50
Installed power capacity Ny [kW]	11,0	15,0	18,5	22,0
Rated current [A]	23	31,0	36,4	44
Rotation speed [min^{-1}]	970	960	960	960
Max. transported air temperature [°C]	600	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54	IP 54
Weight [kg]	407	466	513	523
Curve number at the diagram	④	⑤	⑥	⑦

VKDV / VKDH

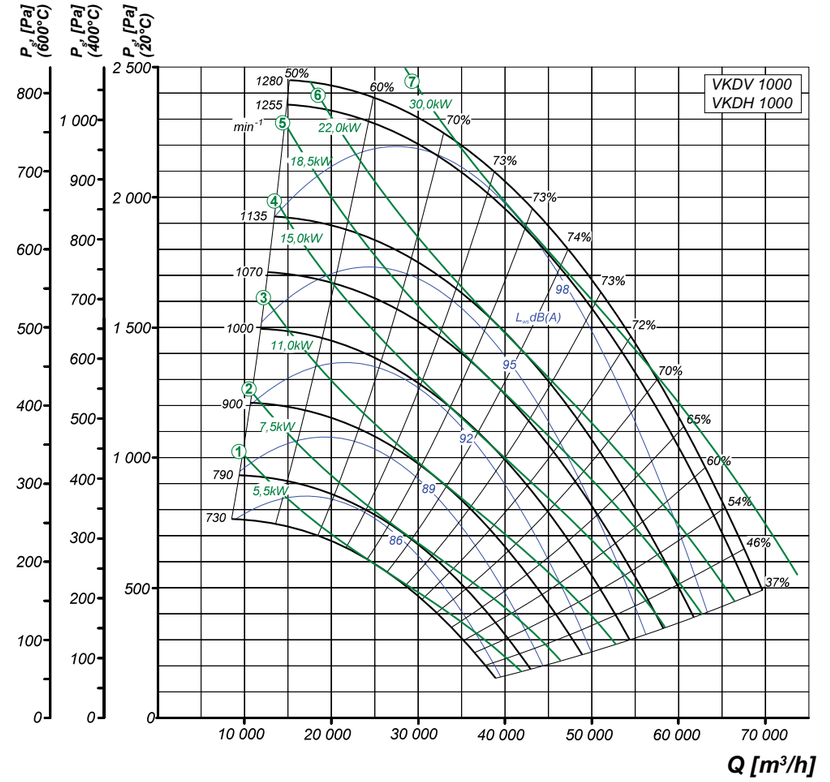


Technical data:

	VKDV / VKDH 1000-600-5,5/720	VKDV / VKDH 1000-600-7,5/730	VKDV / VKDH 1000-600-11/970	VKDV / VKDH 1000-600-15/970
Voltage [V]	3~ 400	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50	50
Installed power capacity Ny [kW]	5,5	7,5	11,0	15,0
Rated current [A]	13,6	18	23,0	31,0
Rotation speed [min^{-1}]	720	730	970	970
Max. transported air temperature [°C]	600	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54	IP 54
Weight [kg]	458	477	537	540
Curve number at the diagram	①	②	③	④

	VKDV / VKDH 1000-600-18,5/970	VKDV / VKDH 1000-600-22/970	VKDV / VKDH 1000-600-30/970
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	18,5	22,0	30,0
Rated current [A]	36,5	44,6	59,6
Rotation speed [min^{-1}]	970	970	970
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	585	595	668
Curve number at the diagram	⑤	⑥	⑦

VKDV / VKDH

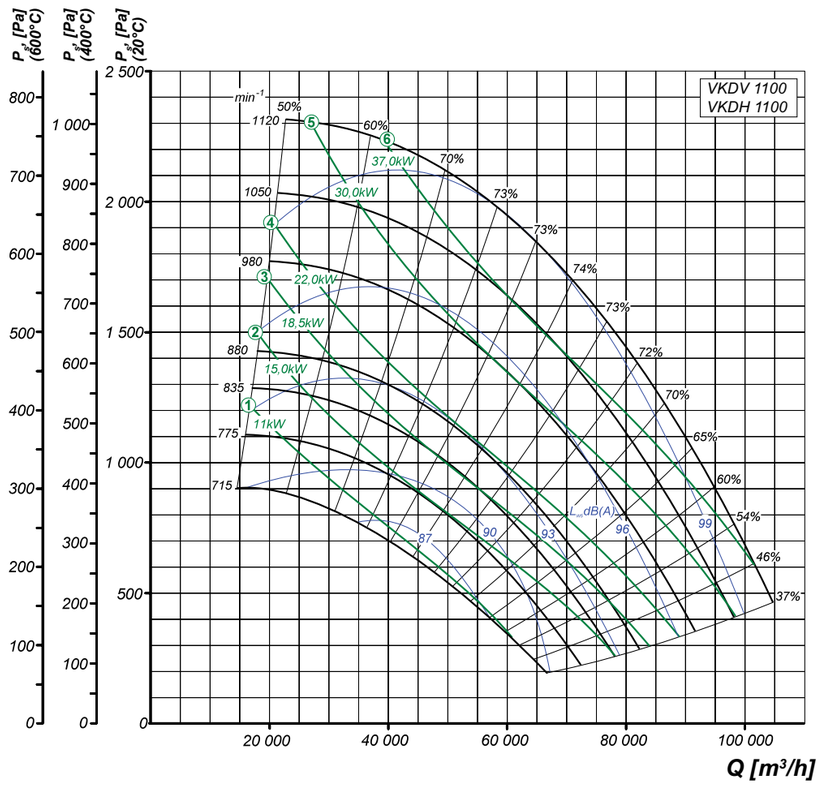


Technical data:

	VKDV / VKDH 1100-600-11/730	VKDV / VKDH 1100-600-15/730	VKDV / VKDH 1100-600-18,5/970
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	11,0	15,0	18,5
Rated current [A]	25,1	32,3	36,5
Rotation speed [min^{-1}]	730	730	970
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	833	836	901
Curve number at the diagram	①	②	③

	VKDV / VKDH 1100-600-22/970	VKDV / VKDH 1100-600-30/970	VKDV / VKDH 1100-600-37/980
Voltage [V]	3~ 400	3~ 400	3~ 400
Frequency [Hz]	50	50	50
Installed power capacity Ny [kW]	22,0	30,0	37,0
Rated current [A]	44,6	59,6	70,0
Rotation speed [min^{-1}]	970	970	980
Max. transported air temperature [°C]	600	600	600
Motor ingress protection rating	IP 54	IP 54	IP 54
Weight [kg]	921	941	990
Curve number at the diagram	④	⑤	⑥

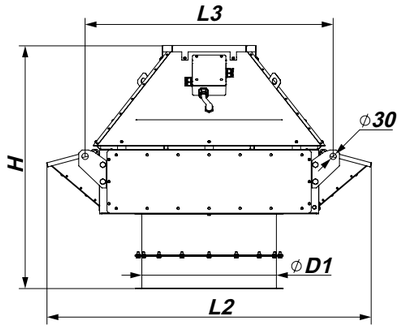
VKDV / VKDH



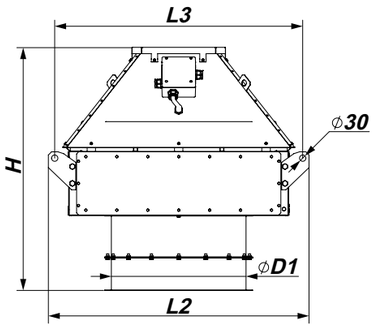
Overall dimensions:

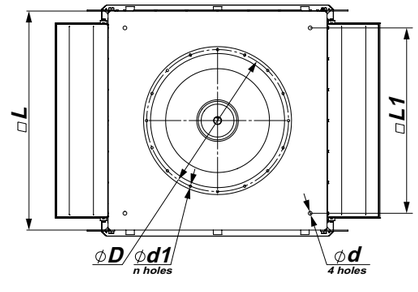
Fan type	Dimensions [mm]										RKV mounting frame compatibility
	D	D1	d	d1	n	H	L	L1	L2	L3	
VKDV 630	541	507	18	9,5	12	1052	1040	880	1508	1178	RKV 630
VKDH 630									1238		
VKDV 710	674	639	18	11,5	16	1101	1040	880	1508	1178	RKV 710-800
VKDH 710									1238		
VKDV 800	674	639	18	11,5	16	1154	1040	880	1543	1178	
VKDH 800									1238		
VKDV 900	751	716	18	11,5	16	1405	1200	1040	1870	1338	RKV 900
VKDH 900									1398		
VKDV 1000	837	802	22	11,5	24	1588	1430	1240	2105	1568	RKV 1000-1100
VKDH 1000									1628		
VKDV 1100	934	898	22	11,5	24	1736	1430	1240	2237	1568	
VKDH 1100									1628		

VKDV



VKDH

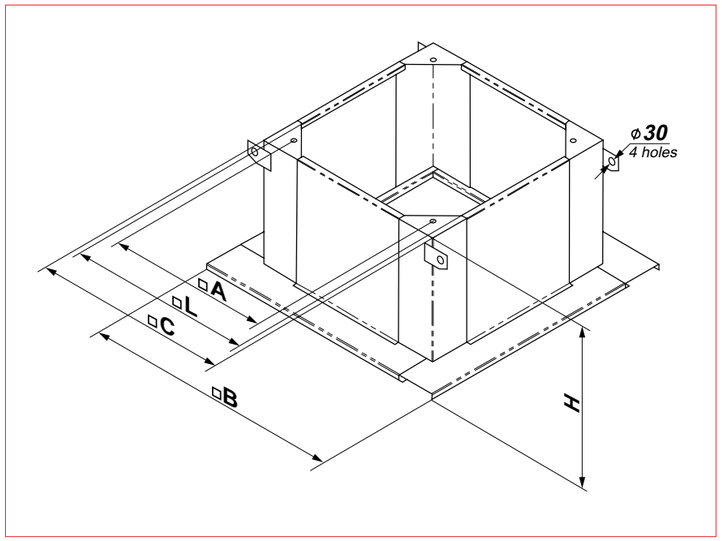




ROOF-MOUNTED SMOKE REMOVAL FANS

RKV mounting frame overall dimensions:

Type	Dimensions [mm]					Weight [kg]
	A	B	C	L	H	
RKV 630	750	1212	915	850	600	64
RKV 710-800	840	1262	965	900	600	66
RKV 900	1050	1512	1215	1150	650	84
RKV 1000-1100	1240	1712	1415	1350	730	100



ROOF-MOUNTED EXHAUST FAN FOR FIREPLACES

Series
VKT

Roof Exhaust Gas
Extraction Booster Fan
for Fireplaces.
Air Capacity – up to 1000 m³/h.

Application
The fans are designed for boosting the draft and extracting smoke fumes heated up to 200 °C for 5 hours. The units are used for extracting hot smoke from fireplaces, furnaces and hearths. The fans are also suitable for standard periodic or constant exhaust ventilation.

Design
The fan casing is made of galvanized steel with a polymer coating protecting from weather elements and aggressive environments. The fan has a protective grille to prevent accidental contact and penetration of foreign objects.

Motor
The fan is equipped with a single-phase asynchronous motor on ball bearings which contribute to a long-term uninterrupted service. The motor is offset from the transported air stream and has an integral thermal protection. The compartment housing of the motor is isolated from the hot air stream and has ventilation openings for air circulation and heat dissipation. A purpose-designed impeller with backward-curved blades minimizes soot and carbon deposits for trouble-free operation and easy maintenance.

Speed Regulation and Fan Control
The fan is connected to the power mains via a transformer or thyristor speed controller, which enables draft regulation and, consequently, maximum efficiency of the fireplace operation.

ATTENTION!

The fan must be turned on in case of open fire in the fireplace. At the handled air temperature above 200 °C the fans must run at the top speed without a speed controller.

Installation
The fan is mounted on the roof on the top section of the chimney. Make sure that the location provides for sufficient space as required for the fan maintenance.

*The smoke fume temperatures can be determined by putting a piece of kindling into the chimney at the level chosen for the fan installation and keeping it there for 30 minutes while the fireplace is hot. The approximate temperature of the effluent gases can be determined according to the kindling colour.

Kindling Colour	Approximate Smoke Fume Temperature, [°C]
Unchanged	up to 150
Yellow (wheat bread crust)	200
Brown (brown bread crust)	250
Black	300
Charred kindling	400

Designation:

VENTS VKT XX X

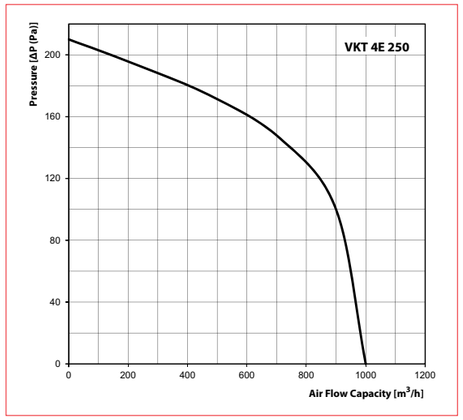
- **Standard Size** 250
- **Phases** **E** – Single-Phase
- **Number of Poles** 4
- **Fan Series**

Accessories

SRS-1 RS-1-300 RS-1-400 PS-1 N(V) RSA5E-2-P RSA5E-2-M

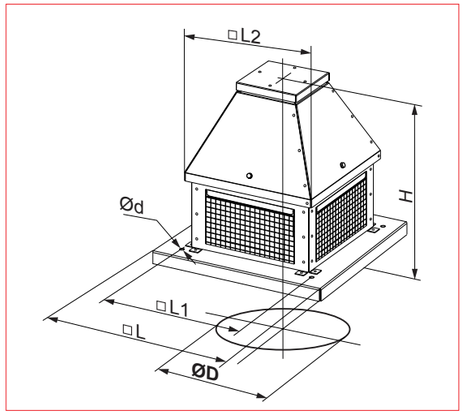
Technical Specifications:

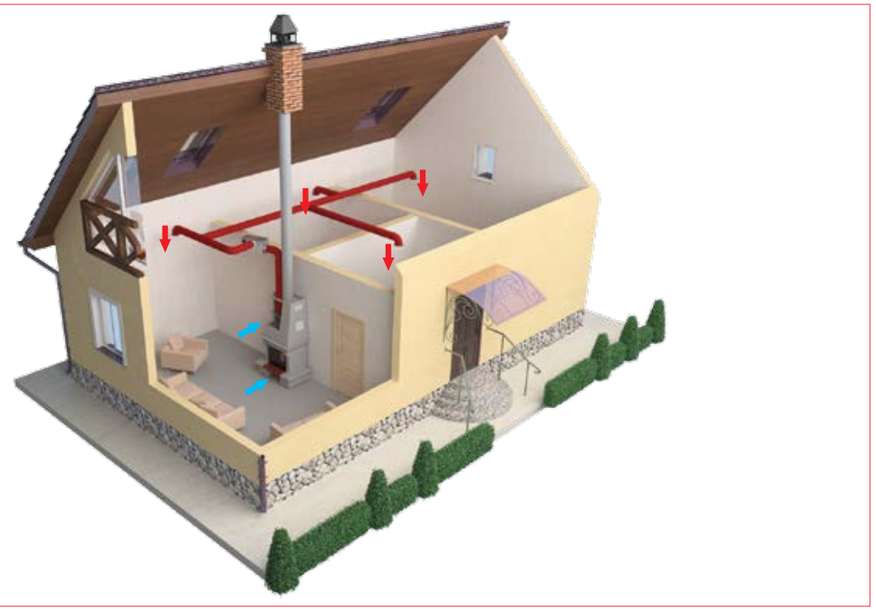
	VKT 4E 250
Voltage [V] / 50 Hz	1 ~230
Power Consumption [W]	96
Current [A]	0.6
Maximum Air Flow Rate [m³/h]	1000
Rotation Speed [rpm]	1500
Sound Pressure at 3 m [dB(A)]	52
Maximum Transported Air Temperature [°C]	200
Protection	IP 44



Fan Dimensions:

Fan Type	Dimensions [mm]						Weight [kg]
	Ø D	Ø d	H	L	L1	L2	
VKT 4E 250	250	11	434	430	330	323	14,6

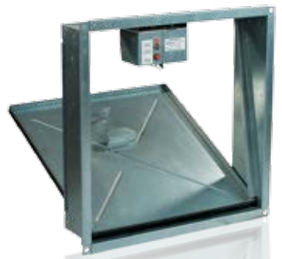




Sample VKT Fan Application

MULTI-PURPOSE FIRE SAFETY SMOKE DAMPER

KPD
Series



Normally Closed Single-Louvre Fire-Safety Dampers, Fire Resistance Rating 180 minutes at Smoke Temperature of 600 °C

KPDU
Series

Normally Closed Multiple-Louvre Fire-Safety Dampers, Fire Resistance Rating 180 minutes at Smoke Temperature of 600 °C

Application

The dampers are intended for integration into smoke control systems of buildings and structures of various purpose and designed for extraction of combustion products from the spaces of floor corridors, hallways, air locks etc. The dampers can be used as smoke dampers in emergency smoke exhaust ventilation systems in the event of a fire to support evacuation of people from the building at the initial phase of the fire occurring in any of the building spaces. The multi-purpose fire safety smoke damper KPD/ KPDU series are rated to resist fire for 182 minutes (E 180) at the temperature of 600 °C.

Design

The damper casing is made of galvanised steel 1.5 mm thick. The dampers are available in the wall-mounted or duct-mounted variant which have either one or two attachment flanges.

The units are available in 2 control variants:

- **with an electric magnet (220 or 24 V);**

The damper opens via a spring when the electric magnet is energized. When the damper reaches the end position a limit switch opens the circuit disconnecting the electric magnet from the power mains. The electric magnet must not remain energized for more than 10 seconds. The damper is reset to the safety (closed) position manually by means of a handle. The damper equipped with an electric magnet has a special button for testing the unit performance.

- **with a Belimo (230 or 24 V) electric actuator and a return spring;**

The flaps are automatically set to the normal (closed) position on energization of the electric actuator. On a fire alarm signal the electric actuator is de-energized causing its return spring to set the damper to the open position. The electric actuator is equipped with a contact group to signal its end positions. The damper can also be controlled manually and fixed in any position. The unit can be unlocked either manually using a hex wrench or automatically upon power-up.

- **with a Belimo (230 or 24 V) electric actuator and two-wire control.**

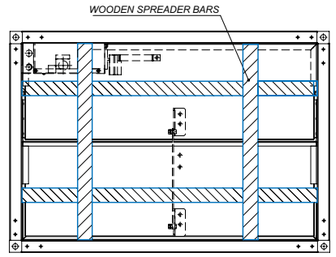
The damper flap is set from the "Open" to the "Closed" position by an external command sending the voltage phase from one actuator contact to the other. The electric actuator is equipped with a contact group which signals reaching its end positions. The damper can be controlled manually by means of a hex key.

Installation

The dampers are not intended for installation in air ducts and channels of spaces rated explosion and fire safety category A and B, in local exhaust systems designed for extraction of flammable and explosive mixtures as well as in systems containing environments more aggressive to plain carbon steels than air or those containing sticky and fibrous materials. Fire safety dampers are only intended for installation in systems subjected to regular cleaning to prevent formation of flammable deposits.

The seal fire resistance must be at least equal to that of the building envelope. When preparing for installation the damper casing should be fitted with wooden spreader bars to prevent deformation, torsional twisting or geometry perturbation of the casing which may result in louvre jamming and, eventually, loss of the damper functionality.

Upon completion of the damper brickwork envelope in the smoke shaft, fire division wall or flooring and complete cure (setting) of the sealing remove the wooden spreader bars and check the louvre for free and frictionless opening. Earthen the damper, connect the electromagnet or electric actuator (depending on the modification) to the automatic fire-fighting system and test the damper actuation.



Conventional Designation:

KPDX-XxX-X-XX-XX-X

Damper Series
KPD – Single-Louvre;
KPDU – Multi-Louvre .

Damper Flow Area Width

Damper Flow Area Height

Number of Flanges
1 – One;
2 – Two.

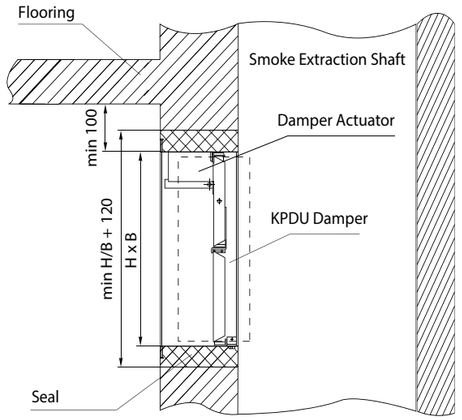
Protective Grille
S – Vandal-Proof Mesh;
R – Decorative Fascia;
O – No Protective Grille;
RD – Smoke Exhaust Grille.

Actuator Location
SN – Outside;
VN – Inside.

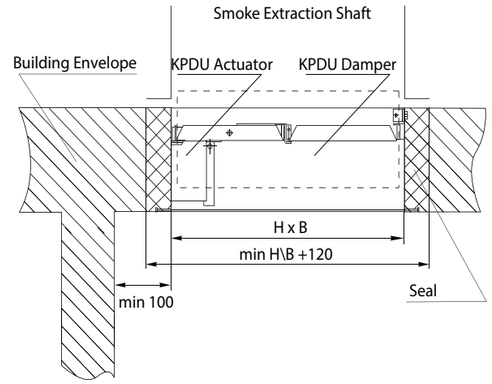
Actuator Type
EM24 – 24V electromagnet;
EM220 – 220 V electromagnet;
BLF24 – Belimo actuator BLF24 with a return spring;
BF24 – Belimo actuator BF24 with a return spring;
BLF230 – Belimo actuator BLF230 with a return spring;
BF230 – Belimo actuator BF230 with a return spring;
BLE24 – Belimo actuator BLE24 with two control wires;
BE24 – Belimo actuator BE24 with two control wires;
BLE230 – Belimo actuator BLE230 with two control wires;
BE230 – Belimo actuator BE230 with two control wires.

KPDU Internal-Actuator Damper Installation Recommendations:

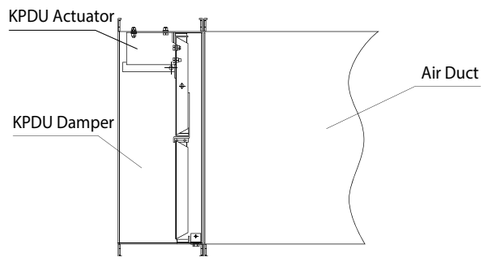
– In vertical building structures



– In horizontal building structures

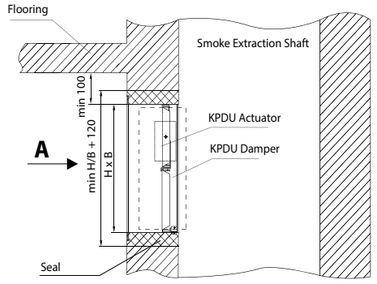


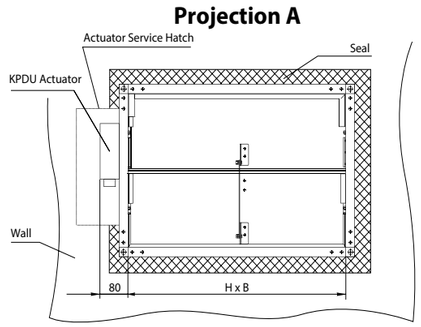
– Duct modification with an air duct



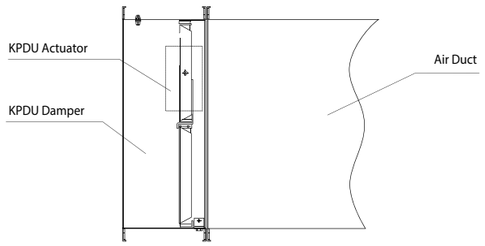
KPDU External-Actuator Damper Installation Recommendations:

– in vertical building structures

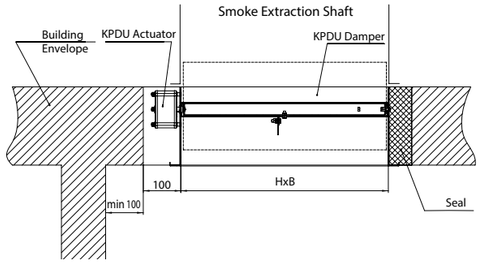




– duct modification with an air duct

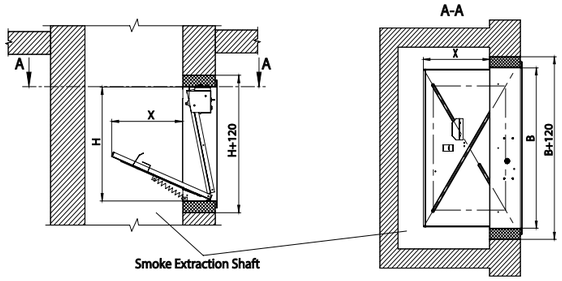


– In horizontal building structures

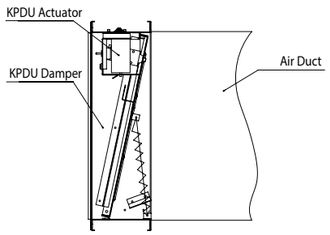


KPD Internal-Actuator Damper Installation Recommendations:

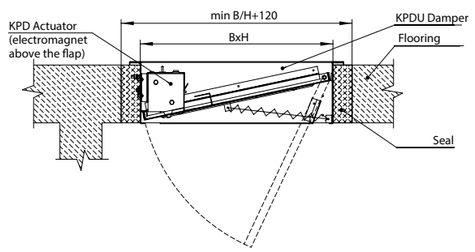
– In vertical building structures



– Duct variant with an air duct



– In horizontal building structures

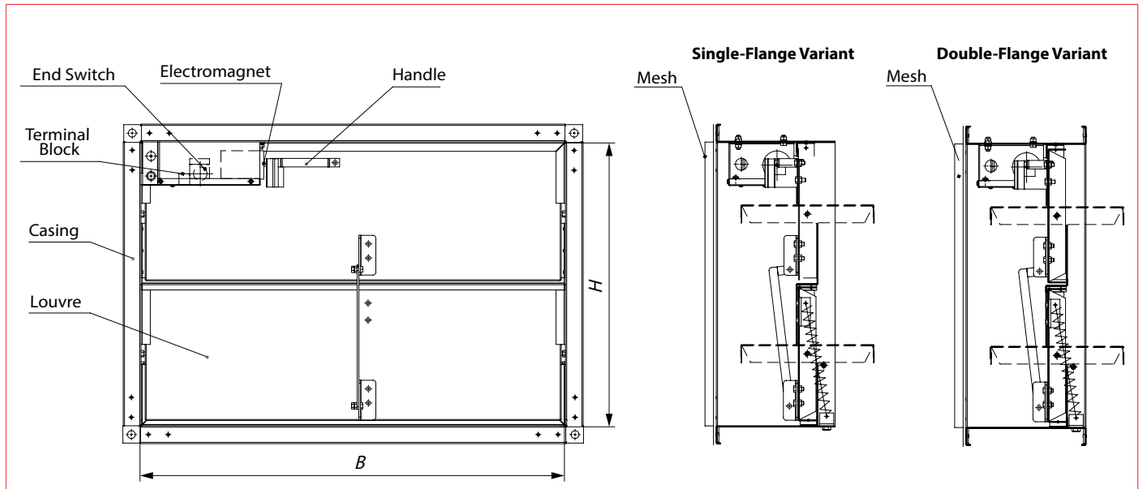


Possible KPDU Damper Variants

KPDU Damper with Internal Electromagnet (220 or 24V), Single or Double Flange.

– The single-flange variant is intended for wall or ceiling mounting irrespective of the dimensional orientation. Upon the test or emergency damper actuation the louvres can only be manually reset to the initial position.

– The double-flange variant is intended for duct installation irrespective of the dimensional orientation. Upon the test or emergency damper actuation the louvres can only be manually reset to the initial position.



Flow Area of KPDU Smoke Extraction Damper with an Electromagnet, m²

B/H	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.06														
350	0.08	0.10													
400	0.09	0.11	0.12												
450	0.10	0.13	0.14	0.16											
500	0.12	0.14	0.15	0.18	0.20										
550	0.13	0.16	0.17	0.20	0.23	0.25									
600	0.15	0.18	0.19	0.22	0.25	0.28	0.31								
650	0.16	0.19	0.20	0.24	0.27	0.30	0.33	0.37							
700	0.17	0.21	0.22	0.26	0.29	0.33	0.36	0.40	0.43						
750	0.19	0.22	0.24	0.28	0.31	0.35	0.39	0.43	0.46	0.48					
800	0.20	0.24	0.26	0.30	0.34	0.38	0.42	0.46	0.50	0.51	0.55				
850	0.21	0.26	0.27	0.31	0.36	0.40	0.44	0.48	0.53	0.54	0.59	0.63			
900	0.23	0.27	0.29	0.33	0.38	0.42	0.47	0.51	0.56	0.58	0.62	0.67	0.71		
950	0.24	0.29	0.31	0.35	0.40	0.45	0.50	0.54	0.59	0.61	0.66	0.71	0.75	0.80	
1000	0.25	0.30	0.32	0.37	0.42	0.47	0.52	0.57	0.62	0.64	0.69	0.74	0.79	0.84	0.89

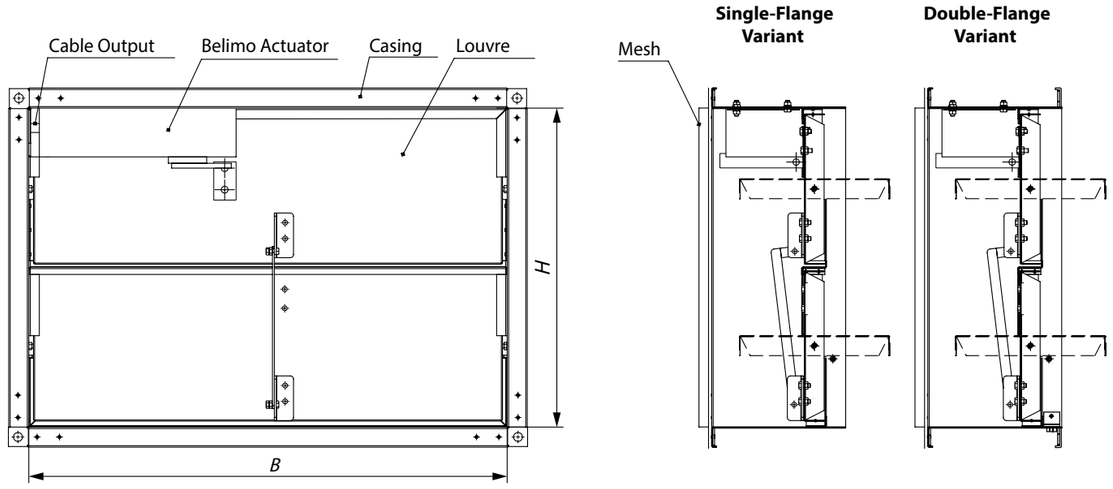
Note: Select the required BxH cross-section damper according to the completed table cells. Since the damper can be installed in any spatial position a change of the height and width (B and H values) orientation may enable selection of a damper with the cross-section beyond the completed cell range.

For example, *a 700x500 damper can be ordered as 500x700.*

KPDU Damper with Belimo Electric Actuator (230 or 24V) Inside the Damper, Single or Double Flange.

– The single-flange variant is intended for wall or ceiling mounting irrespective of the dimensional orientation.

– The double-flange variant is intended for duct installation irrespective of the dimensional orientation. The louvres of dampers equipped with a BLE or BE actuator are set to the "open" or "closed" position by an external actuating signal. After a test or emergency actuation the louvres of dampers equipped with BLF or BF actuators can return to the initial position automatically upon feeding the supply voltage.



Flow Area of KPDU Smoke Extraction Damper with Internal Belimo Electric Actuator, m²

B/H	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.06														
350	0.08	0.10													
400	0.09	0.11	0.12												
450	0.10	0.13	0.14	0.16											
500	0.12	0.14	0.15	0.18	0.20										
550	0.13	0.16	0.17	0.20	0.23	0.25									
600	0.15	0.18	0.19	0.22	0.25	0.28	0.31								
650	0.16	0.19	0.20	0.24	0.27	0.30	0.33	0.37							
700	0.17	0.21	0.22	0.26	0.29	0.33	0.36	0.40	0.43						
750	0.19	0.22	0.24	0.28	0.31	0.35	0.39	0.43	0.46	0.48					
800	0.20	0.24	0.26	0.30	0.34	0.38	0.42	0.46	0.50	0.51	0.55				
850	0.21	0.26	0.27	0.31	0.36	0.40	0.44	0.48	0.53	0.54	0.59	0.63			
900	0.23	0.27	0.29	0.33	0.38	0.42	0.47	0.51	0.56	0.58	0.62	0.67	0.71		
950	0.24	0.29	0.31	0.35	0.40	0.45	0.50	0.54	0.59	0.61	0.66	0.71	0.75	0.80	
1000	0.25	0.30	0.32	0.37	0.42	0.47	0.52	0.57	0.62	0.64	0.69	0.74	0.79	0.84	0.89

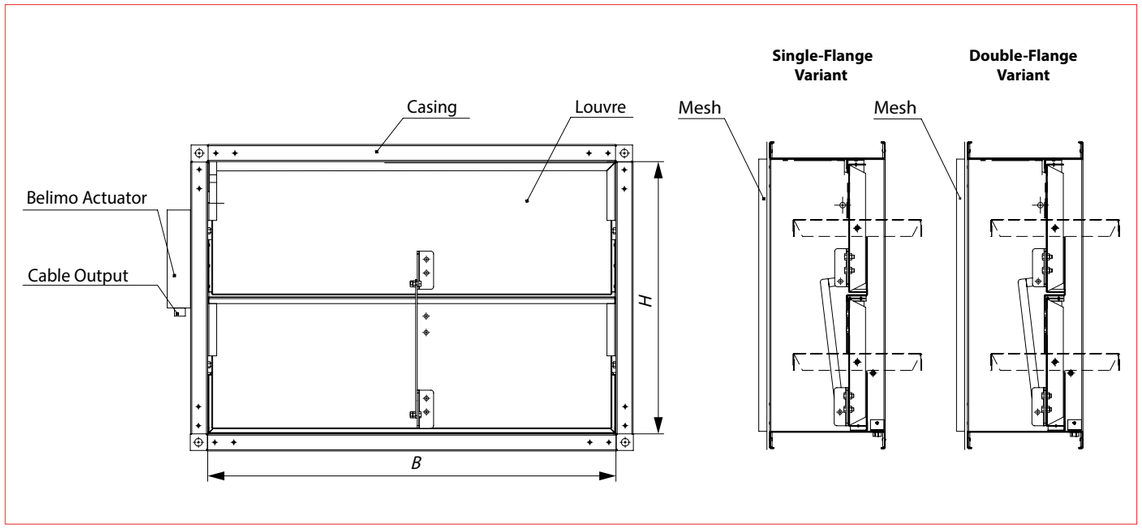
Note: Select the required BxH cross-section damper according to the completed table cells. Since the damper can be installed in any spatial position any change of the height and width (B and H values) orientation may enable selection of a damper with the cross-section beyond the completed cell range.
For example, a 700x500 damper can be ordered as 500x700.

The table cells correspond to the following: ☐ – *BLF230 or BLF24 (BLE230/24);* ☐ – *BF230 or BF24 (BLE 230/24);* ☐ – *BE230 or BE24 (BF230/24).*

KPDU Damper with External Belimo Electric Actuator (230 or 24V), Single or Double Flange.

– The single-flange variant is intended for wall or ceiling mounting irrespective of the dimensional orientation.

– The double-flange variant is intended for duct installation irrespective of the dimensional orientation. The louvres of dampers equipped with a BLE or BE actuator are set to the "open" or "closed" position by an external actuating signal. After a test or emergency actuation the louvres of dampers equipped with BLF or BF actuators can return to the initial position automatically upon feeding the supply voltage.



Flow Area of KPDU Smoke Extraction Damper with External Belimo Electric Actuator, m²

B/H	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.07														
350	0.09	0.11													
400	0.10	0.12	0.13												
450	0.11	0.14	0.15	0.17											
500	0.13	0.15	0.16	0.19	0.21										
550	0.14	0.17	0.18	0.21	0.24	0.26									
600	0.16	0.18	0.20	0.23	0.26	0.29	0.32								
650	0.17	0.20	0.21	0.25	0.28	0.31	0.34	0.38							
700	0.18	0.22	0.23	0.27	0.30	0.34	0.37	0.41	0.44						
750	0.20	0.23	0.25	0.29	0.32	0.36	0.40	0.44	0.47	0.49					
800	0.21	0.25	0.27	0.31	0.35	0.39	0.43	0.47	0.51	0.52	0.56				
850	0.22	0.27	0.28	0.32	0.37	0.41	0.45	0.49	0.54	0.55	0.60	0.64			
900	0.24	0.28	0.30	0.34	0.39	0.43	0.48	0.52	0.57	0.59	0.63	0.68	0.72		
950	0.25	0.30	0.32	0.36	0.41	0.46	0.51	0.55	0.60	0.62	0.67	0.72	0.76	0.81	
1000	0.26	0.31	0.33	0.38	0.43	0.48	0.53	0.58	0.63	0.65	0.70	0.75	0.80	0.85	0.90

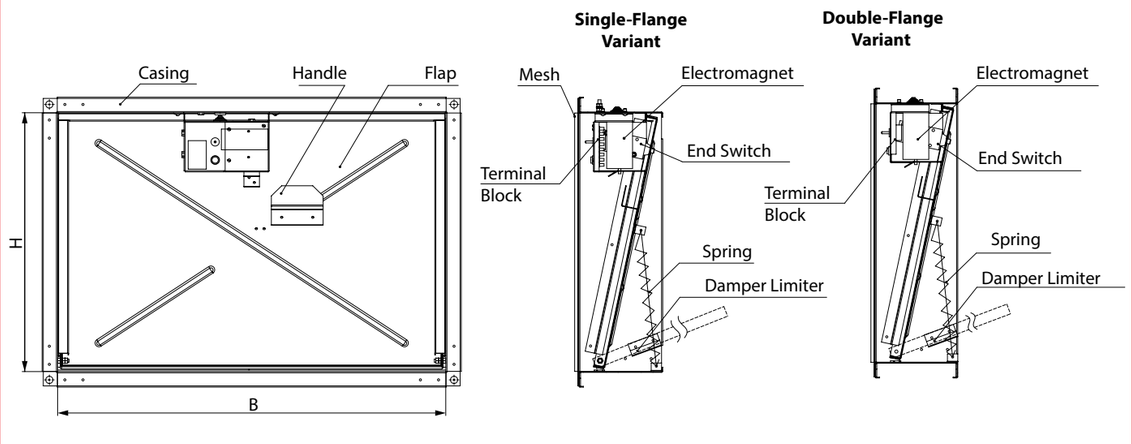
Note: Select the required BxH cross-section damper according to the completed table cells. Since the damper can be installed in any spatial position any change of the height and width (B and H values) orientation may enable selection of a damper with the cross-section beyond the completed cell range.

For example, *a 700x500 damper can be ordered as 500x700. The table cells correspond to the following:*
☐ – *BLF230 or BLF24 (BLE230/24);* ☐ – *BF230 or BF24 (BLE230/24);* ☐ – *BE230 or BE24 (BF230/24)*

Possible KPD Damper Variants

KPD Damper with Internal Electromagnet (220 or 24V), Single or Double Flange.
– The single-flange variant is intended for wall or ceiling installation. The damper must be installed according to the installation guidelines for KPD damper with an internal actuator (see page 24). Upon the test or emergency damper actuation the louvres can only be manually reset to the initial position.

– The double-flange variant is intended for duct installation. Upon the test or emergency damper actuation the louvres can only be manually reset to the initial position.



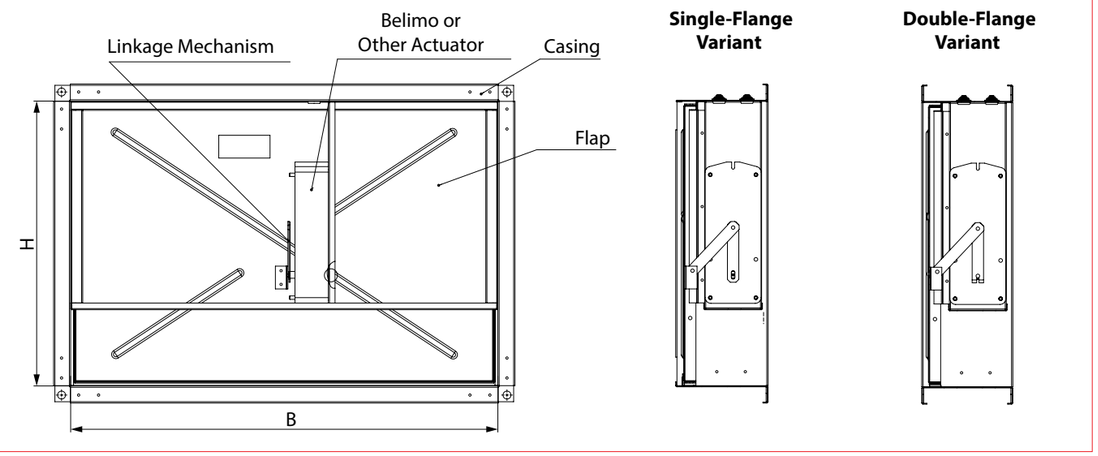
Flow Area of KPD Smoke Extraction Damper with an Electromagnet, m²

B/H	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.06														
350	0.08	0.10													
400	0.09	0.11	0.12												
450	0.10	0.13	0.14	0.16											
500	0.12	0.14	0.15	0.18	0.20										
550	0.13	0.16	0.17	0.20	0.23	0.25									
600	0.15	0.18	0.19	0.22	0.25	0.28	0.31								
650	0.16	0.19	0.20	0.24	0.27	0.30	0.33	0.37							
700	0.17	0.21	0.22	0.26	0.29	0.33	0.36	0.40	0.43						
750	0.19	0.22	0.24	0.28	0.31	0.35	0.39	0.43	0.46	0.48					
800	0.20	0.24	0.26	0.30	0.34	0.38	0.42	0.46	0.50	0.51	0.55				
850	0.21	0.26	0.27	0.31	0.36	0.40	0.44	0.48	0.53	0.54	0.59	0.63			
900	0.23	0.27	0.29	0.33	0.38	0.42	0.47	0.51	0.56	0.58	0.62	0.67	0.71		
950	0.24	0.29	0.31	0.35	0.40	0.45	0.50	0.54	0.59	0.61	0.66	0.71	0.75	0.80	
1000	0.25	0.30	0.32	0.37	0.42	0.47	0.52	0.57	0.62	0.64	0.69	0.74	0.79	0.84	0.89

Note: *Select the required BxH cross-section damper according to the completed table cells.*

KPD Damper with Internal Belimo Electric Actuator (230 or 24V), Single or Double Flange:
– The single-flange variant is intended for wall or ceiling mounting irrespective of the dimensional orientation.

– The double-flange variant is intended for duct installation irrespective of the dimensional orientation. The louvres of dampers equipped with a BLE or BE actuator are set to the "open" or "closed" position by an external actuating signal. After a test or emergency actuation the louvres of dampers equipped with BLF or BF actuators can return to the initial position automatically upon feeding the supply voltage.



Flow Area of KPD Smoke Extraction Damper with Internal Belimo Electric Actuator, m²

B/H	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.06														
350	0.08	0.10													
400	0.09	0.11	0.12												
450	0.10	0.13	0.14	0.16											
500	0.12	0.14	0.15	0.18	0.20										
550	0.13	0.16	0.17	0.20	0.23	0.25									
600	0.15	0.18	0.19	0.22	0.25	0.28	0.31								
650	0.16	0.19	0.20	0.24	0.27	0.30	0.33	0.37							
700	0.17	0.21	0.22	0.26	0.29	0.33	0.36	0.40	0.43						
750	0.19	0.22	0.24	0.28	0.31	0.35	0.39	0.43	0.46	0.48					
800	0.20	0.24	0.26	0.30	0.34	0.38	0.42	0.46	0.50	0.51	0.55				
850	0.21	0.26	0.27	0.31	0.36	0.40	0.44	0.48	0.53	0.54	0.59	0.63			
900	0.23	0.27	0.29	0.33	0.38	0.42	0.47	0.51	0.56	0.58	0.62	0.67	0.71		
950	0.24	0.29	0.31	0.35	0.40	0.45	0.50	0.54	0.59	0.61	0.66	0.71	0.75	0.80	
1000	0.25	0.30	0.32	0.37	0.42	0.47	0.52	0.57	0.62	0.64	0.69	0.74	0.79	0.84	0.89

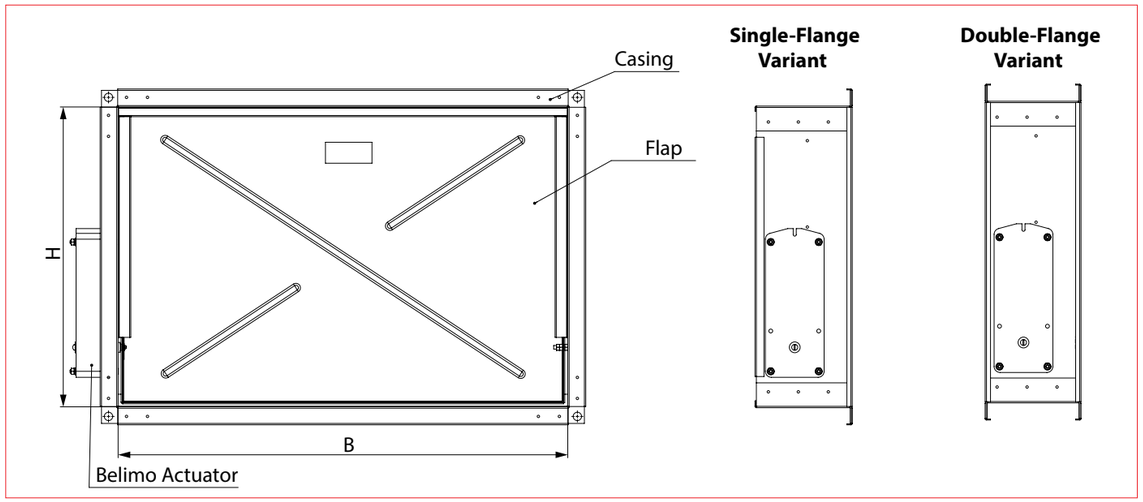
Note: Select the required BxH cross-section damper according to the completed table cells. Since the damper can be installed in any spatial position any change of the height and width (B and H values) orientation may enable selection of a damper with the cross-section beyond the completed cell range.
For example, *a 700x500 damper can be ordered as 500x700.*

The table cells correspond to the following: ☐ – *BLF230 or BLF24 (BLE230/24);* ☐ – *BF230 or BF24 (BLE 230/24);* ☐ – *BE230 or BE24 (BF230/24).*

KPD Damper with External Belimo Electric Actuator (230 or 24V), Single or Double Flange.

– The single-flange variant is intended for wall or ceiling mounting irrespective of the dimensional orientation.

– The double-flange variant is intended for duct installation irrespective of the dimensional orientation. The louvres of dampers equipped with a BLE or BE actuator are set to the "open" or "closed" position by an external actuating signal. After a test or emergency actuation the louvres of dampers equipped with BLF or BF actuators can return to the initial position automatically upon feeding the supply voltage.



Flow Area of KPD Smoke Extraction Damper with External Belimo Electric Actuator, m²

B/H	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.07														
350	0.09	0.11													
400	0.10	0.12	0.13												
450	0.11	0.14	0.15	0.17											
500	0.13	0.15	0.16	0.19	0.21										
550	0.14	0.17	0.18	0.21	0.24	0.26									
600	0.16	0.18	0.20	0.23	0.26	0.29	0.32								
650	0.17	0.20	0.21	0.25	0.28	0.31	0.34	0.38							
700	0.18	0.22	0.23	0.27	0.30	0.34	0.37	0.41	0.44						
750	0.20	0.23	0.25	0.29	0.32	0.36	0.40	0.44	0.47	0.49					
800	0.21	0.25	0.27	0.31	0.35	0.39	0.43	0.47	0.51	0.52	0.56				
850	0.22	0.27	0.28	0.32	0.37	0.41	0.45	0.49	0.54	0.55	0.60	0.64			
900	0.24	0.28	0.30	0.34	0.39	0.43	0.48	0.52	0.57	0.59	0.63	0.68	0.72		
950	0.25	0.30	0.32	0.36	0.41	0.46	0.51	0.55	0.60	0.62	0.67	0.72	0.76	0.81	
1000	0.26	0.31	0.33	0.38	0.43	0.48	0.53	0.58	0.63	0.65	0.70	0.75	0.80	0.85	0.90

Note: Select the required BxH cross-section damper according to the completed table cells. Since the damper can be installed in any spatial position any change of the height and width (B and H values) orientation may enable selection of a damper with the cross-section beyond the completed cell range.

For example, *a 700x500 damper can be ordered as 500x700. The table cells correspond to the following:*
☐ *– BLF230 or BLF24 (BLE230/24);* ☐ *– BF230 or BF24 (BLE230/24);* ☐ *– BE230 or BE24 (BF230/24)*

Technical Specifications of BF and BLF Electric Actuators

Technical Specifications	BF24	BLF24	BF230	BLF230
Rated Operation Voltage [V] / 50 Hz	24		230	
Permissible Operating Voltage Tolerance [V]	19.2...28.8		198...264	
Maximum Power Consumption in Louvre Open Position [W]	2	2.5	3	3
Maximum Power Consumption at Louvre Reset to Initial Position upon Damper Actuation [W]	7	5	8	6
Maximum Design Capacity [VA]	10	7	12.5	7
Protection Class	III		II	
IP Code	IP 54			
Auxiliary Switches	2xSPDT 3(0.5) A 250 V			
Electric Motor Line Cable	1 m. 2x0.75 mm²			
Auxiliary Switch Line Cable	1 m. 6x0.75 mm²			
Maximum Time for Louvre Reaching Operating (Protective) Position by Spring [s]	16	20...60	16	20...60
Maximum Time for Louvre Resetting to Initial Position by Electric Motor [s]	140	40...75	140	40...75
Service Life	At least 60,000 duty cycles			
Technical Maintenance	Not Required			

Technical Specifications of BE and BLE Electric Actuators

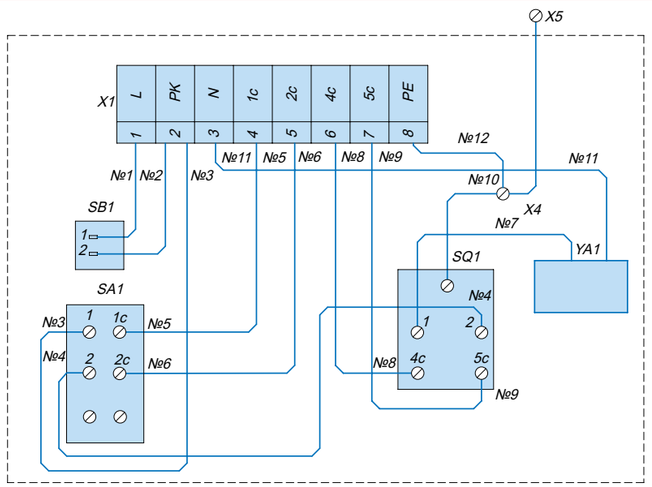
Technical Specifications	BE24	BLE24	BE230	BLE230
Rated Operation Voltage [V] / 50 Hz	24		230	
Permissible Operating Voltage Tolerance [V]	19.2...28.8		198...264	
Maximum Power Consumption in Louvre Open Position [W]	0.5	< 0.5	0.5	< 1
Maximum Power Consumption at Louvre Reset to Initial Position upon Damper Actuation [W]	12	7.5	8	5
Maximum Design Capacity [VA]	18	9	15	12
Protection Class	III		II	
IP Code	IP 54			
Auxiliary Switches	2xSPDT 3(0.5) A 250 V			
Electric Motor Line Cable	1 m. 3x0.75 mm²			
Auxiliary Switch Line Cable	1 m. 6x0.75 mm²			
Maximum Time for Louvre Reaching Operating (Protective) Position by Spring [s]	60	30	60	30
Maximum Time for Louvre Resetting to Initial Position by Electric Motor [s]	At least 10,000 duty cycles			
Service Life	Not Required			
Technical Maintenance	Not Required			

KPD / KPDU Damper Electrical Connection Diagrams

Electrical Connection Diagram for KPD / KPDU Dampers Equipped with an Electromagnet

SQ1 – End Switch
YA1 – Electromagnet
SB1 – Damper Louvre Opening Button
PK – Automatic Fire Suppression Block Contact
SA1 – Power Supply Circuit Disconnection Switch (Electromagnetic Latch)
X1 – Terminal Block

1 – Supply Voltage Phase
2 – Automatic Fire Suppression Block Contact
3 – Supply Voltage Zero
4, 5 – Command Circuit Control
6, 7 – Louvre Position Control
8 – Ground Bonding Bar

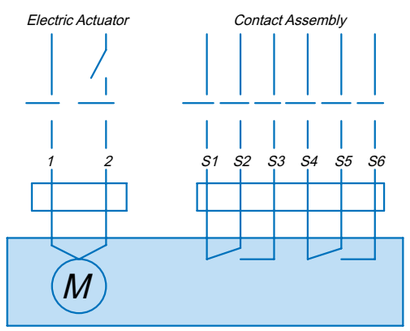


Main Technical Specifications of the Electromagnet

Rated Operation Voltage [V]	Alternating Current, 50 Hz	220
	Direct Current	24
Rated Power Consumption [W], max	at ~ 220 V	600
	at ~ 24 V	60
Climatic Variant		U3

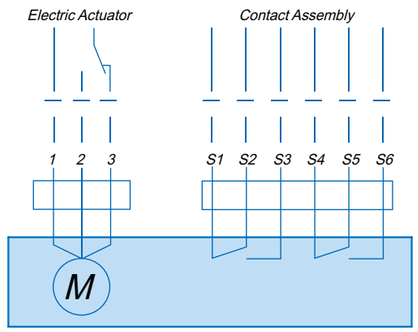
Electrical Connections Diagram of KPD / KPDU Dampers with Belimo Electric Actuators

BF and BLF Electric Actuator



1 – Supply Voltage Zero Contact;
2 – Supply Voltage Phase Contact – Damper Louvre Closing;
S1...S6 – Stationary Microswitch Contacts Signaling End Positions.

BE and BLE Electric Actuators

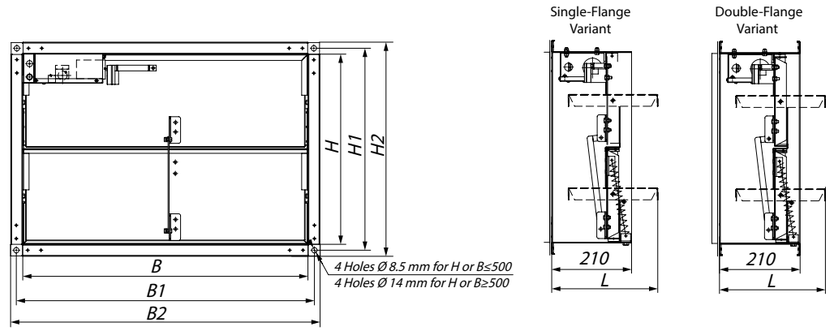


1 – Supply Voltage Zero Contact;
2, 3 – Supply Voltage Phase Contacts: Damper Louvre Closing or Opening;
S1...S6 – Stationary Microswitch Contacts Signaling End Positions.

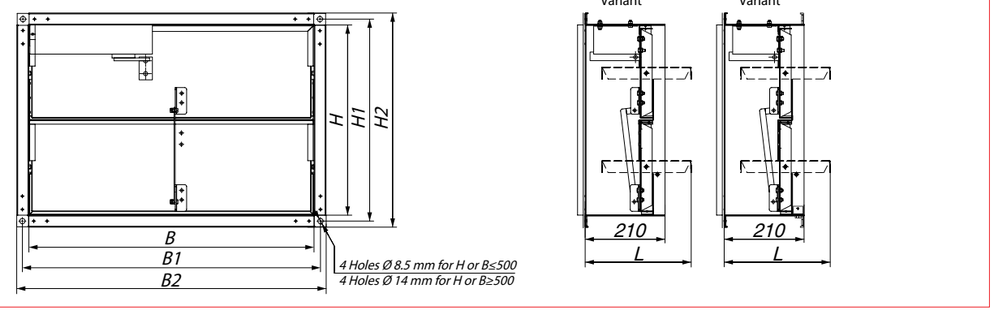
Outside and Connecting Dimensions of KPDU Multi-Louvre Dampers:

Standard Damper Size	Minimum Flow Area [m²]	KPDU Size [mm]							Maximum KPDU Weight [kg]
		H	H1	H2	B	B1	B2	L	
400x400	0.12	400	420	440	400	420	440	298	9.5
500x500	0.2	500	520	540	500	520	540	297	12.1
600x600	0.31	600	630	660	600	630	660	348	17
700x700	0.43	700	730	760	700	730	760	398	20.3
800x800	0.55	800	830	860	800	830	860	448	24.1
900x900	0.71	900	930	960	900	930	960	498	27.4
1000x1000	0.9	1000	1030	1060	1000	1030	1060	548	31.7

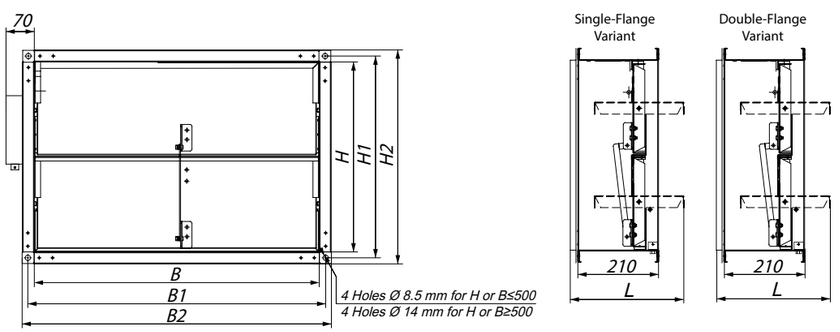
KPDU Damper with Internal Electromagnet (220 or 24V), Single or Double Flange.



KPDU Damper with Belimo Electric Actuator (230 or 24V) Inside the Damper, Single or Double Flange.



KPDU Damper with External Belimo Electric Actuator (230 or 24V), Single or Double Flange.

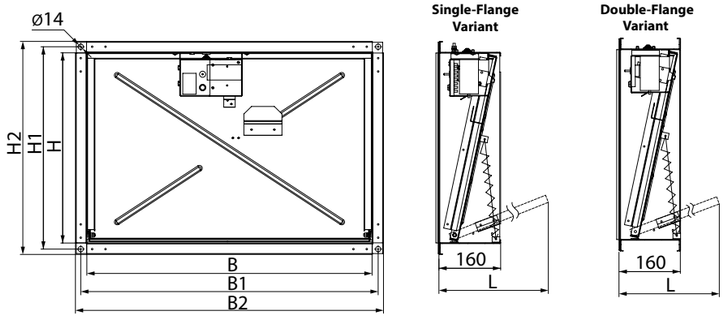


MULTI-PURPOSE FIRE SAFETY SMOKE DAMPER

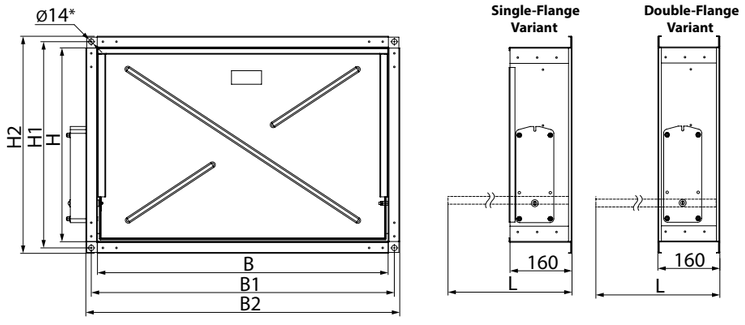
KPD Single-Louvre Damper Dimensional and Mounting Sizes:

Standard Damper Size	Minimum Flow Area [m²]	KPD Size, mm							Maximum KPD Weight [kg]
		H	H1	H2	B	B1	B2	L	
400x400	0.12	400	430	460	400	430	460	470	8.2
500x500	0.2	500	530	560	500	530	560	570	10.6
600x600	0.31	600	630	660	600	630	660	670	13.2
700x700	0.43	700	730	760	700	730	760	770	16
800x800	0.55	800	830	860	800	830	860	870	19
900x900	0.71	900	930	960	900	930	960	970	22.2
1000x1000	0.9	1000	1030	1060	1000	1030	1060	1070	25.6

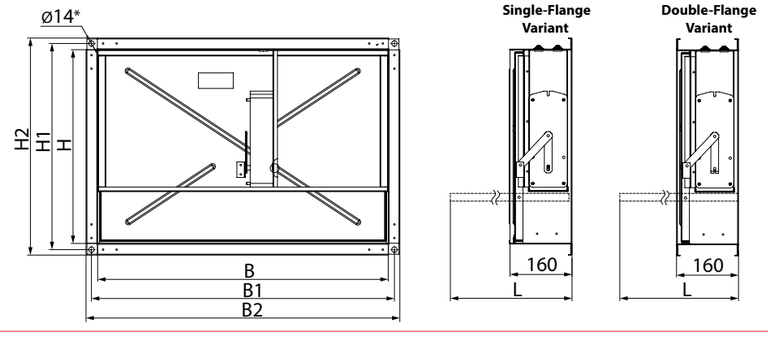
KPD Damper with Internal Electromagnet (220 or 24V), Single or Double Flange.



KPD Damper with External Belimo Electric Actuator (230 or 24V), Single or Double Flange.

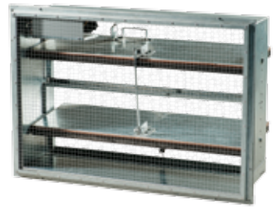


KPD Damper with Internal Belimo Electric Actuator (230 or 24V), Single or Double Flange.



Extra Accessories

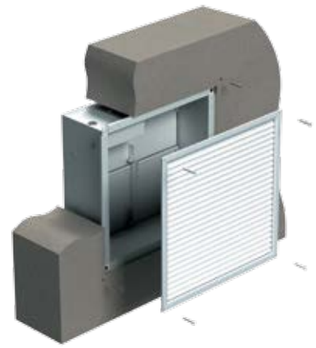
Vandal-Proof Mesh;



KPD/KPDU dampers can be equipped with a vandal-proof mesh.

Aluminium Decorative Fascia;

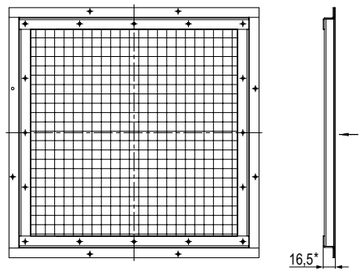
The unit can be equipped with a decorative fascia made of aluminium for a more aesthetic appearance. The fascia has a single horizontal row of non-adjustable air flow guides fixed at 45 degrees. The fascia is given a polymer finish and anodised for extra protection against the weather elements. To enable the decorative fascia installation the damper must be embedded at least 40 mm deep into the wall as measured from the wall face to the damper flange.



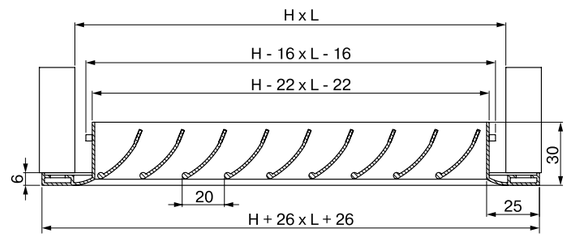
Note:

While selecting the aluminium decorative fascia mind the wall opening dimensions.

Vandal-Proof Mesh



Aluminium Decorative Fascia



Effective Cross-Section Dimensions and Area [m²]

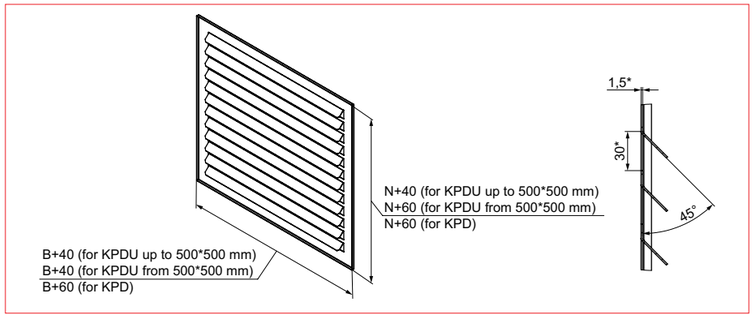
Height H, mm	Length L, mm													
	100	150	200	250	300	350	400	450	500	600	700	800	900	1000
100	0.004	0.007	0.010	0.012	0.015	0.018	0.021	0.024	0.027	0.033	0.039	0.045	0.051	0.057
150	0.070	0.010	0.015	0.018	0.023	0.027	0.031	0.035	0.039	0.047	0.055	0.064	0.072	0.080
200	0.010	0.015	0.021	0.026	0.033	0.038	0.045	0.051	0.058	0.070	0.081	0.093	0.105	0.115
250	0.012	0.018	0.026	0.032	0.041	0.047	0.055	0.062	0.070	0.084	0.098	0.106	0.113	0.128
300	0.015	0.023	0.033	0.041	0.051	0.059	0.069	0.077	0.086	0.096	0.115	0.132	0.149	0.168
350	0.017	0.026	0.038	0.047	0.059	0.068	0.080	0.090	0.099	0.111	0.132	0.151	0.170	0.193
400	0.020	0.030	0.044	0.054	0.069	0.079	0.093	0.103	0.117	0.142	0.166	0.189	0.212	0.237
450	0.023	0.035	0.051	0.062	0.080	0.090	0.107	0.117	0.131	0.160	0.186	0.214	0.239	0.265
500	0.026	0.039	0.056	0.070	0.089	0.100	0.119	0.130	0.145	0.178	0.206	0.238	0.265	0.293
600	0.031	0.047	0.067	0.084	0.105	0.121	0.142	0.158	0.173	0.214	0.246	0.287	0.318	0.349
700	0.036	0.055	0.078	0.094	0.124	0.145	0.170	0.184	0.203	0.251	0.288	0.336	0.372	0.408
800	0.042	0.063	0.090	0.112	0.141	0.163	0.190	0.211	0.232	0.288	0.330	0.385	0.426	0.467
900	0.048	0.072	0.103	0.129	0.160	0.185	0.228	0.238	0.262	0.325	0.372	0.435	0.481	0.527
1000	0.053	0.079	0.113	0.141	0.177	0.204	0.239	0.266	0.292	0.361	0.414	0.484	0.536	0.587

MULTI-PURPOSE FIRE SAFETY SMOKE DAMPER

RD Smoke Exhaust Grille

KPD/KPDU dampers can be additionally equipped with a smoke exhaust grille. The smoke exhaust grille is used to entirely block the external view of the damper internals in the absence of strict requirements to the unit appearance. The smoke exhaust grille also doubles as unauthorized access protection for the damper and its actuator. The grille has a single horizontal row of non-adjustable air flow guides fixed at 45 degrees. The grille can be made of galvanized steel (Zn), carbon steel with a special coating (M), stainless steel (N) or aluminium (A). The grille is attached directly to the damper flange by means of self-tapping screws with the flaps facing outward and does not require any additional recessing of the damper.

RD Smoke Exhaust Grille



Effective Cross-Section Dimensions and Area [m²]

Width B [mm]	Height H [mm]														
	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.059														
350	0.069	0.079													
400	0.080	0.091	0.114												
450	0.090	0.103	0.129	0.142											
500	0.101	0.115	0.144	0.158	0.173										
550	0.111	0.127	0.159	0.175	0.191	0.207									
600	0.122	0.139	0.174	0.191	0.209	0.226	0.244								
650	0.132	0.151	0.189	0.208	0.227	0.246	0.265	0.284							
700	0.143	0.163	0.204	0.224	0.245	0.265	0.286	0.306	0.347						
750	0.153	0.175	0.219	0.241	0.263	0.285	0.307	0.329	0.372	0.394					
800	0.164	0.187	0.234	0.257	0.281	0.304	0.328	0.351	0.398	0.421	0.445				
850	0.174	0.199	0.249	0.274	0.299	0.324	0.349	0.374	0.423	0.448	0.473	0.498			
900	0.185	0.211	0.264	0.290	0.317	0.343	0.370	0.396	0.449	0.475	0.502	0.528	0.554		
950	0.195	0.223	0.279	0.307	0.335	0.363	0.391	0.419	0.474	0.502	0.530	0.558	0.586	0.614	
1000	0.206	0.235	0.294	0.323	0.353	0.382	0.412	0.441	0.500	0.529	0.559	0.588	0.617	0.647	0.676

Conventional Designation:

Smoke Exhaust Grille RD X - X - X

Effective Damper Cross-Section:
BxH (B – Width, mm; H – Height, mm)

Damper Type:
KPDU, KPD

Material:
Zn – Galvanized Steel;
M – Carbon Steel with Special Coating;
N – Stainless Steel;
A – Aluminium.

KP-1...72S
Series

Normally Open Fire-Resisting
Duct Damper
with Mechanical Drive Mechanism

KP-1...BLF
KP-1...BF
Series

Normally Open Fire-Resisting
Duct Damper
with Electric Drive Mechanism

Application

Fire dampers are intended for automatic blocking of process openings and the those of air duct ducts in intermediate floors, walls and partitions as well as blocking the openings in supply and exhaust ducts of smoke ventilation systems. The dampers of this particular design are not suitable for installation in air ducts and channels of premises rated explosion and fire safety category A and B and in flammable and explosive mixture intakes. KP-1 Fire-Resisting Duct Dampers are capable of resisting fire for at least 60 minutes (EI 60) at the temperature of 600 °C.

Design

KP-1 series dampers are made in the general-purpose industrial version with a minimized variety of hardware components using low-alloy galvanized steel. The damper flap is made of fire-resistant material. The duct installation design results in two mounting flanges on the casing for integration into a ventilation ducts (air ducting) and external configuration of the drive mechanism for easier maintenance. KP-1 series dampers are characterised by a simplified design and the absence of a hot and cold zone baffle. Depending on the design variant KP-1 series dampers are equipped with:

- **a mechanical actuating unit with a thermal fuse and a return spring.**

The damper is set to the operating position upon the thermal fuse breakdown resulting from a temperature increase.
Emergency Damper Actuation: The flap remains in the protective position (damper unaffected by fire) and is fixed by a thermal fuse (the return spring is cocked upon setting the damper to the protective position). Upon emergency actuation (damper directly affected by fire) the thermal fuse breaks down and the return spring sets the flap to the operating condition.

- **Electric Actuator with Built-In Return Spring and Back-Up Thermal Breaker.**

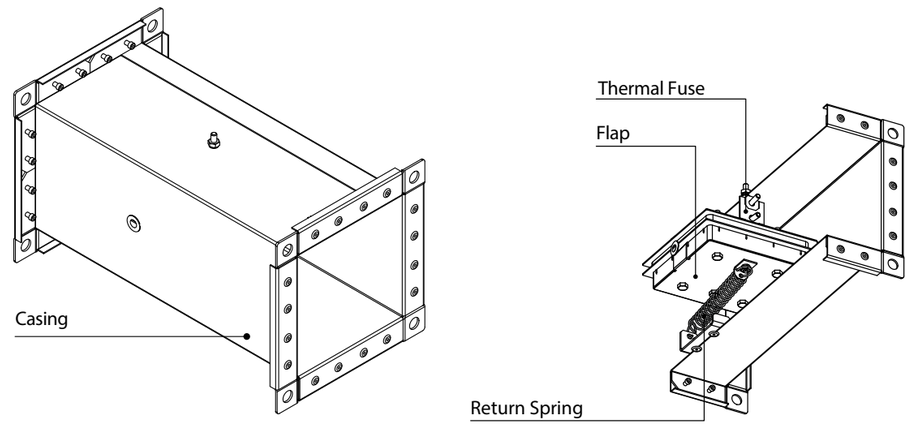
Damper Setting to Operating Position (Direct Fire Contact): Remotely, Via Electric Wire. The damper can be set to the operating or protective position either remotely via the control panel or manually using the manual cocking handle which is always included in the standard delivery package of the electric actuator. In case of the remote control panel failure the back-up thermal breaker interrupts the power supply to the electric actuator and the return spring sets the damper to the operating position.
Emergency Damper Actuation: The damper flap is automatically set to the protective position (damper unaffected by fire). The electric actuator remains energized at all times.
In case of an emergency actuation (direct fire contact): The electric actuator equipped with a return spring is de-energized and the damper flap is set to the operating position by means of the spring energy. In case of a power failure not related to fire and subsequent restoration to damper equipped with a return spring the damper flap is re-set to the protective position.

Conventional Designation:

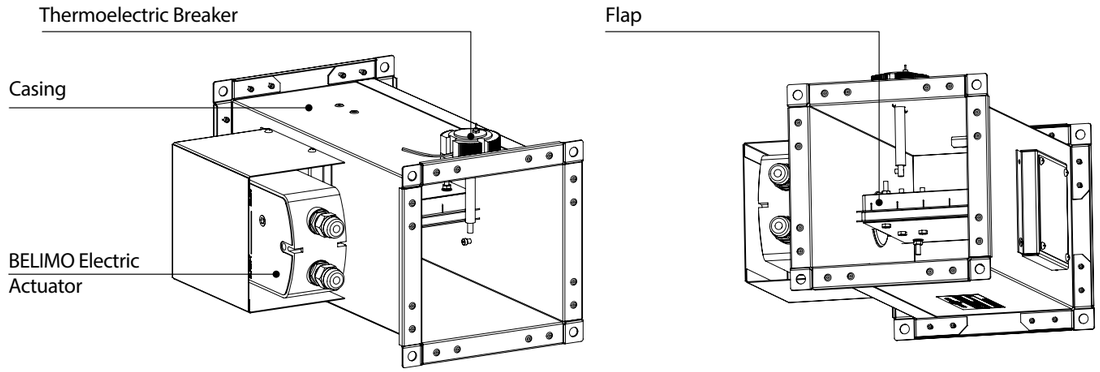
KP-1-X-X-XxX-X-X-X-X

- **Series**
- **Fire Resistance**
  1 – 1 hours
- **Purpose Type Code**
  O – Fire-Resisting
- **Design Variant**
  N – General Industrial
- **Damper Flow Area Width**
  200; 250; 300; 400; 500; 600; 800; 1000.
- **Damper Flow Area Height**
  200; 250; 300; 400; 500; 600; 800; 1000.
- **Number of Flanges**
  1 – One;
  2 – Two.
- **Actuator Type**
  72S – Thermal Fuse and Return Spring (Manual Actuation);
  BLF24-T – Electric Actuator Belimo BLF24-T with Return Spring and Thermal Sensor;
  BF24-T – Electric Actuator Belimo BF24-T with Return Spring and Thermal Sensor;
  BLF230-T – Electric Actuator Belimo BLF230-T with Return Spring and Thermal Sensor;
  BF230-T – Electric Actuator Belimo BF230-T with Return Spring and Thermal Sensor.
- **Actuator Location**
  SN – Outside;
  VN – Inside.
- **Protective Grille**
  S – Vandal-Proof Mesh;
  R – Decorative Fascia;
  O – No Protective Grille.

KP-1...72S Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring



KP-1....BLF and KP-1...BF Fire-Safety Damper with Belimo Electric Actuator and Thermoelectric Breaker

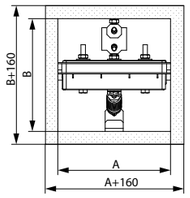


Installation

The damper must be installed into the building envelope structure in accordance with the applicable standards and regulations. The seal fire resistance must be at least equal to that of the building envelope. The dampers can be installed in any position in vertical and horizontal channels of fire-protection structures. The channels for damper installation must be made in such a way so as to prevent the transfer of loads caused by the fire-protection structures to the damper casing. The adjoining air duct must be suspended in such a way so as to prevent the transfer of air duct load to the damper flange. The minimum free space for accessing the control parts must be at least 350 mm. Make sure to arrange an inspection hole. While carrying out the installation mind size K. When two or more dampers are installed into the same fire-protection separation structure the distance between the two adjacent dampers must be at least 200 mm. The damper must be installed in such a way that the damper flap (in its closed position) lies in the fire-protection separation structure plane. If such installation is not possible, the damper casing part between the fire-protection separation structure and the damper flap must be insulated with a suitable material pursuant to the applicable standards.

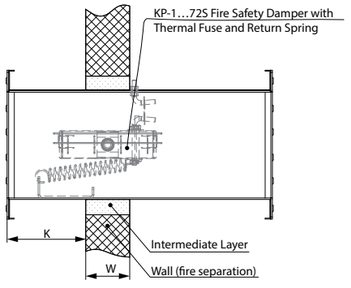
The damper control mechanism must be protected against damage and contamination. The damper casing must not deform any deformation during embedding. After the installation the flap must not catch against the damper casing while opening or closing. The fire-safety damper can be integrated into a tight wall structure - e.g. made of conventional concrete work of minimum width W = 100 mm or into a plasterboard wall of the necessary fire resistance class or into a tight ceiling structure - e.g. made of conventional concrete of minimum width W = 150 mm. Do not use any foaming substances for sealing the damper in the separation structure.

Installation Recommendations for KP-1...72S Dampers with Thermal Fuse and Return Spring:

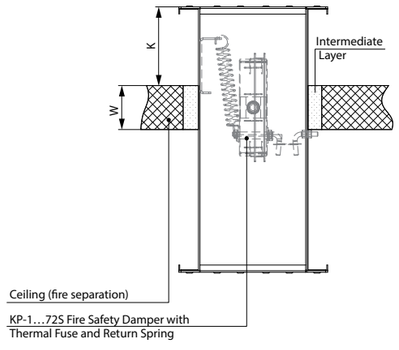


For Sizes A and B please refer to the dimension chart

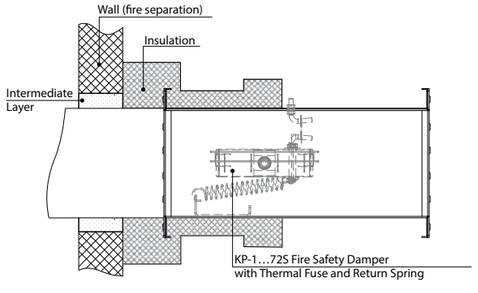
– In vertical building structures



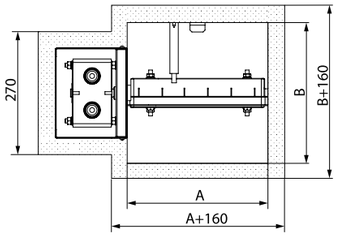
– In horizontal building structures



– Duct variant with an air duct

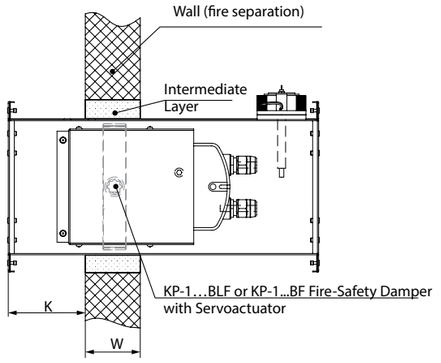


Installation Recommendations for KP-1....BLF and KP-1...BF Fire-Safety Dampers with Belimo Electric Actuator and Thermoelectric Breaker:

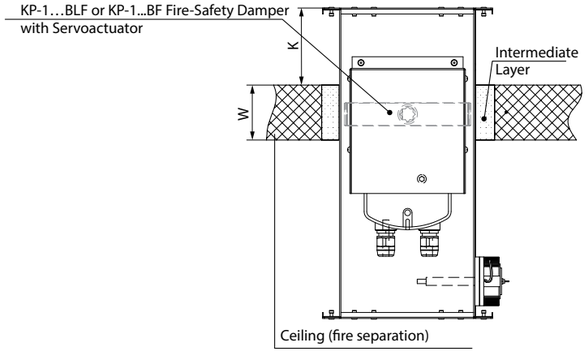


For Sizes A and B please refer to the dimension chart

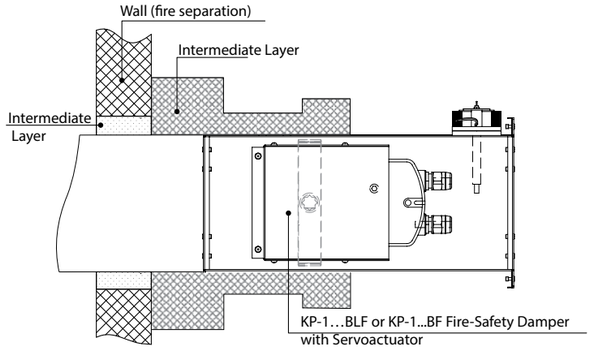
– In vertical building structures



– In horizontal building structures

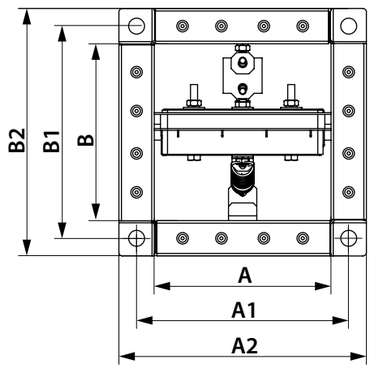


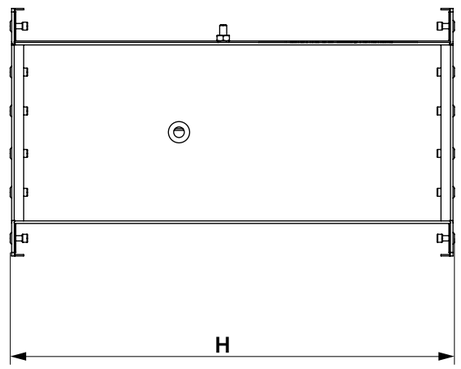
– Duct variant with an air duct



Outside and Connecting Dimensions of KP-1...72S with a Mechanical Actuator:

Channel Cross-Section	Dimensions [mm]							Weight [kg]
	A	A1	A2	B	B1	B2	H	
KP-1-0-N-200x200-2-72S-SN-0	200	220	240	200	220	240	350	7.5
KP-1-0-N-250x200-2-72S-SN-0	250	270	290	200	220	240	350	8.1
KP-1-0-N-300x200-2-72S-SN-0	250	270	290	250	270	290	350	8.7
KP-1-0-N-250x250-2-72S-SN-0	300	320	340	200	220	240	350	8.6
KP-1-0-N-300x250-2-72S-SN-0	300	320	340	250	270	290	350	9.34
KP-1-0-N-400x250-2-72S-SN-0	300	320	340	300	320	340	350	10
KP-1-0-N-300x300-2-72S-SN-0	400	420	440	250	270	290	350	10.6
KP-1-0-N-400x300-2-72S-SN-0	400	420	440	300	320	340	350	11.3
KP-1-0-N-500x300-2-72S-SN-0	400	420	440	400	420	440	350	12.8
KP-1-0-N-400x400-2-72S-SN-0	500	520	540	300	320	340	350	12.6
KP-1-0-N-500x400-2-72S-SN-0	500	520	540	400	420	440	350	14.2
KP-1-0-N-600x400-2-72S-SN-0	500	530	560	500	530	560	350	15.9
KP-1-0-N-500x500-2-72S-SN-0	600	620	640	400	420	440	350	15.7
KP-1-0-N-600x500-2-72S-SN-0	600	630	660	500	530	560	350	17.5
KP-1-0-N-600x600-2-72S-SN-0	600	630	660	600	630	660	350	19.2



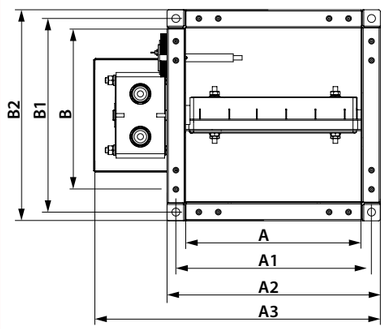


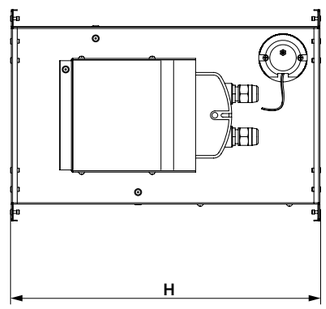
Flow Area of Fire-Resisting Duct Damper with Mechanical Actuator, m²

S2/S1	200	250	300	400	500	600
200	0.032					
250	0.04	0.053				
300	0.048	0.063	0.078			
400	0.064	0.084	0.104	0.144		
500	0.08	0.105	0.13	0.18	0.23	
600	0.096	0.126	0.156	0.216	0.276	0.336

Outside and Connecting Dimensions of KP-1....BLF and KP-1...BF Dampers with Electric Actuators:

Channel Cross-Section	Dimensions [mm]									Weight [kg]
	A	B	C	D	E	F	S	S1	S2	
KP-1-0-N-200x200-2-BLF230-T-SN-0	280	280	240	240	220	220	322.5	200	200	10.75
KP-1-0-N-250x200-2-BLF230-T-SN-0	280	330	240	290	220	270	372.5	200	250	11.6
KP-1-0-N-300x200-2-BLF230-T-SN-0	280	380	240	340	220	320	422.5	200	300	12.45
KP-1-0-N-250x250-2-BLF230-T-SN-0	330	330	290	290	270	270	372.5	250	250	12.5
KP-1-0-N-300x250-2-BLF230-T-SN-0	330	380	290	340	270	320	422.5	250	300	13.4
KP-1-0-N-400x250-2-BLF230-T-SN-0	330	480	290	440	270	420	522.5	250	400	15.2
KP-1-0-N-300x300-2-BLF230-T-SN-0	380	380	340	340	320	320	422.5	300	300	14.3
KP-1-0-N-400x300-2-BLF230-T-SN-0	380	480	340	440	320	420	522.5	300	400	16.2
KP-1-0-N-500x300-2-BLF230-T-SN-0	380	580	340	540	320	520	622.5	300	500	18.1
KP-1-0-N-400x400-2-BLF230-T-SN-0	480	480	440	440	420	420	522.5	400	400	18.3
KP-1-0-N-500x400-2-BLF230-T-SN-0	480	580	440	540	420	520	622.5	400	500	20.4
KP-1-0-N-600x400-2-BLF230-T-SN-0	480	680	440	640	420	620	722.5	400	600	22.5
KP-1-0-N-500x500-2-BF230-T-SN-0	580	580	540	540	520	520	622.5	500	500	22.6
KP-1-0-N-600x500-2-BF230-T-SN-0	580	680	540	640	520	620	722.5	500	600	25
KP-1-0-N-800x500-2-BF230-T-SN-0	580	880	540	840	520	820	922.5	500	800	29.5
KP-1-0-N-600x600-2-BF230-T-SN-0	680	680	640	640	620	620	722.5	600	600	27.4
KP-1-0-N-800x600-2-BF230-T-SN-0	680	880	640	840	620	820	922.5	600	800	32.4
KP-1-0-N-1000x600-2-BF230-T-SN-0	680	1080	640	1040	620	1020	1122.5	600	1000	37.2
KP-1-0-N-800x800-2-BF230-T-SN-0	880	880	840	840	820	820	922.5	800	800	38.1
KP-1-0-N-1000x800-2-BF230-T-SN-0	880	1080	840	1040	820	1020	1122.5	800	1000	43.9
KP-1-0-N-1000x1000-2-BF230-T-SN-0	1080	1080	1040	1040	1020	1020	1122.5	1000	1000	52.2





Note: The values given in the table for dampers with BF230-T/BLF230-T actuators are identical for those equipped with BF24-T/BLF24-T actuators.

Flow Area of Fire-Resisting Duct Damper with External Belimo Electric Actuator, m²

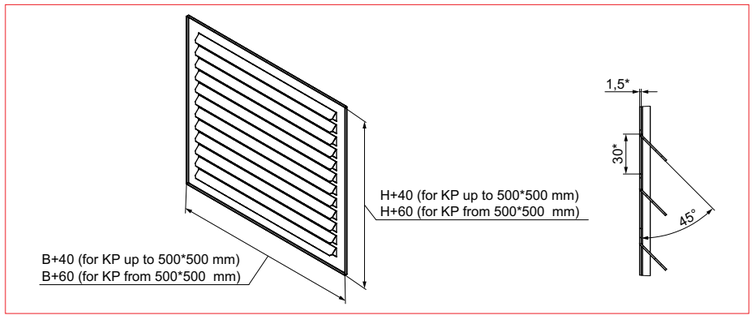
S2/S1	200	250	300	400	500	600	800	1000
200	0.032							
250	0.04	0.053						
300	0.048	0.063	0.078					
400	0.064	0.084	0.104	0.144				
500	0.08	0.105	0.13	0.18	0.23			
600	0.096	0.126	0.156	0.216	0.276	0.336		
800	0.128	0.168	0.208	0.288	0.368	0.448	0.608	
1000	0.16	0.21	0.26	0.36	0.46	0.56	0.76	0.96

– *BLF 230-T or BLF 24-T;*
– *BF 230-T or BF 24-T.*

RD Smoke Exhaust Grille

KP-1 Fire-Resisting Dampers can be additionally equipped with a smoke exhaust grille. The smoke exhaust grille is used to entirely block the external view of the damper internals in the absence of strict requirements to the unit appearance. The smoke exhaust grille also doubles as unauthorized access protection for the damper and its actuator. The grille has a single horizontal row of non-adjustable air flow guides fixed at 45 degrees. The grille can be made of galvanized steel (Zn), carbon steel with a special coating (M), stainless steel (N) or aluminium (A). The grille is attached directly to the damper flange by means of self-tapping screws with the flaps facing outward and does not require any additional recessing of the damper.

RD Smoke Exhaust Grille



Effective Cross-Section Dimensions and Area [m²]

Width B [mm]	Height H [mm]														
	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.059														
350	0.069	0.079													
400	0.080	0.091	0.114												
450	0.090	0.103	0.129	0.142											
500	0.101	0.115	0.144	0.158	0.173										
550	0.111	0.127	0.159	0.175	0.191	0.207									
600	0.122	0.139	0.174	0.191	0.209	0.226	0.244								
650	0.132	0.151	0.189	0.208	0.227	0.246	0.265	0.284							
700	0.143	0.163	0.204	0.224	0.245	0.265	0.286	0.306	0.347						
750	0.153	0.175	0.219	0.241	0.263	0.285	0.307	0.329	0.372	0.394					
800	0.164	0.187	0.234	0.257	0.281	0.304	0.328	0.351	0.398	0.421	0.445				
850	0.174	0.199	0.249	0.274	0.299	0.324	0.349	0.374	0.423	0.448	0.473	0.498			
900	0.185	0.211	0.264	0.290	0.317	0.343	0.370	0.396	0.449	0.475	0.502	0.528	0.554		
950	0.195	0.223	0.279	0.307	0.335	0.363	0.391	0.419	0.474	0.502	0.530	0.558	0.586	0.614	
1000	0.206	0.235	0.294	0.323	0.353	0.382	0.412	0.441	0.500	0.529	0.559	0.588	0.617	0.647	0.676

– When ordering grilles for the dimensions given please add mounting inserts to the order.

Conventional Designation:

Smoke Exhaust Grille RD X - X - X

Material:
Zn – Galvanized Steel;
M – Carbon Steel with Special Coating;
N – Stainless Steel;
A – Aluminium.

Effective Damper Cross-Section:
BxH (B – Width, mm; H – Height, mm)

Damper Type:
KP

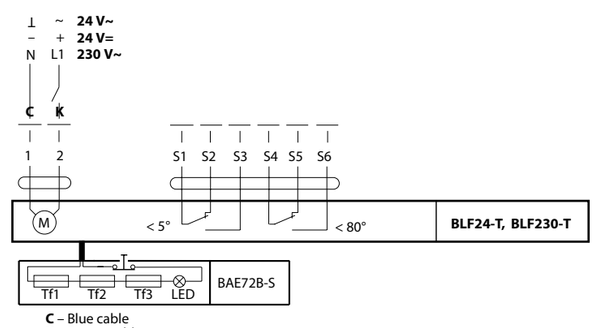
Main Technical Specifications of BLF24-T and BLF230-T Electric Actuators

Technical Specifications		BLF24-T	BLF230-T
Rated Voltage		24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Rated Voltage Range		19,2...28,8 V~ 21,6...28,8 V=	198...264 V~
Design Capacity		7 VA I max. 5,8 A at t = 5 ms	7 VA I max 150 mA при t = 10 ms
Rated Power Input	During Motor Operation During Retention	5 W 2,5 W	6 W 3 W
Connection	Power Auxiliary Switches	Cable: 1 m, 2 x 0.75 mm² 1 m, 6 x 0.75 mm²	
Auxiliary Switches - Switching Points		2 single-pole with double switching 1 mA...3 A (0,5 A), 5 V=...250 V~⧈ 5°∢, 80°∢	
Torque:	Motor Spring	Min. 6 Nm Min. 4 Nm	
Switch Actuation Temperature		Tf1: Outside Air Duct Temperature 72°C Tf2+ Tf3: Inside Air Duct Temperature 72°C	
Rotational Direction		Selected by L/R Setting	
Swing Angle		Max. 95°∢, (including 5°∢ of factory spring pre-cocking)	
Position Indication		Mechanical Pointer	
Damper Swing		Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time:	Motor Spring	40...75 s (0...6 Nm) ≈20 s at –20...+50°C / max. 60 s at –30 °C	
Noise Level:	Motor Spring	max 45 dB ≈62 dB	
Protection Class		III (for low voltages)	II (complete insulation) ⧈
Casing IP Code		IP 54	
Safe Temperature		The flap assumes the protective position at ambient temperatures above +75° C	
Ambient Temperature		–30° ... +50 °C	
Storage Temperature		–40° ... +50 °C	
Technical Maintenance		Not Required	
Weight [g]		1630	1730

Electrical Connection

Electrical Connections Diagram

Примечание
- BLF24-T: Connected via transformer
- BLF230-T: Upon actuator disconnection from the power mains the switching device action must ensure at least a 3 mm gap between the phase wires.
- Other electric actuators may be shunted in consideration of capacity ratings.

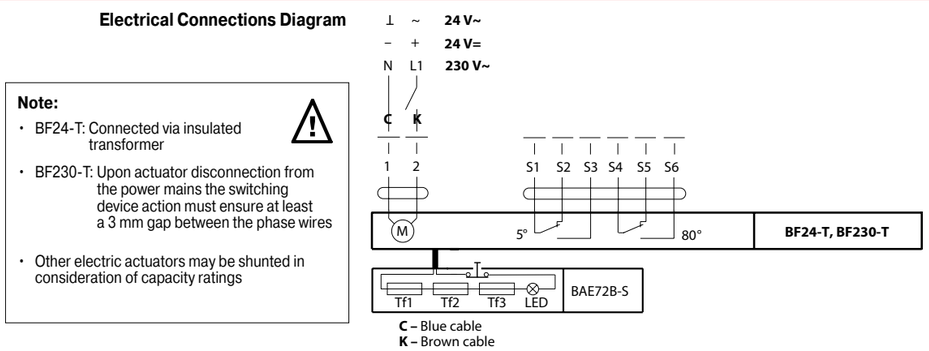


Main Technical Specifications of BF24-T and BF230-T Electric Actuators

Technical Specifications	BF24-T	BF230-T
Rated Voltage	24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Rated Voltage Range	19,2...28,8 V~ 21,6...28,8 V=	198...264 V~
Design Capacity	10 VA I max 8,3 A at t = 5 ms	12,5 VA I макс. 500 mA at t = 5 ms
Rated Power Input During Motor Operation During Retention	7 W 2 W	8 W 3 W
Connection	Cable: 1 m, 2 x 0.75 mm² 1 m, 6 x 0.75 mm²	
Auxiliary Switches - Switching Points	2 single-pole with double switching 1 mA...6 A (3 A), 5 V=...250 V~ ⧈ 5°◁, 80°◁	
Torque: Motor Spring	min.18 Nm min. 12 Nm	
Switch Actuation Temperature	Tf1: Outside Air Duct Temperature 72°C Tf2+ Tf3: Inside Air Duct Temperature 72°C	
Rotational Direction	Selected by L/R Setting	
Swing Angle	Max. 95°◁, (including 5°◁ of factory spring pre-cocking)	
Position Indication	Mechanical indicator	
Damper Swing	Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time: Motor Spring	140 c ≈ 16 s (at ambient t° = 20 °C)	
Noise Level: Motor Spring	Max. 45 dB Spring ≈ 62 dB	
Protection Class	III (for low voltages)	II (complete insulation) ⧈
Casing IP Code	IP 54	
Safe Temperature	The flap assumes the protective position at ambient temperatures above +75° C	
Ambient Temperature	–30° ... +50 °C	
Storage Temperature	–40° ... +50 °C	
Weight [g]	2800	3100

Electrical Connection

Electrical Connections Diagram



Note:

- BF24-T: Connected via insulated transformer
- BF230-T: Upon actuator disconnection from the power mains the switching device action must ensure at least a 3 mm gap between the phase wires
- Other electric actuators may be shunted in consideration of capacity ratings

KP-2...72S Series

Normally Open Fire-Resisting Duct Damper with Mechanical Drive Mechanism

KP-2...BLF KP-2...BF Series

Normally Open Fire-Resisting Duct Damper with Electric Drive Mechanism

KP-2...BLF...-1 KP-2...BF...-1 Series

Simplified Normally Open Fire-Resisting Duct Damper with Electric Drive Mechanism

Application

Fire safety dampers are intended for automatic blocking of process openings and the those of air duct channels in intermediate floors, walls and partitions as well as blocking the openings in supply and exhaust ducts of smoke ventilation systems. The dampers of this particular design are not suitable for installation in air ducts and channels of premises rated explosion and fire safety category A and B and in flammable and explosive mixture intakes. KP-2 Fire-Resisting Duct Dampers are capable of resisting fire for at least 120 minutes (EI 120) at the temperature of 600 °C.

Design

KP-2 series dampers are made in the general-purpose industrial version with a minimized variety of hardware components using low-alloy galvanized steel. The damper flap is made of fire-resistant material. The duct installation design results in two mounting flanges on the casing for integration into a ventilation ducts (air ducting) and external configuration of the drive mechanism for easier maintenance.

KP-2...BLF/KP-2...BF series dampers are equipped with a hot and cold zone baffle.

KP-2...BLF...-1/KP-2...BF...-1 series dampers have a simplified construction:

- Simplified damper swing mechanism;

The zone baffle has been replaced by casing perforation covered with ceramic fibre material and aluminium foil tape;

New material and altered flap thickness.

Depending on the design modification the dampers of this series are equipped with:

- **a mechanical actuating unit with a thermal fuse and a return spring.**

The damper is set to the operating position upon the thermal fuse breakdown resulting from a temperature increase.

The damper can then be re-set to the protective position only manually by using a handle and by replacing the thermal fuse through the access hole.

Emergency Damper Actuation: The flap is set to the protective position (damper unaffected by fire) by means of the handle on the external side of the damper (the return spring is cocked upon setting the damper flap to the protective position) and the handle position is secured by the lock. Upon an emergency activation (direct damper contact with fire) the thermal fuse breaks down enabling the lock with releases the handle allowing the return spring to set the damper flap to the operating position.

- **Electric Actuator with Built-In Return Spring and Back-Up Thermal Breaker.**

Damper Setting to Operating Position (Direct Fire Contact): Remotely, Via Electric Drive. The damper can be set to the operating or protective position either remotely via the control panel or manually using the manual cocking handle which is always included in the standard delivery package of the electric actuator.

In case of the remote control panel failure the back-up thermal breaker interrupts the power supply to the electric actuator and the return spring sets the damper to the operating position.

Emergency Damper Actuation: The damper flap is automatically set to the protective position (damper unaffected by fire). The electric actuator remains energized at all times.

In case of an emergency actuation (direct fire contact): The electric actuator equipped with a return spring is de-energized and the damper flap is set to the operating position by means of the spring energy. In case of a power failure not related to fire and subsequent restoration to damper equipped with a return spring the damper flap is re-set to the protective position.

Conventional Designation:

KP-2-X-X-XxX-X-X-X-X-1

Series

Fire Resistance
2 – 2 hours

Purpose Type Code
O – Fire-Resisting

Design Modification
N – General Industrial

Damper Flow Area Width
200; 250; 300; 400; 500; 600; 800; 1000.

Damper Flow Area Height
200; 250; 300; 400; 500; 600; 800; 1000.

Number of Flanges
1 – One;
2 – Two.

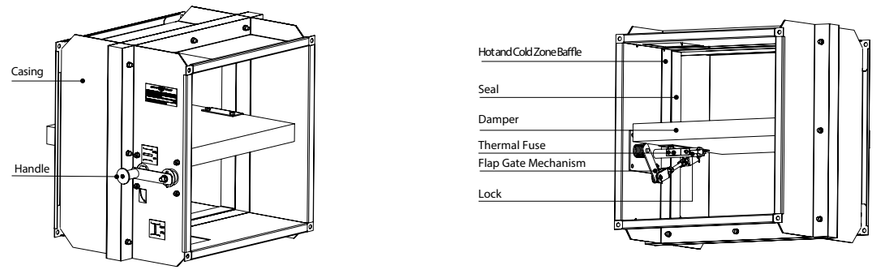
Actuator Type
72S – Thermal Fuse and Return Spring (Manual Actuation);
BLF24-T – Electric Actuator Belimo BLF24-T with Return Spring and Thermal Sensor;
BF24-T – Electric Actuator Belimo BF24-T with Return Spring and Thermal Sensor;
BLF230-T – Electric Actuator Belimo BLF230-T with Return Spring and Thermal Sensor;
BF230-T – Electric Actuator Belimo BF230-T with Return Spring and Thermal Sensor.

Actuator Location
SN – Outside;
VN – Inside.

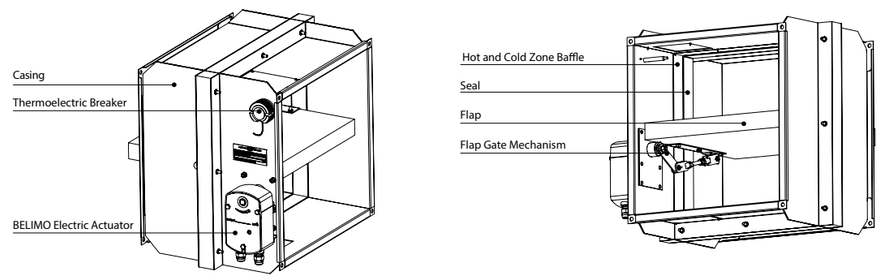
Protective Grille
S – Vandal-Proof Mesh;
R – Decorative Grille;
O – No Protective Grille.

Design Variant
1 – Simplified Damper Design.

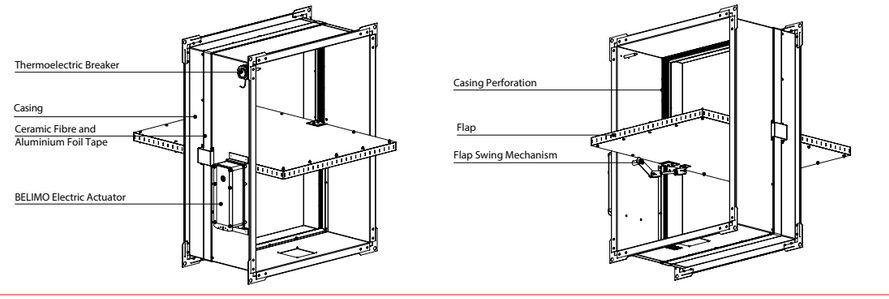
KP-2...72S Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring



KP-2....BLF and KP-2...BF Fire-Safety Damper with Belimo Electric Actuator and Thermoelectric Breaker



KP-2....BLF...-1 and KP-2...BF...-1 Fire-Safety Damper with Belimo Electric Actuator and Thermoelectric Breaker



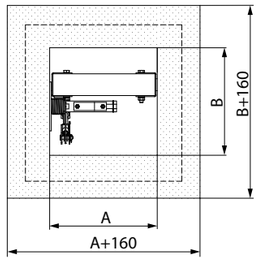
Installation

The damper must be installed into the building envelope structure in accordance with the applicable standards and regulations. The seal fire resistance must be at least equal to that of the building envelope. The dampers can be installed in any position in vertical and horizontal channels of fire-protection structures. The channels for damper installation must be made in such a way so as to prevent the transfer of loads caused by the fire-protection structures to the damper casing. The adjoining air duct must be suspended in such a way so as to prevent the transfer of air duct load to the damper flange. The minimum free space for accessing the control parts must be at least 350 mm. Make sure to arrange an inspection hole. While carrying out the installation consider size K. When two or more dampers are installed into the same fire-protection separation structure the distance between the two adjacent dampers must be at least 200 mm.

The damper must be installed in such a way that the damper flap (in its closed position) lies in the fire-protection divider structure plane. If such installation is not possible, the damper casing part between the fire-protection separation space and the damper flap must be insulated with a suitable material pursuant to the applicable standards.

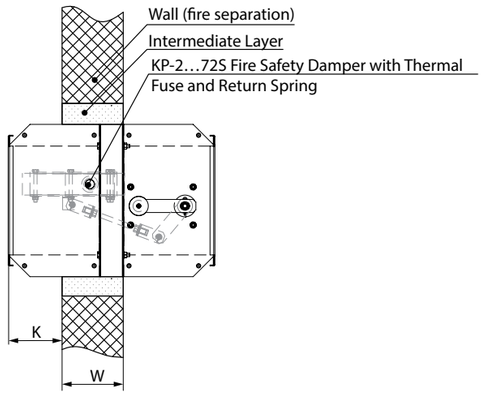
The damper control mechanism must be protected against damage and contamination. The damper casing must not deform any deformation during embedding. After the installation the flap must not catch against the damper casing while opening or closing. The fire-safety damper can be integrated into a tight wall structure - e.g. made of conventional concrete work of minimum width W = 100 mm or into a plasterboard wall of the necessary fire resistance class or into a tight ceiling structure - e.g. made of conventional concrete of minimum width W = 150 mm. Do not use any foaming substances for sealing the damper in the separation structure.

Installation Recommendations for KP-2...72S Dampers with Thermal Fuse and Return Spring:

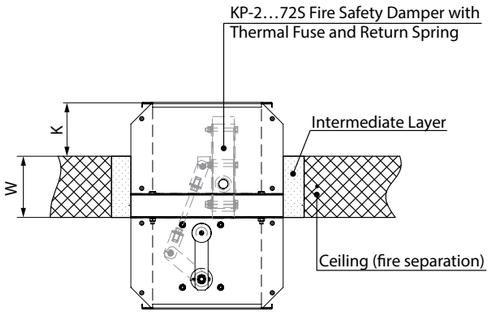


For Sizes A and B please refer to the dimension table

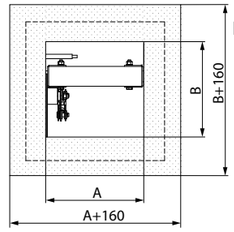
– In vertical building structures



– In horizontal building structures

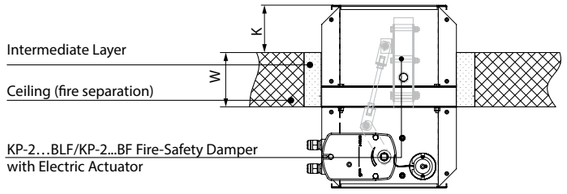


Installation Recommendations for KP-2....BLF and KP-2...BF Fire-Safety Dampers with Belimo Electric Actuator and Thermoelectric Breaker:

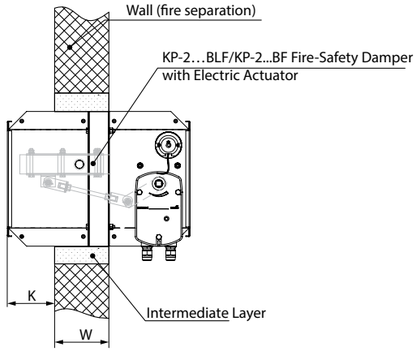


For Sizes A and B please refer to the dimension table

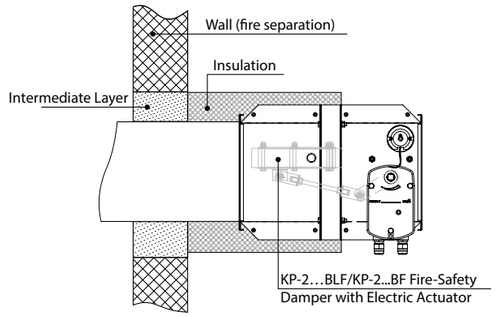
– In horizontal building structures



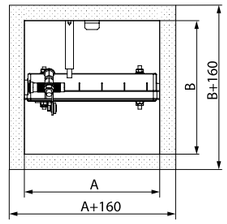
In vertical building structures



– Duct variant with an air duct

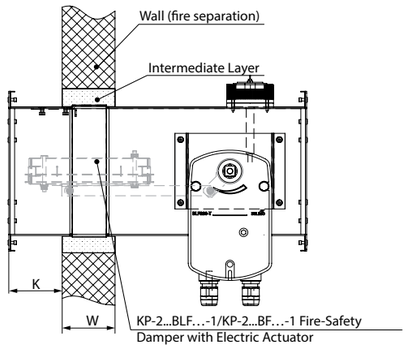


Installation Recommendations for KP-2....BLF...-1 and KP-2...BF...-1 Fire-Safety Dampers with Belimo Electric Actuator and Thermoelectric Breaker:

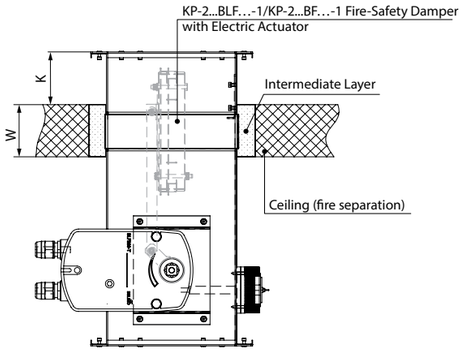


For Sizes A and B please refer to the dimension table

– In vertical building structures

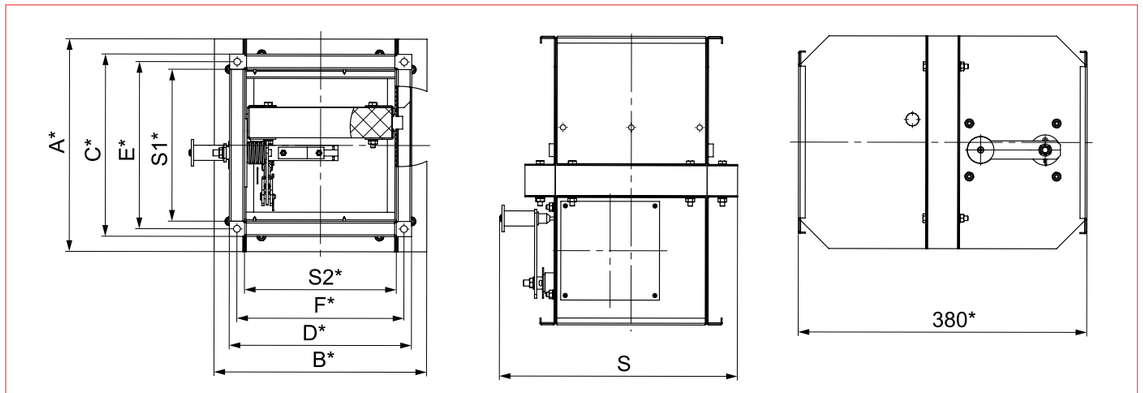


–Duct variant with an air duct



Outside and Connecting Dimensions of KP-2...72S with a Mechanical Actuator:

Channel Cross-Section	Dimensions [mm]									Weight [kg]
	A	B	C	D	E	F	S	S1	S2	
KP-2-0-N-200x200-2-72S-SN-0	280	280	240	240	220	220	313.5	200	200	10
KP-2-0-N-250x200-2-72S-SN-0	280	330	240	290	220	270	363.5	200	250	11
KP-2-0-N-300x200-2-72S-SN-0	280	380	240	340	220	320	413.5	200	300	12
KP-2-0-N-250x250-2-72S-SN-0	330	330	290	290	270	270	363.5	250	250	12.1
KP-2-0-N-300x250-2-72S-SN-0	330	380	290	340	270	320	413.5	250	300	13.25
KP-2-0-N-400x250-2-72S-SN-0	330	480	290	440	270	420	513.5	250	400	15.5
KP-2-0-N-300x300-2-72S-SN-0	380	380	340	340	320	320	413.5	300	300	14.5
KP-2-0-N-400x300-2-72S-SN-0	380	480	340	440	320	420	513.5	300	400	16.9
KP-2-0-N-500x300-2-72S-SN-0	380	580	340	540	320	520	613.5	300	500	19.4
KP-2-0-N-400x400-2-72S-SN-0	480	480	440	440	420	420	513.5	400	400	19.9
KP-2-0-N-500x400-2-72S-SN-0	480	580	440	540	420	520	613.5	400	500	22.7
KP-2-0-N-600x400-2-72S-SN-0	480	680	440	640	420	620	713.5	400	600	25.5
KP-2-0-N-500x500-2-72S-SN-0	580	580	540	540	520	520	613.5	500	500	27.8
KP-2-0-N-600x500-2-72S-SN-0	580	680	540	640	520	620	713.5	500	600	31.25
KP-2-0-N-600x600-2-72S-SN-0	580	680	640	640	640	620	713.5	500	600	35

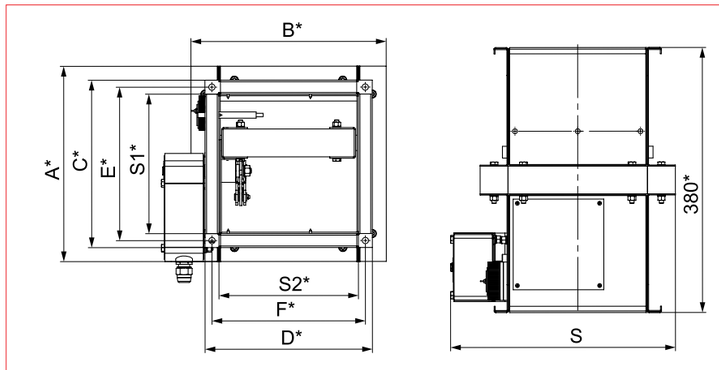


Flow Area of Fire-Resisting Duct Damper with Mechanical Actuator, m²

S2/S1	200	250	300	400	500	600
200	0.032					
250	0.04	0.053				
300	0.048	0.063	0.078			
400	0.064	0.084	0.104	0.144		
500	0.08	0.105	0.13	0.18	0.23	
600	0.096	0.126	0.156	0.216	0.276	0.336

Outside and Connecting Dimensions of KP-2....BLF and KP-2...BF Dampers with Electric Actuators:

Channel Cross-Section	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-2-O-N-200x200-2-BLF230-T-SN-O	200	220	240	340	200	220	240	350	7.5
KP-2-O-N-250x200-2-BLF230-T-SN-O	250	270	290	390	200	220	240	350	8.1
KP-2-O-N-250x250-2-BLF230-T-SN-O	250	270	290	390	250	270	290	350	8.7
KP-2-O-N-300x200-2-BLF230-T-SN-O	300	320	340	440	200	220	240	350	8.6
KP-2-O-N-300x250-2-BLF230-T-SN-O	300	320	340	440	250	270	290	350	9.34
KP-2-O-N-300x300-2-BLF230-T-SN-O	300	320	340	440	300	320	340	350	10
KP-2-O-N-400x250-2-BLF230-T-SN-O	400	420	440	540	250	270	290	350	10.6
KP-2-O-N-400x300-2-BLF230-T-SN-O	400	420	440	540	300	320	340	350	11.3
KP-2-O-N-400x400-2-BLF230-T-SN-O	400	420	440	540	400	420	440	350	12.8
KP-2-O-N-500x300-2-BLF230-T-SN-O	500	520	540	640	300	320	340	350	12.6
KP-2-O-N-500x400-2-BLF230-T-SN-O	500	520	540	640	400	420	440	350	14.2
KP-2-O-H-500x500-2-BF230-T-SN-O	500	530	560	650	500	530	560	350	15.9
KP-2-O-N-600x400-2-BLF230-T-SN-O	600	620	640	740	400	420	440	350	15.7
KP-2-O-N-600x500-2-BF230-T-SN-O	600	630	660	750	500	530	560	350	17.5
KP-2-O-N-600x600-2-BF230-T-SN-O	600	630	660	750	600	630	660	350	19.2
KP-2-O-N-800x500-2-BF230-T-SN-O	800	830	860	950	500	530	560	350	20.6
KP-2-O-N-800x600-2-BF230-T-SN-O	800	830	860	950	600	630	660	350	22.6
KP-2-O-N-800x800-2-BF230-T-SN-O	800	830	860	950	800	830	860	350	26.6
KP-2-O-N-1000x600-2-BF230-T-SN-O	1000	1030	1060	1150	600	630	660	350	26
KP-2-O-N-1000x800-2-BF230-T-SN-O	1000	1030	1060	1150	800	830	860	350	30.6
KP-2-O-N-1000x1000-2-BF230-T-SN-O	1000	1030	1060	1150	1000	1030	1060	350	36.4



Note: The values given in the table for dampers with BF230-T/BLF230-T actuators are identical for those equipped with BF24-T/BLF24-T actuators.

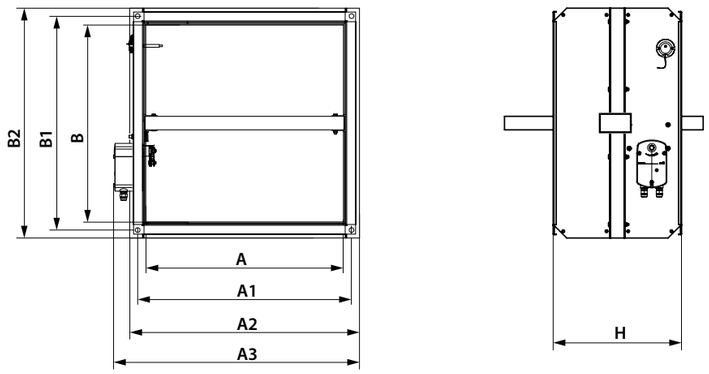
Flow Area of Fire-Resisting Duct Damper with External Belimo Electric Actuator, m²

S2/S1	200	250	300	400	500	600	800	1000
200	0.032							
250	0.04	0.053						
300	0.048	0.063	0.078					
400	0.064	0.084	0.104	0.144				
500	0.08	0.105	0.13	0.18	0.23			
600	0.096	0.126	0.156	0.216	0.276	0.336		
800	0.128	0.168	0.208	0.288	0.368	0.448	0.608	
1000	0.16	0.21	0.26	0.36	0.46	0.56	0.76	0.96

– *BLF 230-T or BLF 24-T;*
– *BF 230-T or BF 24-T.*

Outside and Connecting Dimensions of KP-2....BLF...-1 and KP-2...BF...-1 Dampers with Electric Actuators:

Duct Cross-Section	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-2-O-N-200x200-2-BLF230-T-SN-O-1	200	220	240	340	200	220	240	350	9.5
KP-2-O-N-250x200-2-BLF230-T-SN-O-1	250	270	290	390	200	220	240	350	10
KP-2-O-N-250x250-2-BLF230-T-SN-O-1	250	270	290	390	250	270	290	350	11.5
KP-2-O-N-300x200-2-BLF230-T-SN-O-1	300	320	340	440	200	220	240	350	11.45
KP-2-O-N-300x250-2-BLF230-T-SN-O-1	300	320	340	440	250	270	290	350	11.95
KP-2-O-N-300x300-2-BLF230-T-SN-O-1	300	320	340	440	300	320	340	350	12.8
KP-2-O-N-400x250-2-BLF230-T-SN-O-1	400	420	440	540	250	270	290	350	13.7
KP-2-O-N-400x300-2-BLF230-T-SN-O-1	400	420	440	540	300	320	340	350	14.7
KP-2-O-N-400x400-2-BLF230-T-SN-O-1	400	420	440	540	400	420	440	350	16.8
KP-2-O-N-500x300-2-BLF230-T-SN-O-1	500	520	540	640	300	320	340	350	16.6
KP-2-O-N-500x400-2-BLF230-T-SN-O-1	500	520	540	640	400	420	440	350	18.9
KP-2-O-N-500x500-2-BF230-T-SN-O-1	500	530	560	650	500	530	560	350	21.1
KP-2-O-N-600x400-2-BLF230-T-SN-O-1	600	620	640	740	400	420	440	350	21
KP-2-O-N-600x500-2-BF230-T-SN-O-1	600	630	660	750	500	530	560	350	23.5
KP-2-O-N-600x600-2-BF230-T-SN-O-1	600	630	660	750	600	630	660	350	25.9
KP-2-O-N-800x500-2-BF230-T-SN-O-1	800	830	860	950	500	530	560	350	28
KP-2-O-N-800x600-2-BF230-T-SN-O-1	800	830	860	950	600	630	660	350	30.9
KP-2-O-N-800x800-2-BF230-T-SN-O-1	800	830	860	950	800	830	860	350	36.6
KP-2-O-N-1000x600-2-BF230-T-SN-O-1	1000	1030	1060	1150	600	630	660	350	35.7
KP-2-O-N-1000x800-2-BF230-T-SN-O-1	1000	1030	1060	1150	800	830	860	350	42.4
KP-2-O-N-1000x1000-2-BF230-T-SN-O-1	1000	1030	1060	1150	1000	1030	1060	350	50.7



Note: The values given in the table for dampers with BF230-T/BLF230-T actuators are identical for those equipped with BF24-T/BLF24-T actuators.

Flow Area of Fire-Resisting Duct Damper with External Belimo Electric Actuator, m²

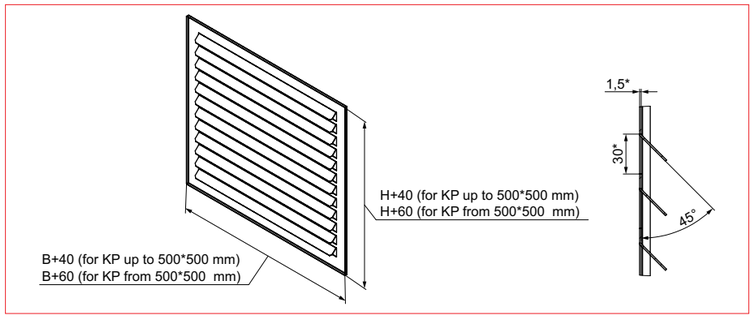
S2/S1	200	250	300	400	500	600	800	1000
200	0.032							
250	0.04	0.053						
300	0.048	0.063	0.078					
400	0.064	0.084	0.104	0.144				
500	0.08	0.105	0.13	0.18	0.23			
600	0.096	0.126	0.156	0.216	0.276	0.336		
800	0.128	0.168	0.208	0.288	0.368	0.448	0.608	
1000	0.16	0.21	0.26	0.36	0.46	0.56	0.76	0.96

– *BLF 230-T or BLF 24-T;*
– *BF 230-T or BF 24-T.*

RD Smoke Exhaust Grille

KP-2 Fire-Resisting Dampers can be additionally equipped with a smoke exhaust grille. The smoke exhaust grille is used to entirely block the external view of the damper internals in the absence of strict requirements to the unit appearance. The smoke exhaust grille also doubles as unauthorized access protection for the damper and its actuator. The grille has a single horizontal row of non-adjustable air flow guides fixed at 45 degrees. The grille can be made of galvanized steel (Zn), carbon steel with a special coating (M), stainless steel (N) or aluminium (A). The grille is attached directly to the damper flange by means of self-tapping screws with the flaps facing outward and does not require any additional recessing of the damper.

RD Smoke Exhaust Grille



Effective Cross-Section Dimensions and Area [m²]

Width B [mm]	Height N [mm]														
	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.059														
350	0.069	0.079													
400	0.080	0.091	0.114												
450	0.090	0.103	0.129	0.142											
500	0.101	0.115	0.144	0.158	0.173										
550	0.111	0.127	0.159	0.175	0.191	0.207									
600	0.122	0.139	0.174	0.191	0.209	0.226	0.244								
650	0.132	0.151	0.189	0.208	0.227	0.246	0.265	0.284							
700	0.143	0.163	0.204	0.224	0.245	0.265	0.286	0.306	0.347						
750	0.153	0.175	0.219	0.241	0.263	0.285	0.307	0.329	0.372	0.394					
800	0.164	0.187	0.234	0.257	0.281	0.304	0.328	0.351	0.398	0.421	0.445				
850	0.174	0.199	0.249	0.274	0.299	0.324	0.349	0.374	0.423	0.448	0.473	0.498			
900	0.185	0.211	0.264	0.290	0.317	0.343	0.370	0.396	0.449	0.475	0.502	0.528	0.554		
950	0.195	0.223	0.279	0.307	0.335	0.363	0.391	0.419	0.474	0.502	0.530	0.558	0.586	0.614	
1000	0.206	0.235	0.294	0.323	0.353	0.382	0.412	0.441	0.500	0.529	0.559	0.588	0.617	0.647	0.676

– *When ordering grilles for the dimensions given please add mounting inserts to the order.*

Conventional Designation:

Smoke Exhaust Grille RD X - X - X

Material:
Zn – Galvanized Steel;
M – Carbon Steel with Special Coating;
N – Stainless Steel;
A – Aluminium.

Effective Damper Cross-Section:
BxH (B – Width, mm; H – Height, mm)

Damper Type:
KP

Main Technical Specifications of BLF24-T and BLF230-T Electric Actuators

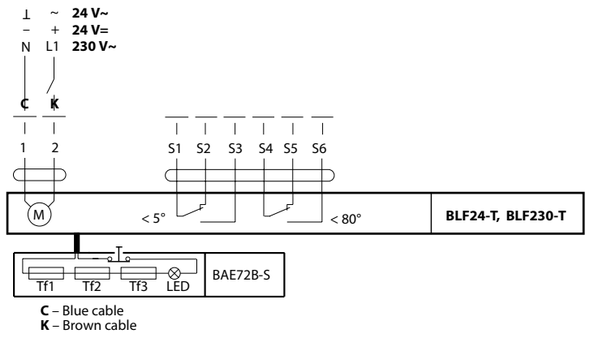
Technical Specifications		BLF24-T	BLF230-T
Rated Voltage		24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Rated Voltage Range		19,2...28,8 V~ 21,6...28,8 V=	198...264 V~
Design Capacity		7 VA I max. 5,8 A at t = 5 ms	7 VA I max 150 mA при t = 10 ms
Rated Power Input	During Motor Operation During Retention	5 W 2,5 W	6 W 3 W
Connection	Power Auxiliary Switches	Cable: 1 m, 2 x 0.75 mm² 1 m, 6 x 0.75 mm²	
Auxiliary Switches - Switching Points		2 single-pole with double switching 1 mA...3 A (0,5 A), 5 V=...250 V~⧈ 5°◁, 80°◁	
Torque:	Motor Spring	Min. 6 Nm Min. 4 Nm	
Switch Actuation Temperature		Tf1: Outside Air Duct Temperature 72°C Tf2+ Tf3: Inside Air Duct Temperature 72°C	
Rotational Direction		Selected by L/R Setting	
Swing Angle		Max. 95°◁, (including 5°◁ of factory spring pre-cocking)	
Position Indication		Mechanical Pointer	
Damper Swing		Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time:	Motor Spring	40...75 s (0...6 Nm) ≈20 s at –20...+50°C / max. 60 s at –30 °C	
Noise Level:	Motor Spring	max 45 dB ≈62 dB	
Protection Class		III (for low voltages)	II (complete insulation) ⧈
Casing IP Code		IP 54	
Safe Temperature		The flap assumes the protective position at ambient temperatures above +75° C	
Ambient Temperature		–30° ... +50 °C	
Storage Temperature		–40° ... +50 °C	
Technical Maintenance		Not Required	
Weight [g]		1630	1730

Electrical Connection

Electrical Connections Diagram

Примечание

- BLF24-T: Connected via transformer
- BLF230-T: Upon actuator disconnection from the power mains the switching device action must ensure at least a 3 mm gap between the phase wires.
- Other electric actuators may be shunted in consideration of capacity ratings.



Main Technical Specifications of BF24-T and BF230-T Electric Actuators

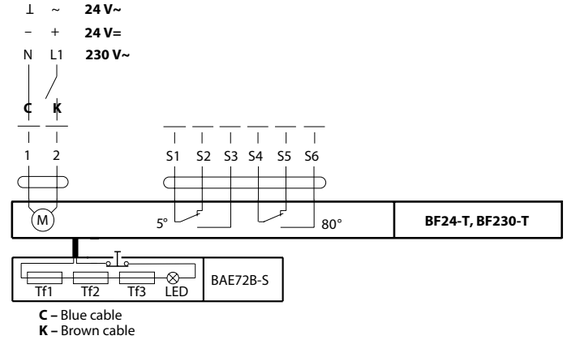
Technical Specifications		BF24-T	BF230-T
Rated Voltage		24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Rated Voltage Range		19,2...28,8 V~ 21,6...28,8 V=	198...264 V~
Design Capacity		10 VA I max 8,3 A at t = 5 ms	12,5 VA I макс. 500 mA at t = 5 ms
Rated Power Input	During Motor Operation During Retention	7 W 2 W	8 W 3 W
Connection		Cable: 1 m, 2 x 0.75 mm² 1 m, 6 x 0.75 mm²	
Auxiliary Switches - Switching Points		2 single-pole with double switching 1 mA...6 A (3 A), 5 V=...250 V~ ⧈ 5°◁, 80°◁	
Torque:	Motor Spring	min.18 Nm min. 12 Nm	
Switch Actuation Temperature		Tf1: Outside Air Duct Temperature 72°C Tf2+ Tf3: Inside Air Duct Temperature 72°C	
Rotational Direction		Selected by L/R Setting	
Swing Angle		Max. 95°◁, (including 5°◁ of factory spring pre-cocking)	
Position Indication		Mechanical indicator	
Damper Swing		Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time:	Motor Spring	140 c ≈ 16 s (at ambient t° = 20 °C)	
Noise Level:	Motor Spring	Max. 45 dB Spring ≈ 62 dB	
Protection Class		III (for low voltages)	II (complete insulation) ⧈
Casing IP Code		IP 54	
Safe Temperature		The flap assumes the protective position at ambient temperatures above +75° C	
Ambient Temperature		–30° ... +50 °C	
Storage Temperature		–40° ... +50 °C	
Weight [g]		2800	3100

Electrical Connection

Electrical Connections Diagram

Note:

- BF24-T: Connected via insulated transformer
- BF230-T: Upon actuator disconnection from the power mains the switching device action must ensure at least a 3 mm gap between the phase wires
- Other electric actuators may be shunted in consideration of capacity ratings



PL-10-1A
Series

Normally Open Fire-Resisting Duct Damper with Thermal Fuse and Return Spring

PL-10-2-BLF230-T
PL-10-2-BLF24-T
Series

Normally Open Fire-Resisting Duct Damper with Electric Actuator, Return Spring and Thermoelectric Breaker

Application
A fire-safety damper prevents the spread of smoke and fire via ventilation and air conditioning system ducts in the event of fire. Such units are installed in ventilation duct channels which cross fire-separation walls and ceilings. The fire resistance rating according to EN 1366-2 is EIS 60 or EIS 120.

Design
KP series dampers are made in the general-purpose industrial version with a minimized variety of hardware components using low-alloy galvanized steel. The flap is made of fire-resistant material (vermiculite) with thermoexpansive fireproof sealing. The duct design implies two connection ports for integration into a ventilation channel (duct system). Depending on the design variant the PL series dampers are equipped with:

a mechanical actuating unit with a thermal fuse and a return spring.

The fire-safety damper remains open in the protective position. The damper is set to the operating position upon the thermal fuse breakdown resulting from a temperature increase. In the event of fire the fusible element will melt upon the temperature reaching 72°C and the spring will set the flap to the closed position.

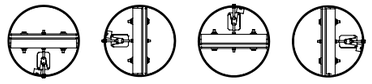
an electric actuator with a built-in return spring and thermally sensitive breaker.

Damper Setting to Operating Position (Direct Fire Contact): Remotely, Via Electric Drive. The damper can be set to the operating or protective position either remotely via the control panel or manually using the manual cocking handle which is always included in the standard delivery package of the electric actuator. In case of the remote control panel failure the back-up thermal breaker interrupts the power supply to the electric actuator and the return spring sets the damper to the operating position. Emergency Damper Actuation: The damper flap is set to the protective position automatically (damper unaffected by fire). The electric actuator remains energized at all times. In case of an emergency actuation (direct fire contact): The electric actuator equipped with a return spring is de-energized and the damper flap is set to the operating position by means of the spring energy. In case of a power failure not related to fire and subsequent restoration to damper equipped with a return spring the damper flap is re-set to the protective position.

Installation
During the fire-safety damper installation make sure that the release mechanism and the inspection hole face an easily accessible side of the wall or ceiling. This will ensure convenient control of the thermally sensitive release mechanism and its internals. The damper can be embedded into brick or concrete walls with the appropriate fire resistance rating. Wooden spreader bars should be used to avoid casing deformation during the installation.

Use of Wooden Spreader Bars During Installation

Upon completing the installation remove the wooden spreader bars.



Recommended Damper Positions

The damper may not be installed:
– Into air ducts and on premises rated explosion and fire safety category A and B;
– Into air ducts of local intakes for flammable and explosive mixtures;
– Into systems which are do not undergo periodic cleaning pursuant to the established regulations for prevention of flammable deposit buildup.

Conventional Designation:

PL-10-X- DNX/X

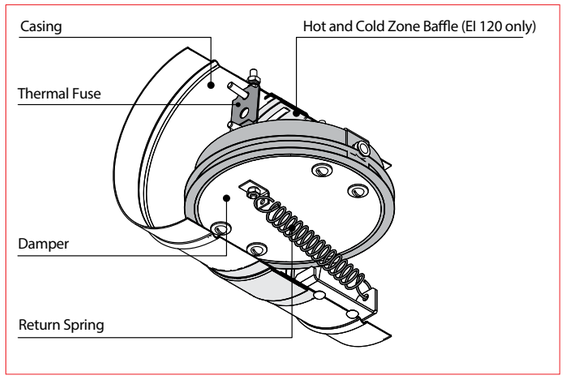
Fire Resistance
EI 60 – 1 hour; **EI 120** – 2 hours

Nominal Damper Diameter [mm]
100; 125; 150; 160; 180; 200; 250; 315

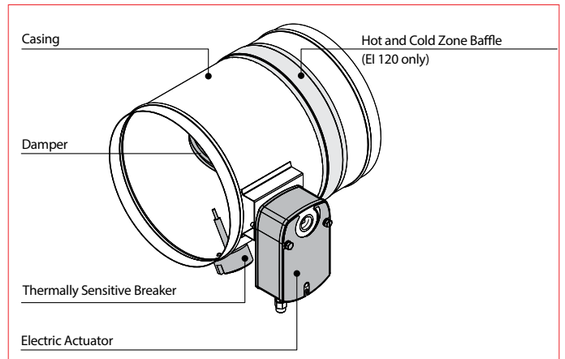
Actuator Type
1A – Thermal Fuse (72 °C), Return Spring (manual actuation);
2-BLF230-T – Electric Actuator (with Return Spring and Thermal Sensor);
2-BLF24-T – Electric Actuator (with Return Spring and Thermal Sensor).

Unit Designation
PL-10 – Fire-Safety Damper

PL-10-1A Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring

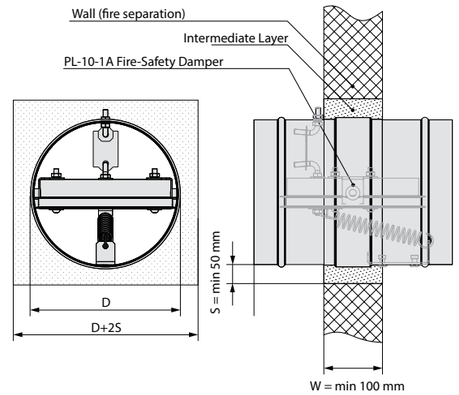


PL-10-2-BLF230-T and PL-10-2-BLF24-T Fire-Safety Damper with Belimo Electric Actuator and Thermally Sensitive Breaker

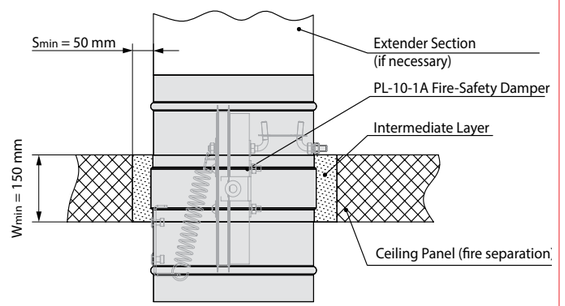


Installation Recommendations for PL-10...1A Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring:

– In vertical building structures

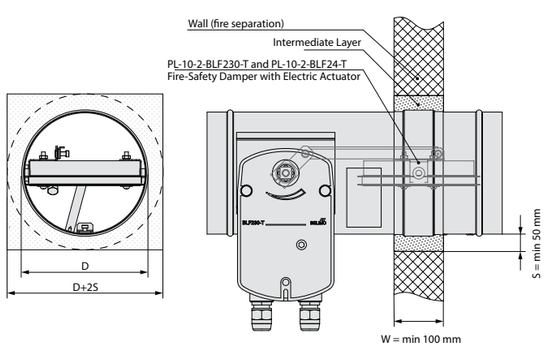


– In horizontal building structures

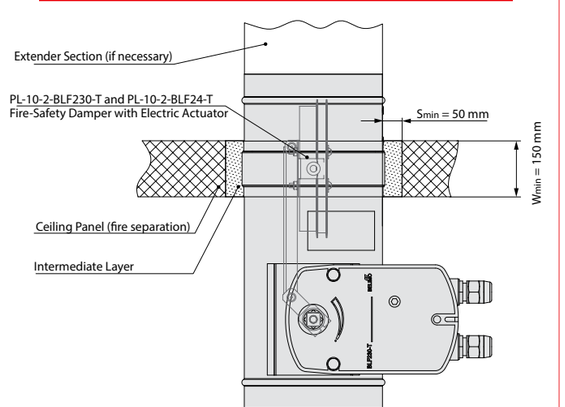


Installation Recommendations for PL-10-2-BLF230-T / BLF24-T Fire-Safety Damper with Belimo Electric Actuator and Thermally Sensitive Breaker:

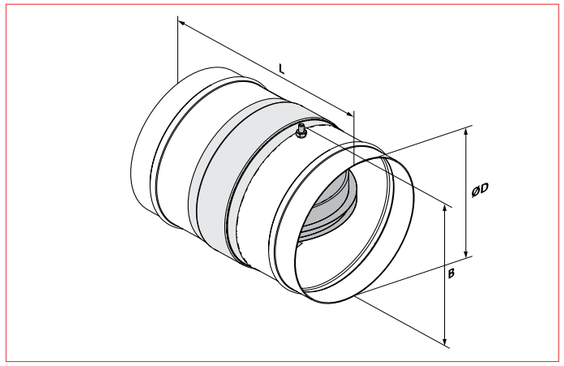
– In vertical building structures



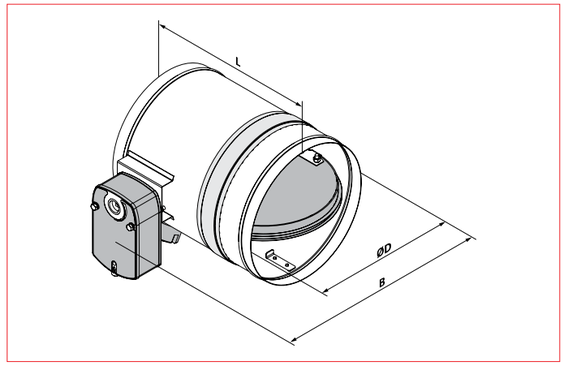
– In horizontal building structures



Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring

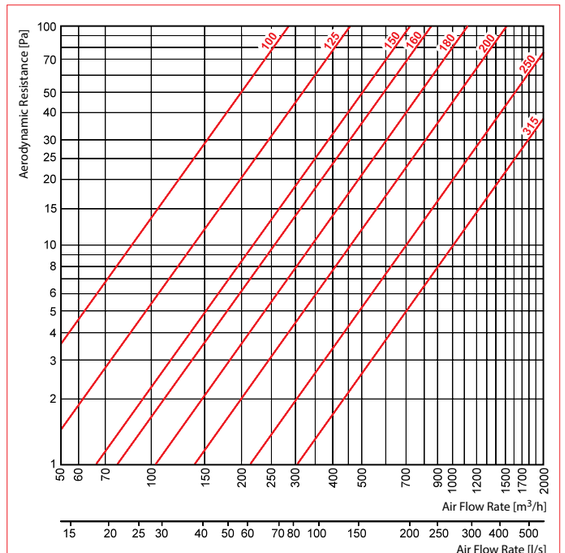


Fire-Safety Damper with Belimo Electric Actuator and Thermally Sensitive Breaker



Outside and Connecting Dimensions of PL Dampers:

Damper Modification	Dimensions [mm]			Weight [kg]
	ØD	L	B	
PL-10-1A-DN 100	99	170	112	1
PL-10-2-BLF230-T (BLF24-T)-DN 100	99	300	185	2,9
PL-10-1A-DN 125	124	170	137	1,2
PL-10-2-BLF230-T (BLF24-T)-DN 125	124	300	205	3,1
PL-10-1A-DN 150	149	170	162	1,5
PL-10-2-BLF230-T (BLF24-T)-DN 150	149	300	240	3,4
PL-10-1A-DN 160	159	170	172	1,6
PL-10-2-BLF230-T (BLF24-T)-DN 160	159	300	245	3,5
PL-10-1A-DN 180	179	170	192	1,8
PL-10-2-BLF230-T (BLF24-T)-DN 180	179	300	255	3,8
PL-10-1A-DN 200	199	170	212	2
PL-10-2-BLF230-T (BLF24-T)-DN 200	199	300	265	4
PL-10-1A-DN 250	249	190	262	2,5
PL-10-2-BLF230-T (BLF24-T)-DN 250	249	310	290	4,7
PL-10-1A-DN 315	314	190	327	3,3
PL-10-2-BLF230-T (BLF24-T)-DN 315	314	310	340	5,6



Main Technical Specifications of BLF24-T and BLF230-T Electric Actuators

Technical Specifications	BF24-T	BF230-T	BLF24-T	BFL230-T
Rated Voltage	24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz	24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Power [W]	7	8	5	6
Current Consumption [A]	8.3	0.5	5.8	0.15
Torque [Nm]	18		6	
Noise Level [dB(A)]	45			
Actuation Temperature [°C]	72			
Casing IP Code	IP54			
Weight [kg]	2.8	3.1	1.63	1.73