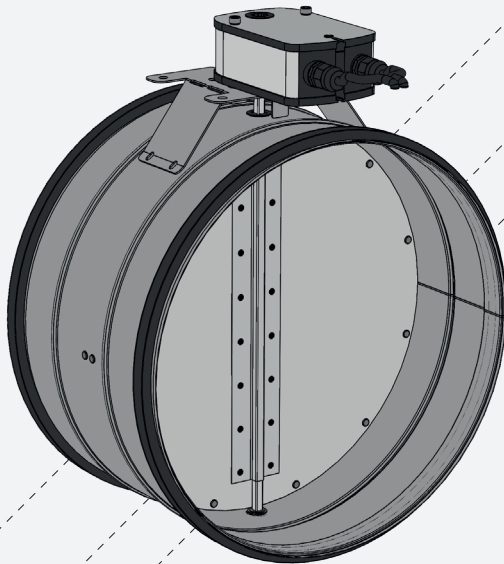


WXH



Technical Manual
English

SINGLE COMPARTMENT
SMOKE CONTROL DAMPER
CIRCULAR SERIES WXH - 1500Pa

Cert. N° 1812-CPR-1189



Smoke damper



WXHU AA



WXHU MA

Description

Damper WXH is a single compartment smoke control damper; It's a device which can be open or closed to control the flow of smoke and hot gasses into, from or within a duct for use in single compartment applications at elevated temperatures (600°C), which may be associated with smoke control ducts to EN1366-9:2008.

The function of the single compartment smoke control damper is to concentrate the fan pressure in the smoke reservoirs involved in the fire scenario.

The damper casing is made of galvanized steel with EPDM connection with leakage class C according with EN1751.

The damper has two different motorized versions depending on the relay response required: type AA (Automatic Activation) and type MA (Manual Activation, with fire rated motor covering box). The smoke damper is CE marked according to EN12101-8, tested according to EN1366-10 and classified according to EN13501-4. The damper is suitable for vertical and horizontal installation in single compartment smoke duct evacuation systems with maximum temperature of 600°C for 2 hours with smoke leakage class S at 1500Pa negative pressure.

Declaration of performance

The damper is CE marked with the declaration of performance according to EN12101-8 as a circular smoke control damper single compartment with CPR nr. 1812-CPR-1189.

Manufacturer of the smoke damper:

MP3 S.r.l., via G. La Pira 9, 35012 Camposampiero (PD), Italy

Intended use

The damper is a part of a smoke and fire protection system that is designed to reach the following targets:

- Extract smoke for 2 hours during the fire
- Reduce temperatures during the fire
- Opens the blade and remove heat and smoke from a compartment in fire
- Closes the blade to prevent the spread of heat and smoke to a safe compartment
- Create a non-smoke layer
- Protect the property

This damper represents a part of the smoke and fire protection project whose main purpose is to be

Smoke damper



installed in single compartment smoke ducts to concentrate all the depression of the smoke extraction fan in the smoke reservoirs actually affected by the presence of smoke. This fire protection project shall be designed by a fire expert. The products used in system should not be larger than dimension Ø 630.

Testing and classification

The WXH single compartment smoke control dampers have been tested connected to single compartment circular ducts and fittings belonging to the Lindab (www.lindab.com) smoke and heat exhaust ventilation system.

WXH smoke control dampers have two relay response options: type AA (Automatic Activation) and type MA (Manual Activation).

In accordance with EN12101-8:2011 WXH single compartment smoke control dampers have been subjected to the following tests:

- Opening and closing cycles according to EN1366-10:2011+A1:2017: 10000 cycles at nominal operating supply, 100 cycles at nominal operating supply -10%, 100 cycles at nominal operating supply +15%.
- Blade and casing ambient leakage according to EN1751:2014 with pressure from -2000Pa to +2000Pa obtaining the classification in class 2 for the air tightness of the blade and class C for the air tightness of the casing.
- Extraction system ambient leakage according to EN1366-10:2011+A1:2017 with pressure -1500Pa (level 3).
- 600°C temperature resistance according to EN1366-10:2011+A1:2017 with pressure -500Pa (level 3) for 120 minutes with damper installation both horizontal and vertical and with blade rotation axis both horizontal and vertical.

The fire classification obtained according to EN13501-4:2016 is:

According to the classification obtained, according to Tables 1 and 3 (level 3) and according to paragraph 6.3.2.2 of EN1366-10:2011+A1:2017 it is allowed to use single compartment smoke control dampers WXH:

- In single compartment smoke exhaust ventilation system;
- In general HVAC systems as well as a smoke control system;
- With depression for smoke exhaust up to -500Pa;
- With pressure at ambient temperature from -1500Pa to +500Pa.

E	l	t	Ved	ho	i	↔	o	S	Operating pressure	C	MA/AA	Single/multi
E600	-	120	Ved	hod	i	↔	o	S	-1500 Pa to 500 Pa	10000	MA	single
E600	-	120	Ved	hod	i	↔	o	S	-1500 Pa to 500 Pa	10000	AA	single

According to par. 9.7.1 of EN1366-10:2011+A1:2017, single compartment smoke control dampers may be applied to ducts that have been tested to EN 1366-9, constructed from materials of the same density as those tested or of the same material with a greater density or thickness.

Single compartment smoke control dampers may be applied to builders work (created on site) ducts, concrete or aerated concrete ducts and walls, provided that the single compartment smoke control damper has been tested on a duct or in a wall constructed from materials of lower density and thickness (e.g. boards or sheet steel), provided that the concrete/aerated concrete construction has a thickness that complies with the supporting construction information shown in EN 1363-1 and EN 1366-2 for the time period of classification required. Correct fire resisting fasteners to suit the materials shall be used.



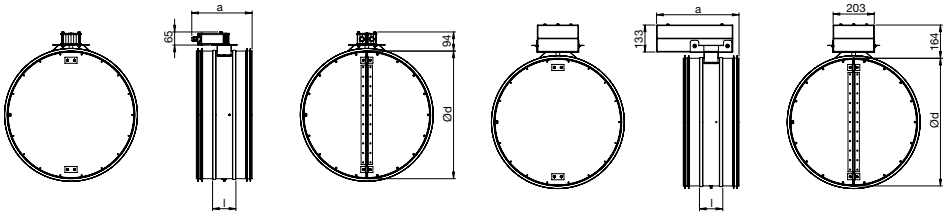
Classification details

E_{600}	120	(v_{ed}, h_{od})	←	→	S	1500Pa	C_{10000}	AA	single
E = integrity									
Temperature									
Time									
v_{ed} = Installation on duct penetrating a vertical wall									
h_{od} = Installation on duct penetrating a horizontal wall									
origin of fire is irrelevant									
Smoke leakage $<5 (m^3/h)/m^2$									
Maximum negative pressure									
Motor cycles use in combined smoke control and HVAC system									
Relay response									
Type AA = Automatic Activation									
Type MA = Manual Activation									
Single compartment									

Dimension

Ød nom	l mm	Type AA		Type MA	
		a mm	m kg	a mm	m kg
100	100	250	3,2	376	5,7
125	100	250	3,4	376	5,9
160	100	250	3,6	376	6,1
200	100	250	3,9	376	6,4
250	100	270	4,5	379	7,0
315	100	270	5,2	379	7,7
355	100	270	5,5	379	8,0
400	100	290	6,8	399	9,3
450	100	290	8,1	399	10,6
500	115	298	9,5	407	12,0
560	115	298	11,0	407	13,5
630	115	298	12,5	407	15

Smoke damper



Type AA Ø 100-630 mm

Type MA Ø 100-630 mm

Transport and delivery

The transport is performed by common transport means. Components that are free loaded should be secured in such a way that any deformation and damage to the components will be eliminated. The transport vehicle must be covered to prevent dust, debris and humidity to damage the components.

Components are delivered without an acceptance at a supplier's as default. If an acceptance at a supplier's is required, it is necessary to state this requirement in the orderpurchase contract.

A buyer or his/her representative is obliged in terms of good acceptance to on site check these according to the delivery documentation. Visible defects and amount shortages are to be noticed in the transporter's transport sheet immediately.

Storage

The goods should be stored inside and protected to prevent dust, debris and humidity to damage the goods.

Before mounting

Before starting the mounting of the damper it is necessary to inspect all components to make sure that they are correct according to the project documentation and to make sure they have not been damaged during transport or storage. When handling the products on site it is important to be careful so that they don't get damaged and their properties change.

Mounting of the damper should only be done by trained professionals equipped with the correct protective equipment and tools. The mounting of the damper should always be performed according to valid documentation from the manufacturer.

The damper should never be used as a supporting part of the building.

In order to achieve a good result, ensure you have:

- A well-organised and protected storage site for components and other parts that are to be assembled.
- A properly planned assembly sequence in accordance with the instructions.

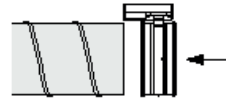
Smoke damper



Mounting

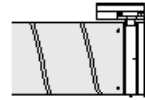
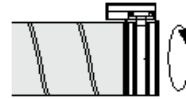
Preparations:

- Cut ducts at right angles.
- Carefully remove any burrs from cut edges. Installation is easier and the risk of damaging the gasket is reduced if there are no burrs.
- Cut away the needles created from the fold.



Assembly

- Start by inserting the turned-over edge of the damper into the duct.
- Check that the first lip of the gasket is in contact with the edge of the duct all the way around and sticks straight out so that the lip is not twisted in one direction or the other.
- Push the end of the damper into the duct. Twisting the damper slightly aids insertion.
- Secure the damper in the duct using self-tapping screws $\varnothing 4,2 \times 13$.
- Fasteners should be positioned on the duct close the damper (minimum 10-15 mm) to support itself weight and to prevent damage to the gasket.
- The damper must be installed on certified and CE marked smoke control system.



\varnothing nom	Minimum number of fasteners required to achieve sufficient strength.
100-630	4

Technical data for the motors

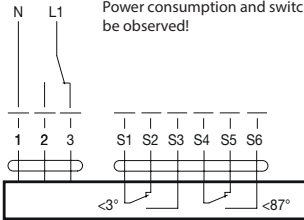
BLE motor	BLE24	BLE230
Power supply.....	AC/DC 19.2 28,8 V, 50/60 Hz	AC 198-264 V, 50/60 Hz
Power consumption.....	7,5 W	5 W
For wire sizing.....	9 VA	12 VA
Connection.....	Cable 1 m, 3x0,75 mm ²	Cable 1 m, 3x0,75 mm ²
Operative angle.....	Max. 90°	Max 105°
Torque at rated voltage.....	Min. 15 Nm	Min. 15 Nm
Direction of rotation.....	Selected by mounting L/R	Selected by mounting L/R
Position indication.....	Mechanical with pointer	Mechanical with pointer
Running time.....	<30 s for 90°	<30 s for 90°
Sound power level.....	Max. 62 dB (A)	Max. 62 dB (A)
Protection class.....	III Safety extra-low voltage	II totally insulated
Protection type.....	IP 54	IP54
Ambient temperature range.....	-30 to +50°C	-40 to + 80°C
Ambient moisture.....	95 % RH	95 % RH

Smoke damper

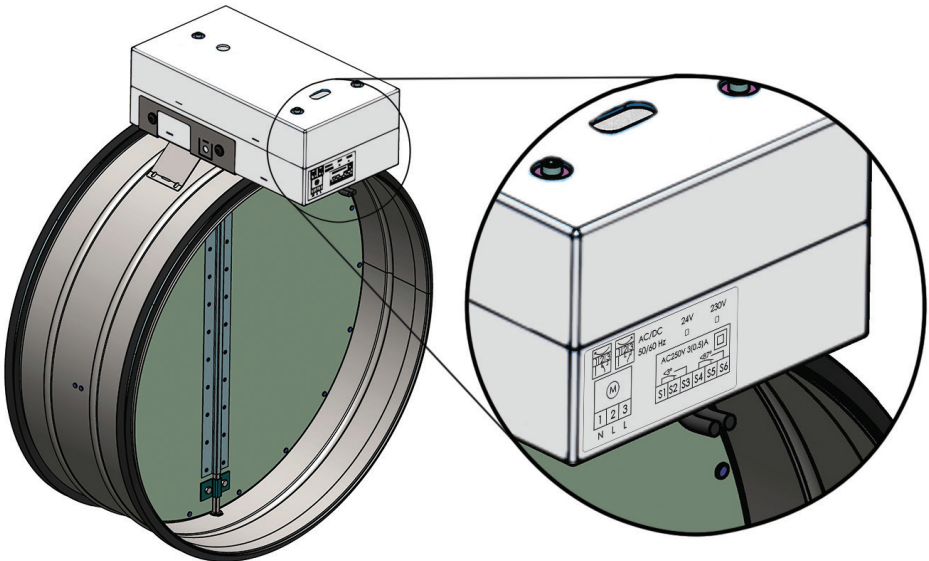
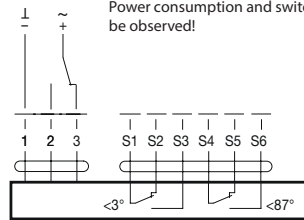


- Mode of operation..... 2-wire open-close control. The actuator is overload-proof and can thus remain energized even at the end stops.
- Signalling Two microswitches with fixed settings are installed in the actuator for indicating the damper end positions. The position of the damper blade can be read off on a mechanism position indicator.
- Manual operation..... The crank handle supplied with the actuator allows it to be operated manually.

Note
 Caution: Main power supply voltage!
 Parallel connection of several actuators possible.
 Power consumption and switching thresholds must be observed!



Note
 Supply via safety isolation transformer!
 Parallel connection of several actuators possible.
 Power consumption and switching thresholds must be observed!





Electric cables and system

For Manual Activation version (MA), the electric cables and system must be protected and designed to have at least 30 minutes circuit integrity.

Operation

All smoke dampers have a electrical actuator. They are designed to be installed indoor in a smoke evacuation and reversible HVAC system.

Before starting the system it is necessary to check the system for damages and that it is consistent to the fire expert design.

Checking and Maintenance

Following features shall be checked up during a revision of the damper at least once every six months:

- All parts are to be installed according to this mounting instruction.
- The damper must not be damaged in any way, the cross-section of the casing, the motor and the covering box of the motor must not be damaged in any way.
- All connections with the smoke evacuation system are to be tightened and properly connected.
- The ducts connected to the damper must be suspended or supported in order to bear the damper's weight too.
- There must not be any flammable bodies on the damper surface and 50 mm away from the system itself.

Periodic inspection and cleaning

Periodic inspection shall be performed in accordance with the requirements of the law or by the building regulations or other local regulations.

In the absence of specific regulations (or to their complement), in accordance with point 8.3 of the EN 12101-8 standard, it is recommended to carry out the following control activities at intervals of no more than 6 months: execute an opening and closing test and check the correct movement of the blade and the correct functioning of the microswitches (limit switches). Blade opening time shall be not more than 60 seconds. Blade closing time shall be not more than 60 seconds.

Together with the control activities, it is recommended to visually verify the absence of corrosion, the integrity of the electrical wiring and the sealing of the construction support. Damper cleaning is included in the ordinary maintenance activities of the ventilation ducts. Smoke control dampers can be cleaned with a dry or wet cloth. In the case of resistant dirt, it is possible to use normal household detergents. If prescribed for the type of building, it is possible to use disinfectant detergents. The use of detergents or mechanical abrasive cleaning systems is not permitted. These indications comply with the standards EN 12101-8 annex B and EN 15423 annex C.



Repair

For safety reasons, repair activities involving fire-fighting components must be carried out only by qualified personnel. Only original spare parts supplied by the smoke control damper manufacturer must be used.

A functional test must be performed after each repair.

At the end of the inspection, cleaning or repair operations, check that the smoke control damper is in the normal operating position. Keep records of all inspections, repair activities, any problems encountered and their resolution. This practice, even when not mandatory, is very useful in practice.

Disposal

Disposal must be carried out in accordance with national legislation. For electrical and electronic parts also refer to EU Directive 2011/65

Product code

Type	WXH	Circular smoke damper
Connection	U	EPDM gasket
Relay Response	SAA	Automatic Activation (Single compartment)
	MAS	Manual Activation (Single compartment)
Motor type	V00	Belimo BLE24 V AC/DC
	D00	Belimo BLE230 V AC
Dimension	XYZ	Nominal diameter (mm)

Ordering example

	WXHU	SAA	D00	200
Type				
Relay response				
Motor type				
Dimension Ød				