USER MANUAL

FIRE PROTECTION AND SMOKE EXTRACTION

OR4

Smoke detector

Ü-FK | Ü-FR (series OR4)

for air transfer applications

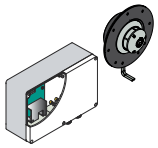
Reliability built in.

WILDEBOER

Contents

Product portfolio:

Applications for smoke detectors

	Smoke detectors		Smoke detectors		
	As per DIN EN 54-27 with VdS approval		As per DIN EN 54-27 with VdS and DIBt (German Institute for Construction Engineering) approval		With DIBt approval
	RL4 basic	RL4 pro	OR4 basic	OR4 pro	OR32
					
Area of application					
▪ For detection of smoke in ventilation ducts ▪ For activation of fans	X	X	X	X	X
▪ For activation and release of fire dampers and smoke protection dampers **for ventilation ducts**			X	X	X
▪ For activation and release of fire dampers and smoke protection dampers **for air transfer applications**			X	X	X
▪ For use in particularly **confined spaces**					X
You will find further information on our product website. Click on the QR code.					

1 Product overview

The OR4 smoke detector is used to detect smoke in ventilation ducts, and for activating and releasing fire and smoke protection dampers. In addition, the smoke detector can activate fans and forward signals to fire detection systems or the building management system.
The OR4 is suitable for installation in air transfer applications in combination with circular/rectangular fire dampers (FR90 / FK90).

- For ventilation ducts: Circular: ≥ DN 100; Rectangular: ≥ 100 x 100 mm (W x H)
- DIBt approval: Z-78.6-250
- VdS approval: G221008
- General type approval for installation in air transfer applications**: Z-6.50-2132 with FK90 fire damper; Z-6.50-2133 with FR90 fire damper
- Temperature range: -20 ... +60 °C
- Power supply: 24 V AC/DC* | 230 V AC
- Speed range: 1 ... 20 m/s
- Distance from disturbance points: 1.5 x hydraulic ø
- Installation not dependent on position or direction of air flow
- Pre-wired
- Electrically isolated inputs and outputs
- Electrically isolated RS485 interface with BACnet MS/TP and Modbus RTU
- Quick-action release fastener for fast accessibility and functional testing without use of tools
- Integrated flow monitoring
- Enclosed casing for electronics
- Replaceable protective screen for protection from soiling
- RM4 smoke switch with automatic tracking of the response threshold for longer service life
- LEDs + LCD display for visualisation of operating statuses, soiling and setting operating parameters.
- Functional check locally or via the BCS (building control system) interface
- Cable glands with strain relief for up to 7 connection lines
- Spring terminals for maintenance-free connection of all lines
- Alarms and faults saved in case of power failure

Interfaces/protocols:

Alarm relay: 2 x changeover contacts

Inputs: 2 x electrically isolated:
- Test/reset
- Activate flow sensor

Outputs: 6 x electrically isolated:
- Warning
- Alarm/fault
- Flow present
- Ready for operation
- 70 ... 99 % level of soiling
- 100 % level of soiling

RS485: Electrically isolated with BACnet MS/TP and Modbus RTU

* Any CE certified power supply unit (SELV) can be used for the 24 V AC/DC power supply.

** Permitted in walls of all sizes, in ceilings only W x H ≤ 500 x ≤ 500 mm or ø ≤ 500mm.
Note: The building supervisory authority decides on whether air transfer applications are permitted.

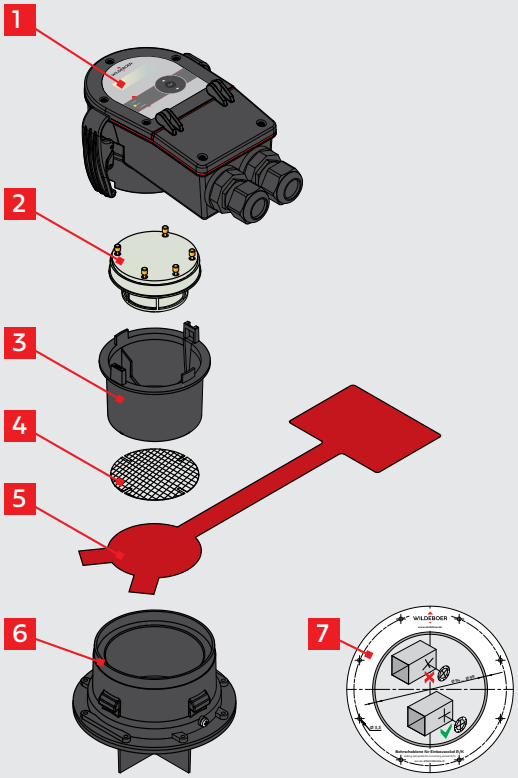
2 Product features

General information	OR4 basic	OR4 pro
Display screen	-	LCD display, 2 lines, backlit
Operation	1 x Reset/Test button	3 buttons for operation on the device
Flow monitoring	-	Yes
Signalling	Optical	Optical and acoustic
BCS interface RS485	**OR4 basic**	**OR4 pro**
Communication interface	-	RS485
Communication protocol	-	BACnet MS/TP, Modbus RTU
Electrically isolated	-	Yes
BCS interface inputs	**OR4 basic**	**OR4 pro**
Quantity	1 x semiconductor input for external normally open contact ⇒ for reset/test*	2 x semiconductor input for external normally open contact ⇒ for reset/test* ⇒ for flow sensor On/Off
Specification	24 V DC (SELV), 11 mA	EN 61131-2, type 1
Signal voltage 0	-	0 ... 5 V DC (SELV)
Signal voltage 1	-	15 ... 30 V DC (SELV)
Electrically isolated	-	Yes (potential group)
BCS interface outputs	**OR4 basic**	**OR4 pro**
Quantity	1 x changeover contacts (relay) ⇒ Soiling display at ≥ 70 %	6 x semiconductor outputs ⇒ Warning ⇒ Alarm/fault ⇒ Flow present ⇒ Ready for operation ⇒ Soiling 70 ... 99 % ⇒ Soiling 100 %
Specification	-	EN 61131-2
Nominal load	-	24 V DC (SELV), max. 600 mA per output
Contact load	30 V AC/DC (SELV), 2 A	-
Electrically isolated	Yes	Yes (potential group)
Alarm interface	**OR4 basic**	**OR4 pro**
Quantity	2 x changeover contacts (relays)	
Contact load	24 V AC/DC (SELV), 250 V AC, 11 mA min., 8 A max.	
Max. bounce time, closing/opening	4 ms / 10 ms	

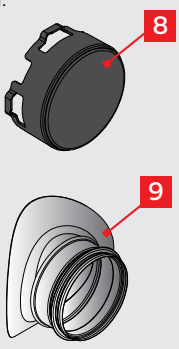
* The reset/test must not be performed via the BCS (building control system) interface when installing in air transfer applications, but rather on the device locally.

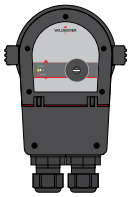
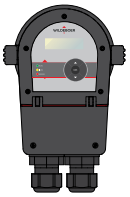
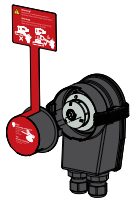
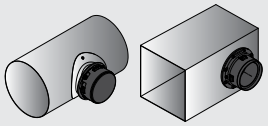
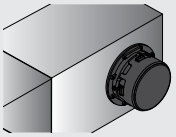
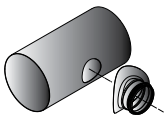
Product features

OR4 smoke detector & Ü-FK | Ü-FR (series OR4) for air transfer applications



Option:

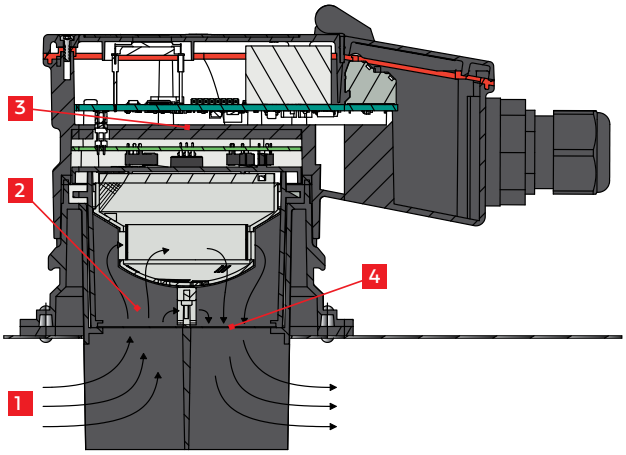


No.	Description
1	**Casing with analysis and control electronics** **OR4 basic:** LEDs for visualisation of operating statuses and percentage soiling.  TEST/RESET button Electrically isolated outputs **OR4 pro:** LEDs + LCD display screen for visualisation of operating statuses, percentage soiling and setting operating parameters.  3 buttons for operation on the device Electrically isolated inputs and outputs and RS485 interface
2	**RM4 smoke switch** For detection of smoke in ventilation ducts with automatic alarm threshold tracking for extended service life. 
3	**Flow insert** **OR4 basic:** For optimum flow through the smoke switch. **OR4 pro:** For optimum flow through the smoke switch with integrated flow sensor.
4	**Protective screen** For protecting the smoke switch against heavy soiling.
5	**Protective film** For protecting the smoke switch and the protective screen from soiling during the construction stage. 
6	**R/K installation base** For simpler installation of the smoke detector in circular and rectangular ventilation ducts. A saddle socket [9] is required for installation in circular ventilation ducts. 
7	**Drilling template** For marking the required cutouts and drilled holes on rectangular ventilation ducts.
8	**Optional: Cap for installation base** For sealing the installation base when the smoke detector has not been installed during the construction stage. 
9	**Optional: Saddle socket** For installation of the smoke detector in circular ventilation ducts. 

For further technical data see ▸ page 14 ff.

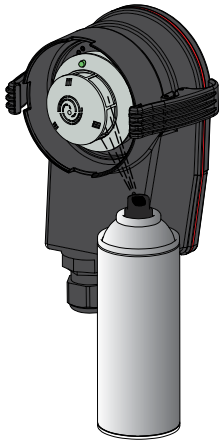
3 Product description

3.1 Function

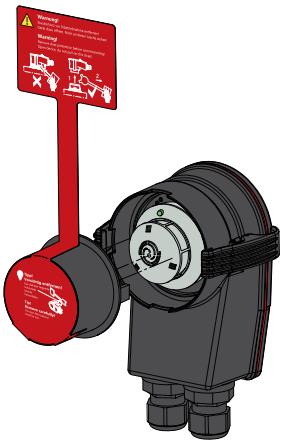


Part of the air which flows in the ventilation duct 1 is diverted into the flow chamber 2. The separation plane 3 and the protective screen 4 protect the electronics from soiling. The electronics monitor the air flow for soiling and particles. Messages can be transmitted to a fire detection system or the building management system so that, if smoke is detected, the necessary control scenarios can be triggered in good time to prevent smoke reaching other fire compartments.

A usual scenario is the closing of directly connected fire dampers after smoke detection and subsequent shutdown of the ventilation system via the alarm relay.



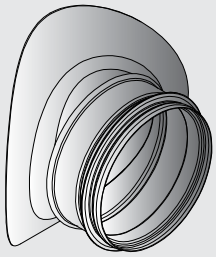
A function test can be performed by removing the analysis and control unit and spraying it with a test aerosol. The status of the functional test can be read externally from the status LEDs.



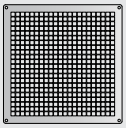
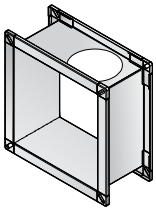
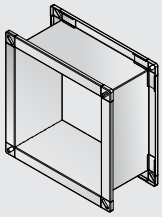
A protective film is fitted in the factory to protect the smoke switch and the protective screen from soiling during the construction stage. It must be removed before commissioning.

3.2 Accessories

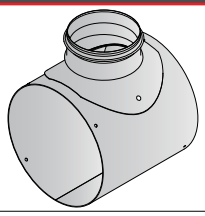
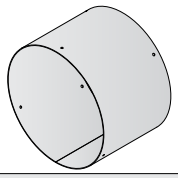
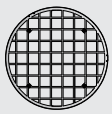
3.2.1 OR4

Illustration	Description	Dimensions	Ordering data
	Pack: **Saddle socket**	DN 100	ORSTU10
		DN 125	ORSTU12
		DN 140	ORSTU14
		DN 150	ORSTU15
		DN 160	ORSTU16
		DN 180	ORSTU18
		DN 200	ORSTU20
		DN 224	ORSTU22
		DN 250	ORSTU25
		DN 280	ORSTU28
		DN 315	ORSTU31
		DN 355	ORSTU35
		DN 400	ORSTU40
		DN 450	ORSTU45
		DN 500	ORSTU50
		DN 560	ORSTU56
		DN 630	ORSTU63
		DN 710	ORSTU71
		DN 800	ORSTU80
	4 x caps for installation base	-	ZUB 0475

3.2.2 Ü-FK (OR4 series)

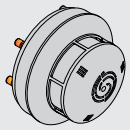
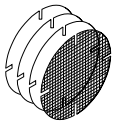
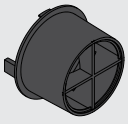
Illustration	Description	Dimensions	Ordering data
	FK90: Protective grille	W x H	Protective grille (Dimensions as fire damper)
	FK90: Extension for OR4	W x H	Extension VEUFK02 (Dimensions as fire damper)
	FK90: Extension	W x H	Extension VERL (Dimensions as fire damper)

3.2.3 Ü-FR (OR4 series)

Illustration	Description	Dimensions	Ordering data
	FR90: Operation side extension (OS)	DN	Extension Ü-FR (Dimensions as fire damper)
	FR90: Non-operation side (NOS)		
	FR90: Protective grille	DN	Protective grille (Dimensions as fire damper)

3.3 Spare parts

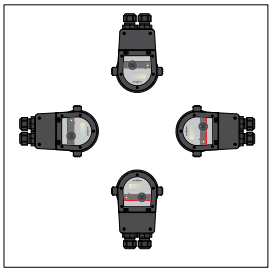
3.3.1 OR4

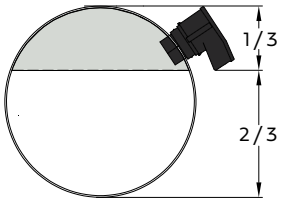
Illustration	Description	Ordering data
	1 x RM4 smoke switch	ZUB 0471
	20 x protective screens	ZUB 0470
	2 x R/K installation base	ZUB 0472
	1 x flow insert with flow sensor (OR4 pro)	ZUB 0474
	1 x flow insert without flow sensor (OR4 basic)	ZUB 0473

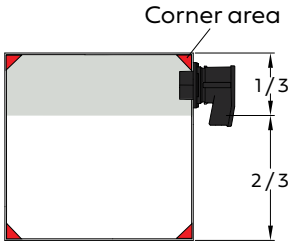
4 Installation

4.1 Installation details

The OR4 can be installed with any alignment in ventilation ducts, regardless of the direction of air flow (horizontally, vertically or at an angle). Continual through-flow, and thus effective smoke detection, must be guaranteed. The corner area on rectangular ventilation ducts must not be used for installation.

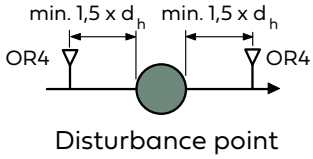






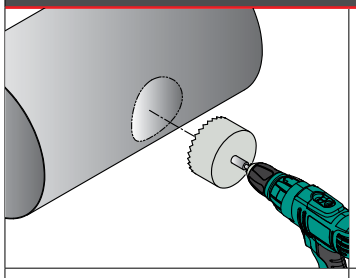
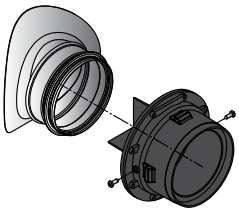
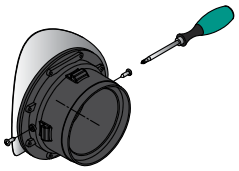
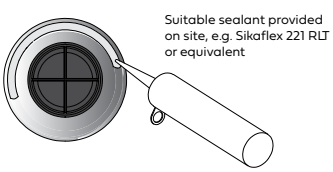
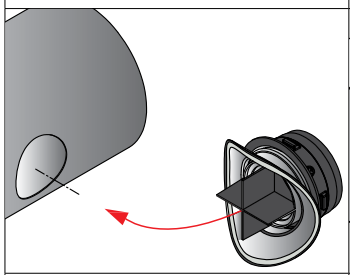
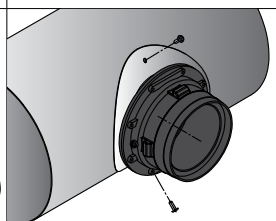
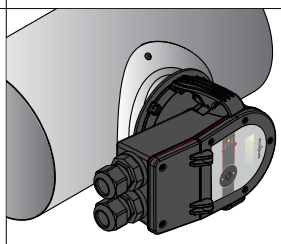
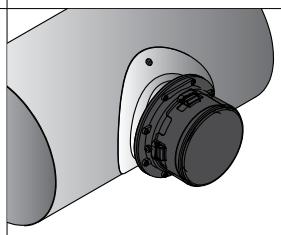
In small and medium-sized duct cross sections, installation at the top, side or bottom is possible. In large, horizontal cross sections, installation in the upper third of the ventilation duct is recommended in the interest of early smoke detection. The OR4 must be installed at a sufficient distance from connection points, such as plug-in connections or flanges.

The gap upstream and downstream of disturbance points (of all kinds) must be at least 1.5 x d_h (hydraulic diameter).

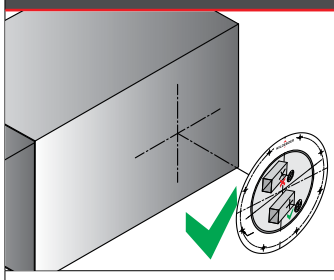
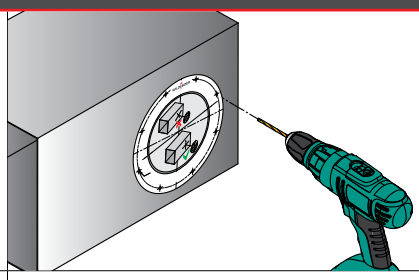
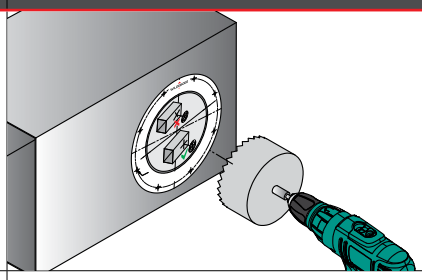
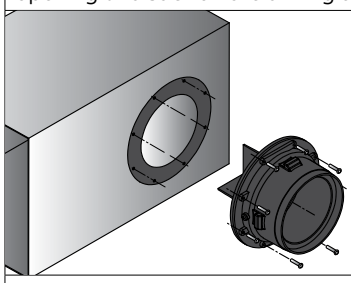
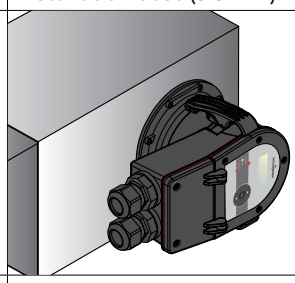
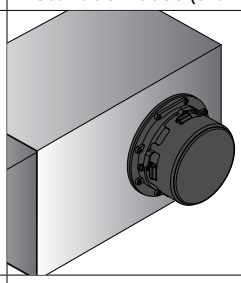


4.2 Installation in circular ventilation ducts

Installation in circular ventilation ducts is shown with the optional saddle socket.

			
Create the installation opening for the installation base (diam. 94 ... 98 mm).	Connect the installation base to the saddle socket, aligning the installation base to the direction of air flow.	Mark the saddle socket slightly with the retaining screws, and pre-drill the pipe without the installation base (diam. 3 mm). Then, fit the installation base again and secure it with screws.	Apply sealant (provided by the user) to the saddle socket so that it is airtight.
			
Insert the saddle socket into the installation opening with the installation base.	Drill (diam. 3.3 mm) the fastening holes for the saddle socket and then rivet.	Fasten the casing with the analysis and control unit to the installation base.	Option: The cap can be used to seal the installation base when the smoke detector has not yet been installed during the construction stage.

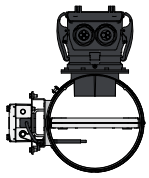
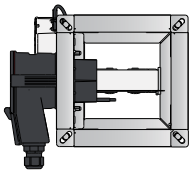
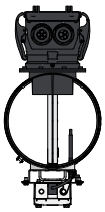
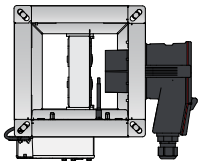
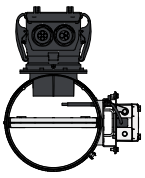
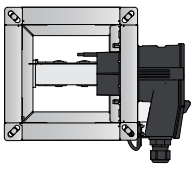
4.3 Installation in rectangular ventilation ducts

		
Measure the centre point of the installation opening and stick on the drilling template.	Drill the fastening holes for mounting the installation base (3.3 mm).	Create the installation opening for the installation base (diam. 98 mm).
		
Insert the installation base into the installation opening and fasten it with pop rivets, while aligning the installation base to the direction of air.	Fasten the casing with the analysis and control unit to the installation base.	Option: The cap can be used to seal the installation base when the smoke detector has not yet been installed during the construction stage.

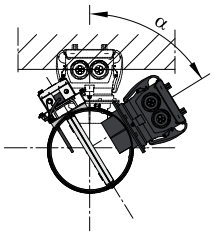
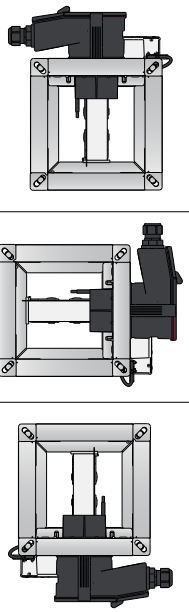
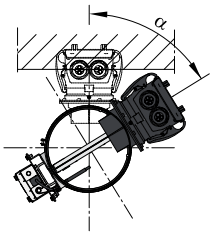
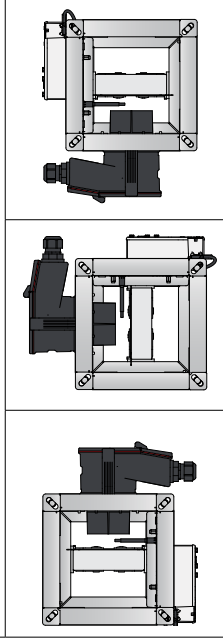
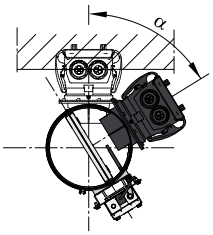
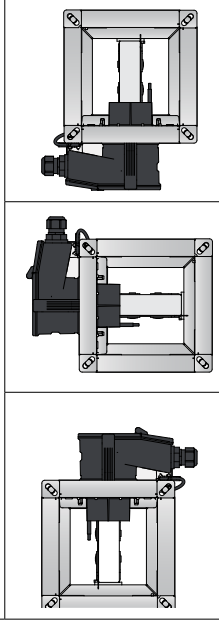
4.4 Installation in air transfer applications Ü-FK | Ü-FR (OR4 series)

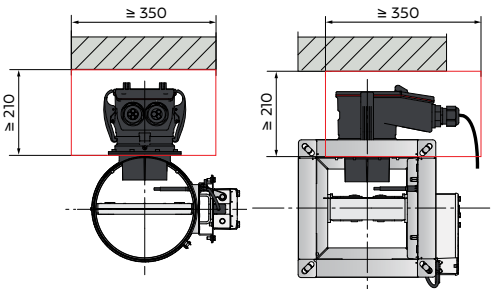
4.4.1 Actuator positions and installation positions

The position of the actuator must be specified when ordering.

Actuator position					
Left		Bottom		Right (standard)	
					

The following installation positions can be implemented, depending on the actuator position.
FR90 fire dampers can be rotated by any angle α together with the extension.

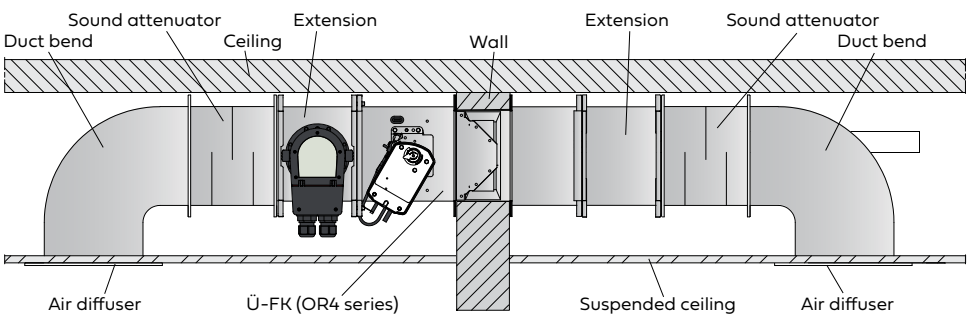
Possible installed positions					
					



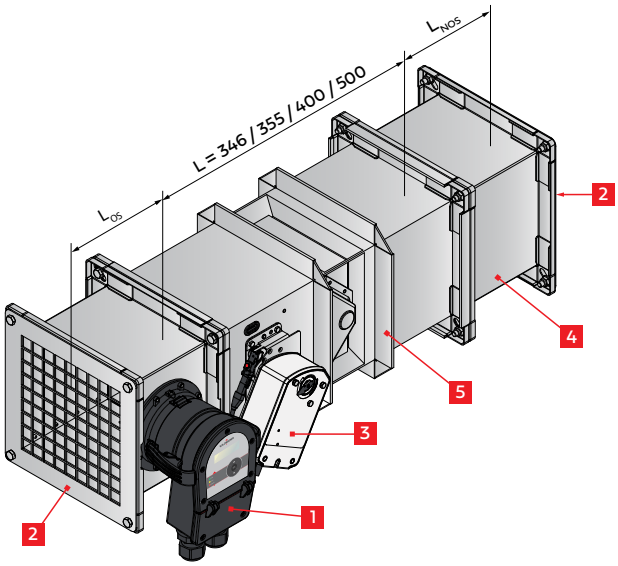
When installing an OR4 positioned at the top with FR90 and FK90 fire dampers, a clearance of ≥ 210 mm to adjacent walls or ceilings must be maintained.

For easy operation and reading of the OR4, a clearance of ≥ 300 mm is recommended.

Installation example:

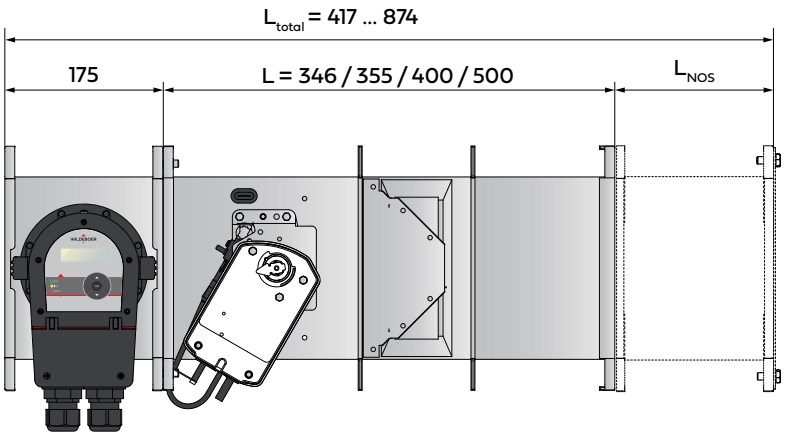


4.4.2 Ü-FK (OR4 series)



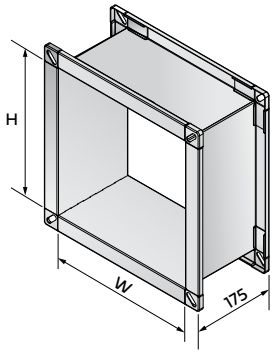
No.	Actuator position left
1	OR4 smoke detector
2	Protective grille
3	Actuator
4	Extension
5	FK90 fire damper

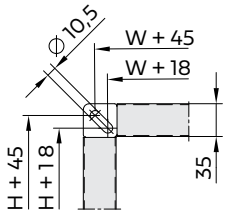
A clearance of ≥ 50 mm to the protective grilles to allow freedom of movement of each damper blade is recommended. For this purpose, extensions of the casing of the fire damper may be necessary. They depend on the height H and length L of the fire damper.

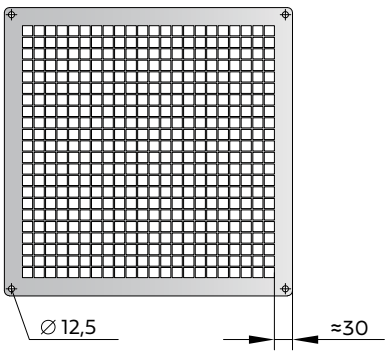


Height	Extension L_{NOS}			
H	FK90 (L = 346)	FK90 (L = 355)	FK90 (L = 400)	FK90 (L = 500)
200	71	62	17	
225	83	74	29	
250	96	87	42	
275	108	99	54	-
300	121	112	67	
325	133	124	79	
350	146	137	92	
375	158	149	104	4
400	171	162	117	17
450	196	187	142	42
500	221	212	167	67
550	246	237	192	92
600	271	262	217	117
650	296	287	242	142
700	321	312	267	167
750	346	337	292	192
800	371	362	317	217

Extension and protective grille

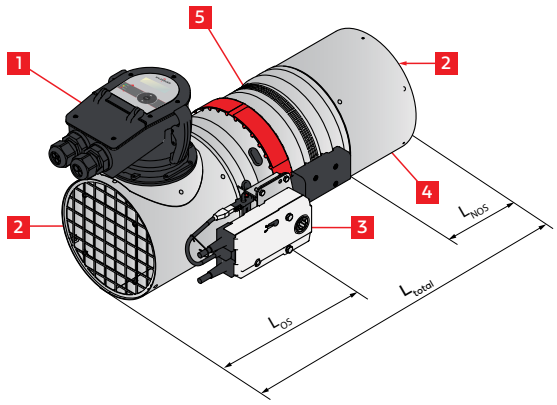






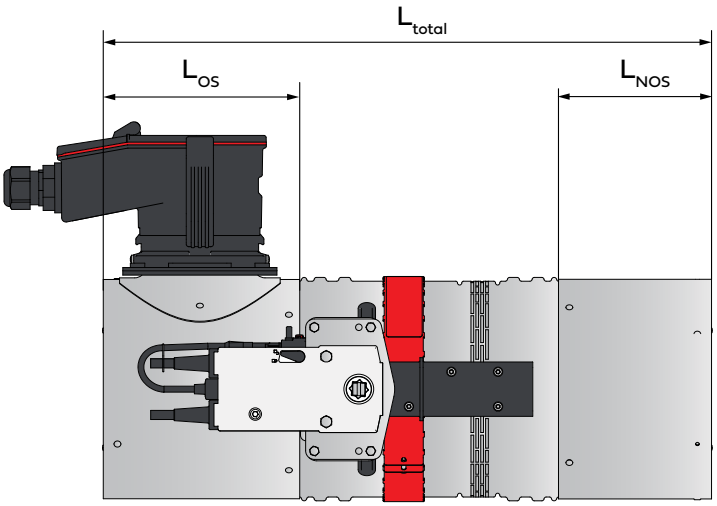
For further information on FK90 fire dampers see ▸ user manual 5.0.

4.4.3 Ü-FR (OR4 series)



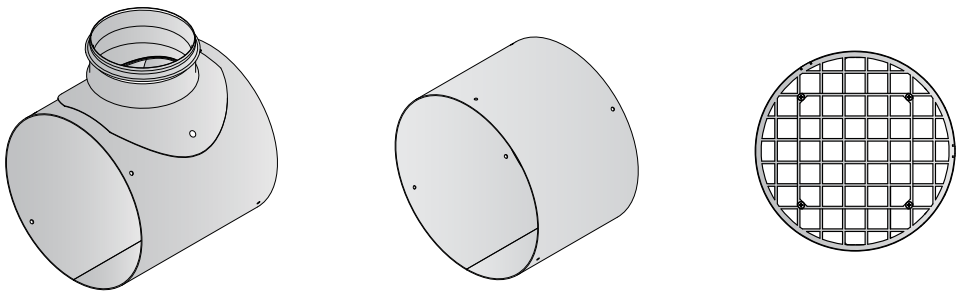
No.	Actuator position left
1	OR4 smoke detector
2	Protective grille
3	Actuator
4	Extension
5	FR90 fire damper

A clearance of ≥ 50 mm to the protective grilles to allow freedom of movement of each damper blade is recommended. FR90 fire dampers with extensions have the total length L_{total}:



ø DN	L_{OS}	L_{NOS}	L_{total}
100	181	60	481
125			
140		141	562
160			
180			
200			
224			
250			
280			
315			
355	191	206	637
400			
450			
500		379	810
560			
630	256		875
710			
800	301		920

Extensions and protective grilles



For further information on FR90 fire dampers see ▸ user manual 5.3.

5 Technical data OR4

Casing	
Dimensions (L x W x H)	Approx. 251 x 160 x 190 mm
Weight	Approx. 975 g
Material	ABS plastic
Connection cover tightening torque	0.3 Nm
Cable gland tightening torque	10 Nm
Retaining screws tightening torque, R/K on flanged collar	0.5 Nm

Ambient conditions	Operation/transportation/storage	In the air duct
Temperature	-20 ... +60 °C	-20 ... +60 °C
Relative humidity	95 %, non-condensing	≤ +34 °C ⇒ 95 % > +34 °C ⇒ max. 35 g/m³
Permissible flow range	-	1 ... 20 m/s

Security	
Protection class	Class II
Protection rating	IP 54

Mains connection		OR4 basic	OR4 pro
Voltage supply		24 V AC/DC ± 10 % / 230 V AC/DC ± 15 %	
Rated current	24 V AC/DC	135 mA / 100 mA	210 mA / 155 mA
	230 V AC	30 mA	40 mA
Power consumption	24 V AC/DC	P = 2.5 W / 2.4 W, S = 3.2 VA / 2.4 VA	P = 4.0 W / 3.7 W, S = 5.1 VA / 3.7 VA
	230 V AC	P = 3 W, S = 7.0 VA	P = 4.2 W, S = 8.9 VA

Alarm interface [3]	OR4 basic	OR4 pro
Quantity	2 x changeover contacts (relays)	
Contact load	24 V AC/DC (SELV), 250 V AC, 11 mA min., 8 A max.	
Max. bounce time, closing/opening	4 ms / 10 ms	

BCS interface - inputs	OR4 basic	OR4 pro
Quantity	1 x input for external normally open contact	2 x semiconductor input
Specification	Semiconductor, 24 V DC (SELV), 11 mA	EN61131-2, type 1
Electrical isolation	-	Potential group, separate from the analysis electronics
Signal voltage 0	-	0 ... 5 V DC (SELV)
Signal voltage 1	-	15 ... 30 V DC (SELV)

BCS interface - outputs	OR4 basic	OR4 pro
Quantity	1 x changeover contact (relay)	6 x semiconductor outputs
Specification	-	EN61131-2
Electrical isolation	Yes	Potential group, separate from the analysis electronics
Nominal load	-	24 V DC (SELV), max. 600 mA per output
Contact load	30 V AC/DC (SELV), 2A	-

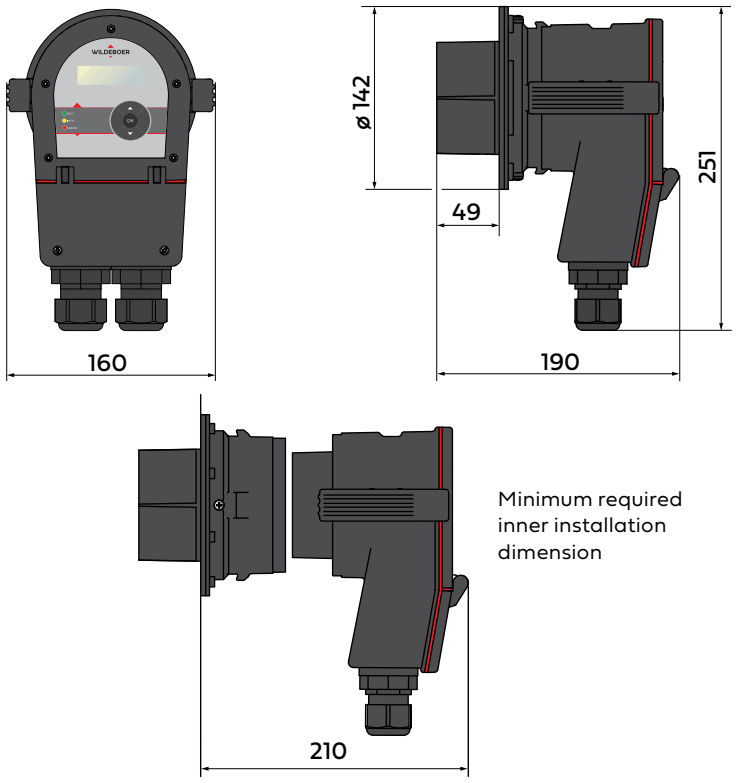
Certification	CE marking
DIN EN 54-27:2015-05	Directive 2014/30/EU (EMC Directive)
VdS 2344:2014-07	Directive 2014/35/EU (Low Voltage Directive)
Principles of design and testing 1967-12 para. 4.5.1, 4.5.2	Directive 2011/65/EU (RoHs 2)

Spring terminals [1]	
Permitted conductor cross-section	0.5 ... 1.5 mm² (single-wire and fine-strand conductors without wire end ferrule) 0.5 ... 1.0 mm² (fine-strand conductors with wire end ferrule)
Stripping length	9 ... 10 mm
Wire end ferrules (WEF) 2	Not required
Slot-head screwdriver	2.5 mm blade width
Current rating	10 A per contact

[1] With lever activation for connection of extra-fine wired conductors and disconnection of conductors.
[2] Flexible conductors can be used with wire end ferrules (WEF) as per DIN 46228 part 1 or part 4.
[3] Take into account derating. See installation and operating instructions.

The technical data applies at input voltage nominal values and +24 °C ambient temperature.

5.1 Dimensions



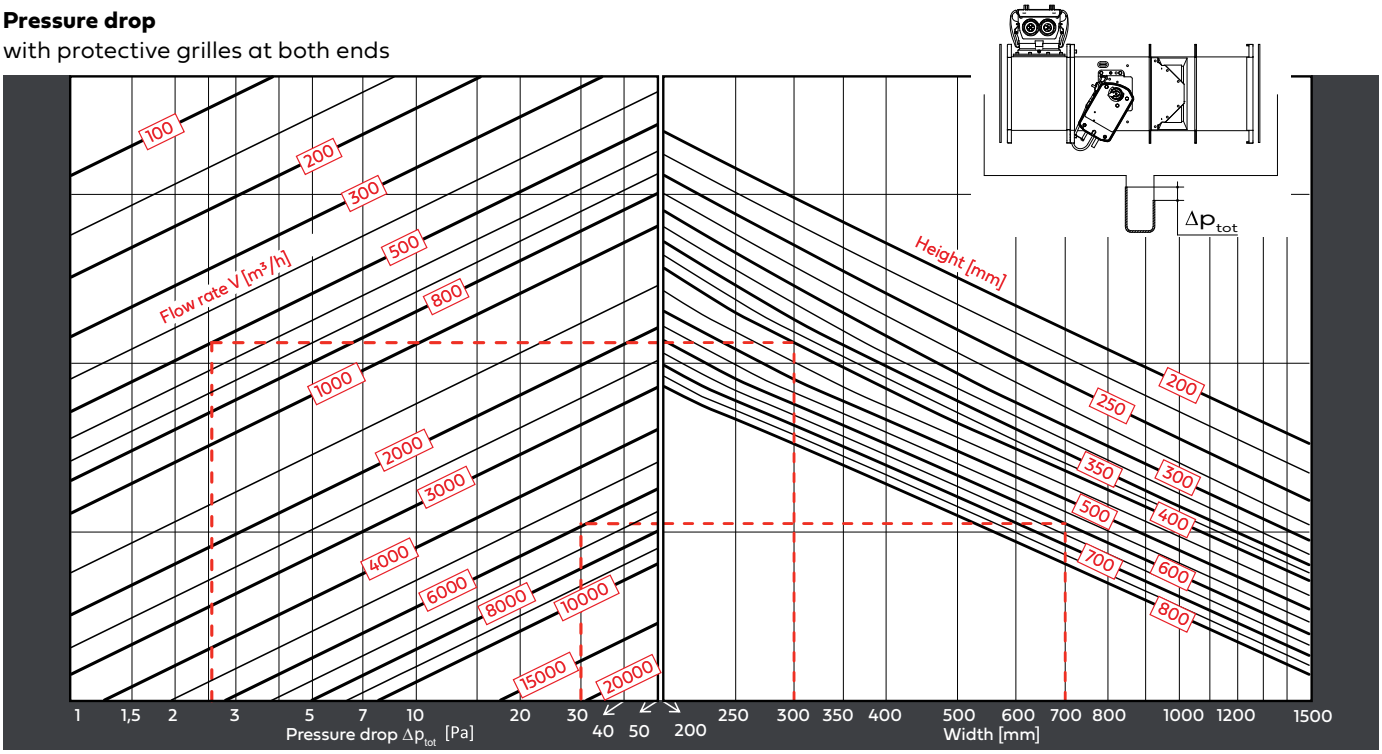
Minimum required inner installation dimension

6 Technical data Ü-FK | Ü-FR (OR4 series)

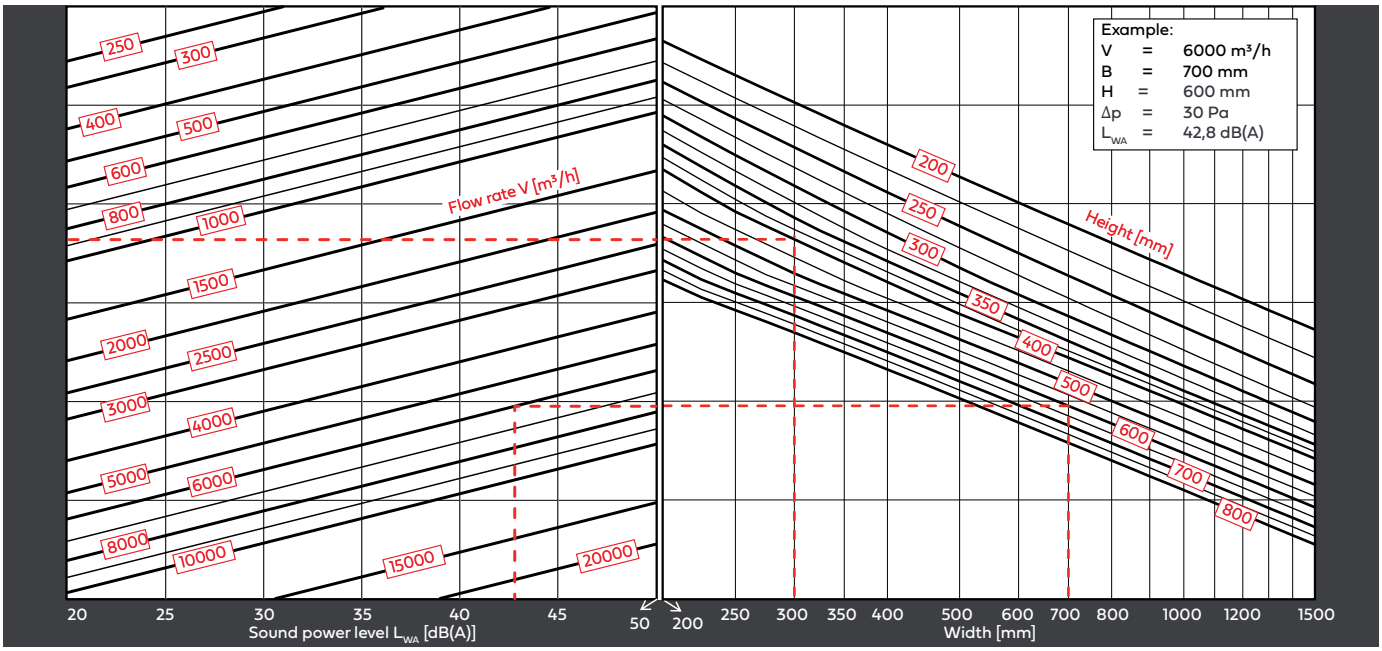
6.1 Pressure drop and sound power level

6.1.1 Ü-FK (OR4 series)

Pressure drop
with protective grilles at both ends

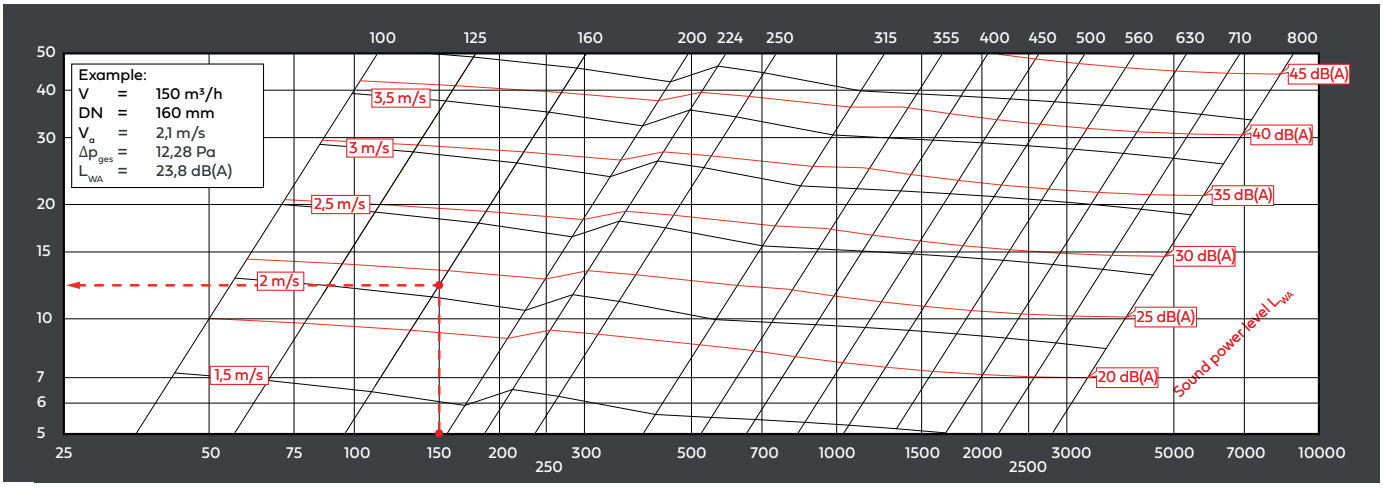


Sound power level
with protective grilles at both ends



6.1.2 Ü-FR (OR4 series)

Pressure drop and sound power level
with protective grilles at both ends



6.2 Weights

6.2.1 Ü-FK (OR4 series)

Standard design (L = 500 mm) with operation side extension (weight in kg)

B / H	200	225	250	275	300	350	400	450	500	550	600	650	700	750	800	900	1000
200	14.0	15.1	15.3	16.4	16.6	17.8	19.1	20.4	20.7	22.0	23.3	24.6	25.9	26.1	27.4	30.0	32.6
225	15.1	15.3	16.4	16.6	17.7	18.0	19.3	20.6	21.9	23.2	24.5	25.7	26.0	27.3	28.6	31.2	32.8
250	15.3	16.4	16.6	17.7	17.9	19.2	20.4	21.7	23.0	23.3	24.6	25.9	27.2	28.5	29.8	32.4	34.0
275	16.4	16.6	17.7	17.9	18.0	19.3	20.6	21.9	23.2	24.5	25.8	27.1	28.4	29.7	31.0	32.6	35.2
300	16.6	17.7	17.9	18.0	19.2	20.5	21.8	23.1	24.4	25.7	27.0	28.3	29.6	29.9	31.2	33.8	36.4
325	16.7	17.9	18.0	19.2	19.3	20.6	21.9	23.2	24.5	25.8	27.2	28.5	29.8	31.1	32.4	35.0	37.6
350	17.8	18.0	19.2	19.3	20.5	21.8	23.1	24.4	25.7	27.0	28.3	29.6	31.0	32.3	33.6	36.2	38.8
375	18.0	19.1	19.3	20.5	20.6	21.9	23.2	25.6	26.9	28.2	29.5	30.8	32.1	33.5	34.8	37.4	40.0
400	19.1	19.3	20.4	20.6	21.8	23.1	24.4	25.7	27.0	28.4	29.7	31.0	32.3	34.6	36.0	38.6	41.2
450	20.4	20.6	21.7	21.9	23.1	24.4	25.7	27.1	28.4	30.7	32.0	33.4	34.7	36.0	37.3	40.0	43.6
500	20.7	21.9	23.0	23.2	24.4	25.7	27.0	28.4	30.7	32.0	33.4	34.7	36.1	38.4	39.7	42.4	46.1
550	22.0	23.2	23.3	24.5	25.7	27.0	28.4	30.7	32.0	33.4	34.7	37.1	38.4	39.8	41.1	44.8	47.5
600	23.3	24.5	24.6	25.8	27.0	28.3	29.7	32.0	33.4	34.7	37.1	38.4	39.8	42.1	43.5	47.2	49.9
650	24.6	25.7	25.9	27.1	28.3	29.6	31.0	33.4	34.7	37.1	38.4	39.8	42.2	43.5	45.9	48.6	52.3
700	25.9	26.0	27.2	28.4	29.6	31.0	32.3	34.7	36.1	38.4	39.8	42.2	43.5	45.9	47.2	51.0	54.7
750	26.1	27.3	28.5	29.7	29.9	32.3	34.6	36.0	38.4	39.8	42.1	43.5	45.9	47.3	49.6	53.4	57.1
800	27.4	28.6	29.8	31.0	31.2	33.6	36.0	37.3	39.7	41.1	43.5	45.9	47.2	49.6	51.0	54.8	59.5
850	28.7	29.9	31.1	32.3	32.5	34.9	37.3	38.7	41.1	43.4	44.8	47.2	49.6	51.0	53.4	57.2	62.0
900	30.0	31.2	32.4	32.6	33.8	36.2	38.6	40.0	42.4	44.8	47.2	48.6	51.0	53.4	54.8	59.6	63.4
950	31.3	32.5	33.7	33.9	35.1	37.5	39.9	42.3	43.7	46.1	48.5	50.9	53.3	54.8	57.2	62.0	65.8
1000	32.6	32.8	34.0	35.2	36.4	38.8	41.2	43.6	46.1	47.5	49.9	52.3	54.7	57.1	59.5	63.4	68.2
1050	32.9	34.1	35.3	36.5	37.7	40.1	42.6	45.0	47.4	49.8	52.2	54.7	56.1	58.5	60.9		
1100	34.2	35.4	36.6	37.8	39.0	41.4	43.9	46.3	48.7	51.2	53.6	56.0	58.4	60.9	63.3		
1150	35.4	36.7	37.9	39.1	40.3	42.8	45.2	47.6	50.1	52.5	54.9	57.4	59.8	62.2	64.7		
1200	36.7	38.0	39.2	40.4	41.6	44.1	46.5	49.0	51.4	54.8	57.3	59.7	62.2	64.6	67.1		
1250	38.0	39.2	40.5	41.7	42.9	45.4	47.8	50.3	53.7	56.2	58.6	61.1	63.5	66.0	69.4		
1300	38.3	40.5	41.8	43.0	44.2	46.7	49.1	52.6	55.1	57.5	60.0	63.4	65.9	68.4	70.8		
1400	40.9	42.1	43.4	45.6	46.8	49.3	52.8	55.3	57.7	61.2	63.7	66.2	69.6	72.1	74.6		
1500	43.5	44.7	45.9	47.2	49.4	51.9	55.4	57.9	61.4	63.9	67.4	69.9	73.4	75.9	79.4		

The weights for the actuator used must be added:

- M220-9/H; M24-9/H 1.3 kg
- M220-10/H; M24-10/H 0.5kg
- M220-11/H; M24-11/H 0.8kg
- Thermal-mechanical release mechanism with remote release 1.0 kg

6.2.2 Ü-FR (OR4 series)

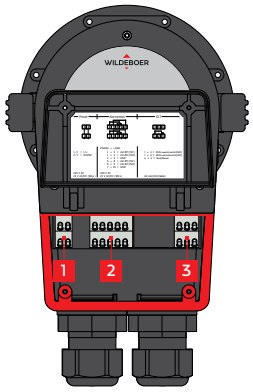
Standard design with operation side extension

DN	kg
100	4.2
125	4.6
140	5.1
160	5.4
180	5.8
200	6.1
224	6.7
250	7.2
280	7.9
315	8.6
355	12.2
400	13.6
450	15.6
500	19.6
560	22.0
630	29.0
710	33.5
800	40.4

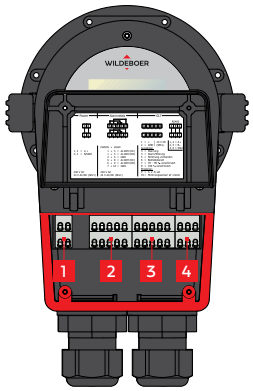
The weights for the actuator used must be added:

- M220-9/H; M24-9/H 1.3 kg
- M220-10/H; M24-10/H 0.5 kg
- M220-11/H; M24-11/H 0.8 kg
- Thermal-mechanical release mechanism with remote release 1.0 kg

6.3 Connection overview



OR4 basic



OR4 pro

1 Mains connection

Connection	Signal	
	OR4 basic	OR4 pro
1, 3	L / +	
2, 4	N / GND	

2 Alarm interface

Connection	Signal	
	OR4 basic	OR4 pro
1, 6	L / +	
2, 7	N / GND	
3, 8	ALARM NO	
4, 9	ALARM NC	
5, 10	N / GND	

3 BCS interface

Connection	Signal	
	OR4 basic	OR4 pro
1	+	+
2	RM4 ≥ 70 % soiled NO	GND
3	RM4 < 70 % soiled NC	Warning
4	RESET < 3 sec. TEST ≥ 3 sec.	Alarm/fault
5		Flow present
6	-	Ready for operation
7	-	RM4: 70 ... 99 % soiled
8	-	RM4: 100 % soiled
9		RESET < 3 sec. TEST ≥ 3 sec.
10	-	Activate flow sensor (ventilation system in operation)

4 BCS interface (RS485)

Connection	Signal	
	OR4 basic	OR4 pro
1, 4	-	A+
2, 5	-	B-
3, 6	-	Shield

7 Specification text

7.1 OR4 basic

Smoke detector with general type approval for activation and release of fire dampers and smoke protection dampers. Tested as per DIN EN 54-27. Smoke detector for detecting smoke in ventilation ducts, for activating fans and for transmitting signals to central fire alarm systems or the building management system. Casing with flow insert and protective screen. Smoke switch and analysis electronics with potential-free relay outputs. Additional input without electrical isolation. Smoke switch with automatic tracking of the response threshold in order to achieve a long service life. Removable without using tools for ease of inspection and cleaning. Button for function test and for resetting after smoke detection. LEDs for visualisation of operating statuses and the percentage soiling of the smoke switch in multiple stages. Alarms and faults saved in case of power failure.

Suitable for installation at a short distance from disturbance points (1.5 x hydraulic diameter). Installation not dependent on position or direction of air flow in rectangular ventilation ducts, with an edge length of 100 mm or more and in ventilation pipes with a diameter of 100 mm or more.

.....	pcs.	**Supply voltage:**	**230 V AC / 24 V AC/DC**
		Manufacturer:	**WILDEBOER**
		Type/series:	OR4 basic
		VdS approval:	**G221008**
		DIBt approval:	**Z-78.6-250**

7.2 OR4 pro

Smoke detector with general type approval for activation and release of fire dampers and smoke protection dampers. Tested as per DIN EN 54-27. Smoke detector for detecting smoke in ventilation ducts, for activating fans and for transmitting signals to central fire alarm systems or the building management system. Casing with flow insert, protective screen and integrated flow sensor for flow monitoring. Smoke switch and analysis electronics with Electrically isolated and potential-free inputs and outputs. Smoke switch with automatic tracking of the response threshold in order to achieve a long service life. Removable without using tools for ease of inspection and cleaning. Button for function test and for resetting after smoke detection. LEDs for visualisation of operating statuses and the percentage soiling of the smoke switch in multiple stages. Alarms and faults saved in case of power failure. LCD display screen for diagnostics, display and setting of all operating parameters. With Electrically isolated RS485 interface (protocols: BACnet, Modbus) for connection to BCS (building control system).

Suitable for installation at a short distance from disturbance points (1.5 x hydraulic diameter). Installation not dependent on position or direction of air flow in rectangular ventilation ducts, with an edge length of 100 mm or more and in ventilation pipes with a diameter of 100 mm or more.

.....	pcs.	**Supply voltage:**	**230 V AC / 24 V AC/DC**
		Manufacturer:	**WILDEBOER**
		Type/series:	OR4 pro
		VdS approval:	**G221008**
		DIBt approval:	**Z-78.6-250**

7.3 Ü-FK (OR4 series)

FK90 fire damper as fire-resistant closure "Ü-FK (OR4 series)"

Fire-resistant closure Ü-FK (OR4 series) for installation in air transfer applications, comprising a maintenance-free FK90 fire damper as per EN 15650 with declaration of performance and CE marking, fire resistance period of up to 120 minutes, fire classification EI 30/60/90/120 (ve - ho, i <-> o) S C10000, and an OR4 basic/pro smoke detector.

Maintenance-free fire damper with air-tight casing, leaktightness class C as per EN 1751, made of galvanized steel with single-piece circumferential edging and pressure-joining, tapered inner beading for freedom of damper blade movement, outer beading to ensure all-round stability, with connection flanges for and extension for installation of the smoke detector. Replaceable damper blade made of abrasion-proof calcium silicate, with folded, wear-resistant elastomer lip seals on a profile frame made of galvanized steel and full cover made of galvanized steel. Fully enclosed, maintenance-free drive mechanism in the area of the casing walls, with self-locking slider crank for break-proof torque transmission. Sealed drive axles made of stainless steel, with gunmetal bearings. Suitable for installation without minimum spacing and with horizontal or vertical damper blade axles in, on and remote from rigid walls and ceilings, in and remote from metal stud walls and in shaft walls with and without metal studs, in solid timber and timber frame construction walls and ceilings, in ceilings with steel frame, fire batt system installation in rigid walls and ceilings and in metal stud walls, with hard-to-access installation openings or for flange-to-flange installation, also with mineral wool. Enclosed, maintenance-free thermal release 70 °C, tested as per EN 15650, annex B, with 20 % saline solution, for verification of permanent functioning under highly corrosive conditions.

Smoke detector with general type approval Z-78.6-250 for activation and release of fire dampers. Tested as per DIN EN 54-27. Casing with flow insert and protective screen. Smoke switch and analysis electronics with potential-free relay outputs. Additional input without electrical isolation. Smoke switch with automatic tracking of the response threshold in order to achieve a long service life. Removable without using tools for ease of inspection and cleaning. Button for function test and for resetting after smoke detection. LEDs for visualisation of operating statuses and the percentage soiling of the smoke switch in multiple stages. Alarms and faults saved in case of power failure.

Ü-FK (OR4 series) for air transfer applications with general type approval Z-6.50-2132. With protective grille on both sides, and extensions as necessary.

- With electric actuator 230 V AC or 24 V AC/DC for remote control and functional checks
- With magnetic clamp 230 V AC or 24 V AC/DC mounted on thermal-mechanical release mechanism
- With one or two electrical limit switch(es) for signalling the damper blade positions CLOSED/OPEN
- With
  - Installation subframe ER1 for installation in metal stud walls and shaft walls with and without metal studs
  - Installation subframe ER4 for sliding ceiling connections in metal stud walls
  - Installation subframe ER2 as short version for installation in rigid walls and ceilings
  - Installation subframe ER3 as short version for installation in metal stud walls and shaft walls with and without metal studs.
  - Installation subframe ER8 for installation in wooden walls and ceilings and in ceilings with steel frames
  - Mounting frame AR1 for mounting on rigid walls and ceilings
  - Mounting frame AR2 for installation remote from rigid walls and ceilings and metal stud walls

In compliance with the hygiene requirements as per VDI 6022-1, VDI 3803-1, DIN 1946-4, verification of the necessary resistance of all materials to microorganisms (fungi, bacteria) and disinfectant resistance.

With Environmental Product Declaration as per ISO 14025 and EN 15804.

..... pcs. **Width:**
Height:
Length: 400, 500, 355, 346 mm
Manufacturer: WILDEBOER
Type/series: Fire-resistant closure "Ü-FK (OR4 series)"
General type approval Z-6.50-2132
deliver ...
install ...

Casing extension VERL for fire dampers for generating freedom of movement for damper blades. Made of galvanized steel. Length L = 175 mm.

..... pcs. **Width:**
Height:
Manufacturer: WILDEBOER **deliver ...**
install ...

Protective grille for fire dampers without connecting ducts for protecting flow-through openings. Pressed with 20 mm mesh size made from at least 1-mm-thick galvanized steel.

..... pcs. **Width:**
Height:
Manufacturer: WILDEBOER **deliver ...**
install ...

7.4 Ü-FR (OR4 series)

FR90 fire damper as fire-resistant closure "Ü-FR (OR4 series)"

FR90 fire damper as fire-resistant closure Ü-FR (OR4 series) for installation in air transfer applications, comprising a maintenance-free FR90 fire damper as per EN 15650 with declaration of performance and CE marking, fire resistance period of up to 120 minutes, fire classifications EI 30/60/90/120 (ve - ho, i <-> o) S C10000, and a OR4 basic / pro **smoke detector.**

Maintenance-free fire damper with air-tight casing, class C as per EN 1751, made of galvanized sheet steel with moulded plug connections for spiral lockseam duct, flexible pipe and for similar circular ventilation ducts or air conditioning systems. Casing with lip seal on both sides. With extension for installation of smoke detector. Replaceable damper blade made of abrasion-proof calcium silicate, with wear-resistant elastomer lip seals and with metal cover made of galvanized steel. **Fully enclosed, maintenance-free slider crank transmission in the area of the casing wall, as a self-locking drive mechanism for break-proof torque transmission. Sealed drive axles made of stainless steel, with gunmetal bearings. Suitable for installation with minimum spacing and with any damper blade axle position in, on and remote from rigid walls and ceilings, in hard-to-access installation openings, also with mineral wool, in and remote from metal stud walls and on shaft walls with and without metal studs, in solid timber and timber frame construction walls and ceilings and in ceilings with steel frames. Fire batt system installation in rigid walls and ceilings and in metal stud walls. Enclosed, maintenance-free thermal release 70 °C, tested as per EN 15650, annex B, with 20 % saline solution, for verification of permanent functioning under highly corrosive conditions.**

Smoke detector with general type approval Z-78.6-250 for activation and release of fire dampers. Tested as per DIN EN 54-27. Casing with flow insert and protective screen. Smoke switch and analysis electronics with potential-free relay outputs. Additional input without electrical isolation. Smoke switch with automatic tracking of the response threshold in order to achieve a long service life. Removable without using tools for ease of inspection and cleaning. Button for function test and for resetting after smoke detection. LEDs for visualisation of operating statuses and the percentage soiling of the smoke switch in multiple stages. Alarms and faults saved in case of power failure.

Ü-FR (OR4 series) for air transfer applications with general type approval Z-6.50-2133. With protective grille on both sides, and extensions as necessary.

- With electric actuator 230 V AC or 24 V AC/DC for remote control and functional checks
- With magnetic clamp 230 V AC or 24 V AC/DC mounted on thermal-mechanical release mechanism
- With one or two electrical limit switch(es) for signalling the damper blade positions CLOSED/OPEN
- With
  - Installation subframe RE100/RE150 for installation in rigid walls, ceilings and in metal stud walls.
  - Installation subframe RH100/RH150 for installation in wooden walls and ceilings
  - Installation subframe RH150 for installation in ceilings with steel frames.
  - Installation subframe RR100/RR150 for installation in rigid walls and ceilings and in metal stud walls.
  - Mounting frame AE for mounting on rigid walls and ceilings and on walls with cladding on one side (shaft walls) and with and without metal studs.
  - Installation subframe ER6 for sliding ceiling connections in metal stud walls.
  - Mounting frame RV and connecting frame (1 x) for installation remote from rigid walls and ceilings and remote from metal stud walls with 4-sided connection.
  - Connecting frames (2 x) for installation remote from rigid walls and remote from metal stud walls with 2 and 3-sided connection.

In compliance with the hygiene requirements as per VDI 6022-1, VDI 3803-1, DIN 1946-4, verification of the necessary resistance of all materials to microorganisms (fungi, bacteria) and disinfectant resistance.

With Environmental Product Declaration as per ISO 14025 and EN 15804.

..... pcs. Diameter DN:

Manufacturer: WILDEBOER

Type/series: Fire-resistant closure "Ü-FR (OR4 series)"

General type approval Z-6.50-2133

deliver ...

install ...

Extension Ü-FR comprising extension OS with saddle socket for installation of the smoke detector and extension NOS from DN ≥ 140 mm for freedom of movement of damper blade.

..... pcs. Diameter DN:

Manufacturer: WILDEBOER deliver ...

install ...

Protective grille for fire dampers without connecting ducts for protecting flow-through openings. Pressed with 20 mm mesh size made from at least 1-mm-thick galvanized steel.

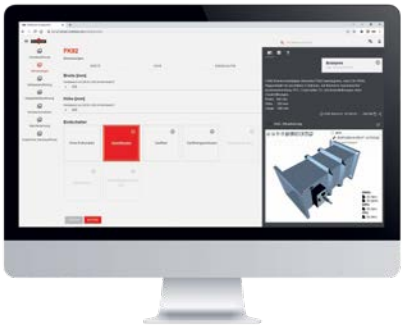
..... pcs. Diameter DN:

Manufacturer: WILDEBOER deliver ...

install ...

8 Wildeboer makes it easy

8.1 Wildeboer Configurator



- Quick, intuitive configuration of Wildeboer products
- Easy calculation of operating point data for the configured product
- 3D display of the product and download in various formats
- Download of data sheets, specification texts and version keys
- Login area with price display option

8.2 WiDim dimensioning software

- Functional, modern and intuitive dimensioning of Wildeboer products
- Conveniently collect operating point data, 3D product views, suitable accessories and current revision documents in a single project
- Project can be output in various formats
- A GAEB interface and an interface based on VDI 3805 facilitate a continuous planning process

8.3 Documents online

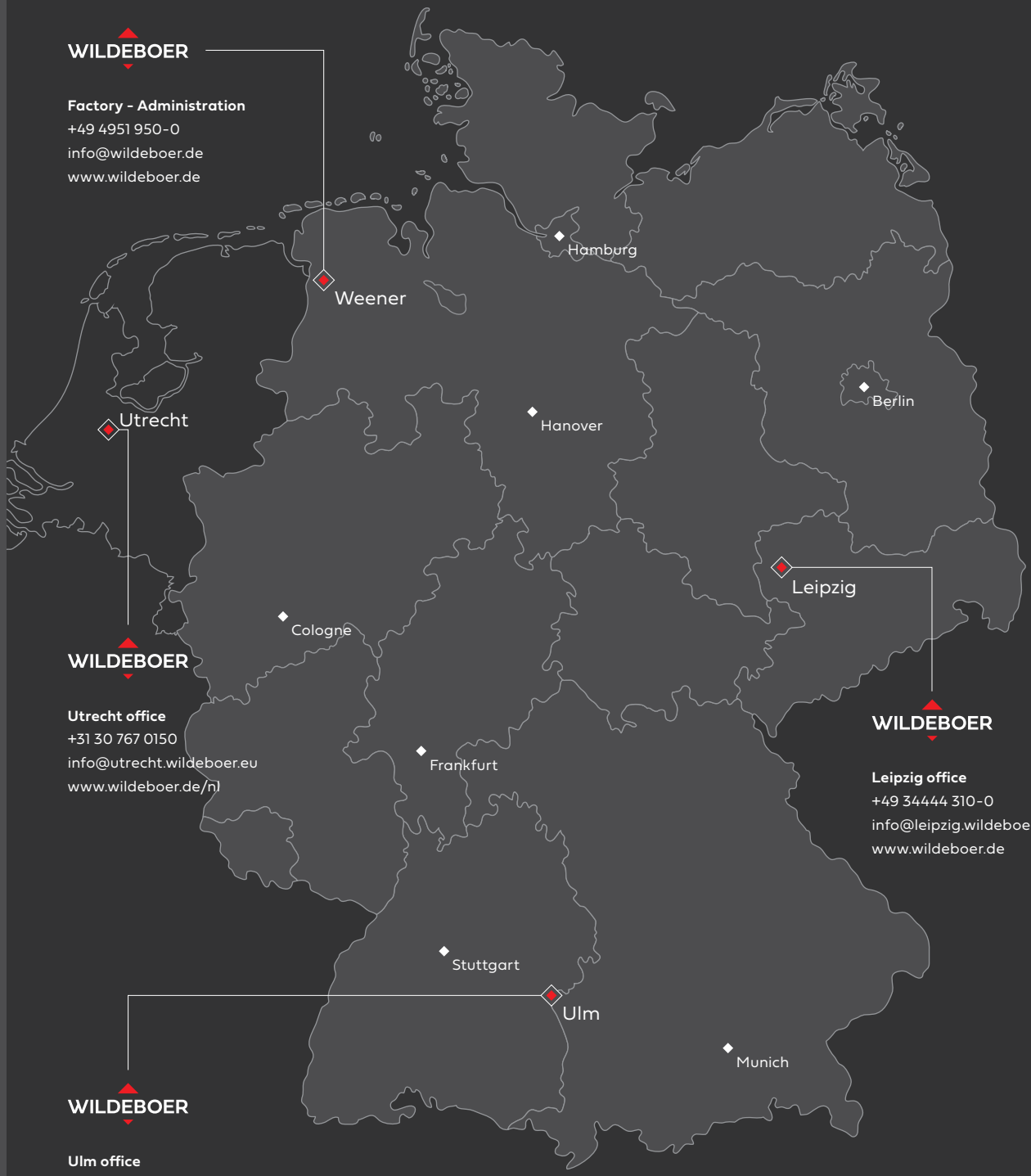
- Paperless and environmentally friendly online access to Wildeboer documents
- All documents in one central location and always up to date
- Supporting interactive formats and content

Notes

Notes

Always there for you

Locations & contact



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