Fire Safety Products

FGS

Air Transfer Grille

Data Sheet

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Puravent

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Description

Air transfer grille FGS - type MMS represent passive fire protection, designed with the help of compartmentalization to prevent the spread of toxic gases, smoke and fire.

FGS - fire resistant and cold smoke control mechanical air transfer grille (type MMS) are designed and certified in accordance with EN 1364-1 and ETAG 026 part 4, classified according to EN 13501-2. Cold smoke leakage has been classified as S_a = 33 $m^3/(h \cdot m^2)$ at 50 Pa according to EN 1364-5 and ETAG 026 Part 4.

FGS air transfer grilles are intended to be embedded into fire partition walls without ductwork. Air transfer grilles together with its installation form an inseparable part of fire resistivity rating. Their installation is described in the User Manual of the FGS air transfer grille. FGS air transfer grilles can be delivered with either a manual activation or with an actuator.

Highlights

- Suitable for overpressure ventilation
- Easy Installation with frame always included in the package
- Inspection and testing through the front panel
- Slim profile
- No need to insulate a thicker wall
- Free area above standard
- Wall hidden cables; connection through connector

Product Types

- Manually-operated FGS

By default, all manually operated air transfer grilles are supplied with manual control, optionally with micro switches. In case of fire, the air transfer grille is closed automatically after melting of the thermal fuse.
After the closing of the grille, the blades are mechanically locked in the closed position and can only be opened manually. Actuating mechanism is activated when the temperature of the air reaches 74°C and the grille closes within 10 seconds after melting of the fuse.

- Actuator-operated FGS

By default, all actuator operated air transfer grilles are supplied with actuator with micro switches, optionally with power and communication unit. Air transfer grille can be equipped with a spring return actuator which closes the damper after the command from the building management system, or after breaching of the thermoelectric fuse.
Actuator controlled air transfer grilles are standardly equipped with thermoelectric fuse, that activates the closing of the damper after reaching or exceeding of ambient temperature of 72 °C. Actuator power circuit is interrupted and its spring closes the air transfer grille blades within 20 seconds.

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Design

Material Composition

The product contains galvanized sheet metal, calciumsilicate board, fireproof carbon fiberglass, polyurethanwe foam and ethylene - propylene rubber. These are processed in accordance with local regulations. The product contains no hazardous substances, with the exception of the solder in the thermofuse, which contains a milligram of lead.

Connection of the Electrical Parts

The connection of all electrical parts according to the activation mechanism type is described in the User Manual of the FGS air transfer grille.

Product Parts

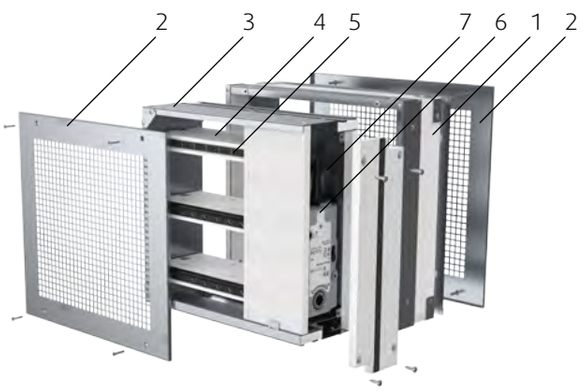

Fig. 1: Components of the FGS air transfer grille

Legend

1	Installation frame
2	Protective grating
3	Body of grille
4	Blade
5	Rubber sealing and Intumex band
6	Compartment for manual or actuator mechanism

Activation Types

- **ZV**
  Air transfer grille with an spring return mechanism enclosed into its body, release activated by a fusible thermal link set to 74 °C (on demand 100 °C).
- **DV1**
  Air transfer grille with an activation mechanism ZV + closed indication with AC 230 V or AC/DC 24 V contact switch.
- **DV1-2**
  Air transfer grille with an activation mechanism ZV + open and closed indication with AC 230 V or AC/DC 24 V contact switches.
- **DV7-T**
  Air transfer grille with an activation mechanism with a Belimo spring return actuator (AC 230 V) with an electro-thermal fuse 72 °C and auxiliary switches.
- **DV9-T**
  Air transfer grille with an activation mechanism with a Belimo spring return actuator (AC/DC 24 V) with electro-thermal fuse 72 °C and auxiliary switches.
- **DV9-T-ST**
  (Communication unit must be installed near the installation frame on the wall!)
  Air transfer grille with an activation mechanism with a Belimo spring return actuator (AC/DC 24 V) with an electro-thermal fuse 72 °C and auxiliary switches, with a Belimo supply and communication unit BKN230-24 (other communication units on demand).

Fire Resistivity

The FGS - Cold smoke control and fire resistant mechanical air transfer grille, type MMS has been tested in accordance to EN 1364-1:2015. The FGS is classified in accordance to EN 13501-2:2016.
Cold smoke leakage has been tested in accordance with EN 1634-3:2004/AC:2006 and classified as S_a = 33 m³/(h · m²) at 50 Pa according to EN 1364-5:2017 and ETAG 026 Part 4.

Tab. 1: Permitted installation methods for the air transfer grille FGS

		Fire Resistivity, Radiation/Activation Types					
Wall Construction /Thickness		Rigid /100 mm	Flexible /125 mm	Rigid /100 mm	Flexible /125 mm	Rigid /100 mm	Flexible /125 mm
Installation Height, Ground to FGS bottom edge		-0,2 m ... 0,5 m		0,5 m ... 2,8 m		2,8 m ... 4 m	
Installation Method	 Wet	EI 90, EW 120	-	EI 60, EW 90	EI 90, EW 90	-	EI 30, EW 90
	 Soft Crossing	EI 90, EW 120	-	EI 60, EW 90	EI 60, EW 90	-	EI 30, EW 90

Dimensions

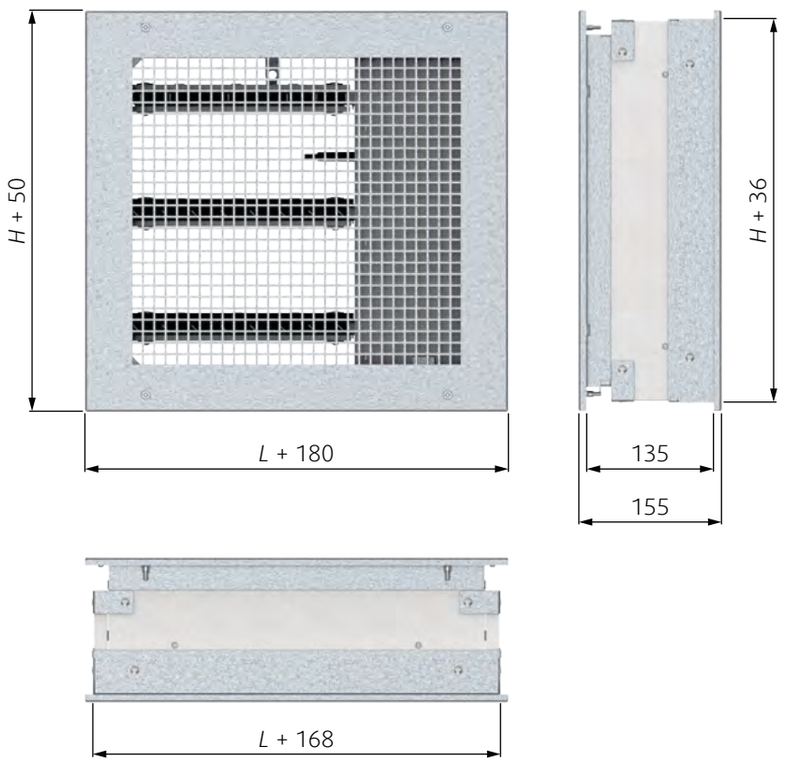

Fig. 2: Dimensions of the FGS air transfer grille

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Tab. 2: Nominal dimensions and weights of the FGS air transfer grilles (including the frame and both grilles) – actuating types ZV, DV1 and DV1-2

m (kg)		*L* (mm)						
		200	300	400	500	600	700	800
H (mm)	200	9,4	11,3	13,3	-	-	-	-
	300	11,4	13,4	15,4	17,3	-	-	-
	400	14,1	16,3	18,6	20,9	23,2	-	-
	500	17,3	19,8	21,7	24,1	26,2	29,2	-
	600	19,3	22,4	25,0	27,5	30,0	33,0	35,8
	700	-	24,8	28,0	30,7	33,8	36,9	40,0
	800	-	-	31,0	34,1	37,5	40,9	44,1
	900	-	-	-	37,7	41,2	44,8	48,3
	1000	-	-	-	-	44,9	48,7	52,6

Tab. 3: Nominal dimensions and weights of the FGS air transfer grilles (including the frame and both grilles) – actuating types DV7-T and DV9-T

m (kg)		*L* (mm)						
		200	300	400	500	600	700	800
H (mm)	200	-	-	-	-	-	-	-
	300	12,5	14,5	16,5	18,4	-	-	-
	400	15,2	17,4	19,7	22,0	24,3	-	-
	500	18,4	20,9	22,8	25,2	27,3	30,3	-
	600	20,4	23,5	26,1	28,6	31,1	34,1	36,9
	700	-	25,9	29,1	31,8	34,9	38,0	41,1
	800	-	-	32,1	35,2	38,6	42,0	45,5
	900	-	-	-	38,8	42,3	46,2	49,7
	1000	-	-	-	-	46,3	50,1	54,0

Tab. 4: Free areas of the FGS air transfer grilles

A_v (m²)		*L* (mm)						
		200	300	400	500	600	700	800
H (mm)	200	0,024	0,034	0,049	-	-	-	-
	300	0,039	0,059	0,079	0,099	-	-	-
	400	0,055	0,082	0,110	0,137	0,164	-	-
	500	0,070	0,105	0,140	0,175	0,210	0,245	-
	600	0,085	0,128	0,170	0,213	0,256	0,298	0,341
	700	-	0,151	0,201	0,251	0,301	0,351	0,402
	800	-	-	0,231	0,289	0,347	0,405	0,462
	900	-	-	-	0,327	0,392	0,458	0,523
	1000	-	-	-	-	0,438	0,511	0,584

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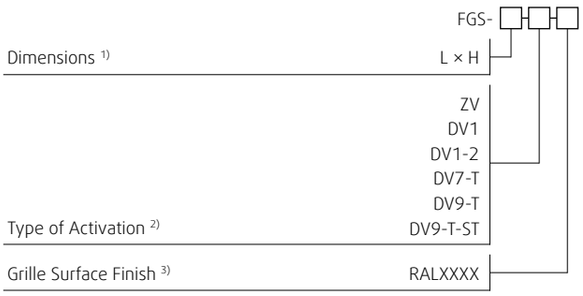
Ordering Code



NOTES:

1) Dimensions *L* × *H*: nominal dimensions of the air transfer grille (Length × Height in mm)

2) Type of activation: see details on page 2.

3) If no surface finish is defined, the grille will be delivered galvanised as standard.
On demand delivery of the FGS with perforated plates is done for aesthetic reasons.

Example of the Ordering Code

FGS-800×1000-DV9-T-ST-RAL9005

Air transfer grille, width *L* = 800 mm, height *H* = 1000 mm, with actuator 24 V AC/DC with electro-thermal fuse + auxiliary switches + supply and communication unit BKN230-24, surface treatment of the outer grille RAL9005 – black.

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Technical Parameters

Durability test	250/1000 cycles
Leakage	S_a = 33 m³/(h · m2 *) at 50 Pa
Safe position	Closed
Possible installations	In the wall only (see Tab. 1)
Airflow direction	Both directions
Allowed air velocity	Max. 12 m/s
Side with fire protection	Both directions
Activating temperature	Manual 74 °C as standard (100°C on demand)
	Actuator operated 72 °C as standard (95 °C on demand) by springs in actuator after the thermo-electrical fuse interruption
Ambient temperature	Excluding temperatures below 0 °C. Maximum of 60 °C for 72 °C and 74 °C thermo-fuse, maximum 85 °C for 95°C thermo-fuse.
Closing time	Actuator driven < 20, manual < 10 s
Indicator closed/open	Manual version ZV; 230 V microswitch in version DV1, DV1-2
	Actuator operated – microswitches included in actuator – versions DV7-T, DV9-T and DV9-T-ST
Suitability for environment	Only indoor environment Z_2 (internal conditions with humidity lower than 85% RH)
Maintenance	Not required/dry cleaning if demanded by law in the country in which the fire dampers are installed
Conformity with EC directives	2006/42/ES Machinery Directive
	2014/35/EU Low Voltage Directive
	2014/30/EU Electromagnetic Compatibility Directive

* NOTE: Nominal surface of the blades ($L \times H$)

Legend

p_s	Pa	Pressure drop
L_{WA}	dB(A)	A-weighted total sound power level
v	m/s	Air face velocity

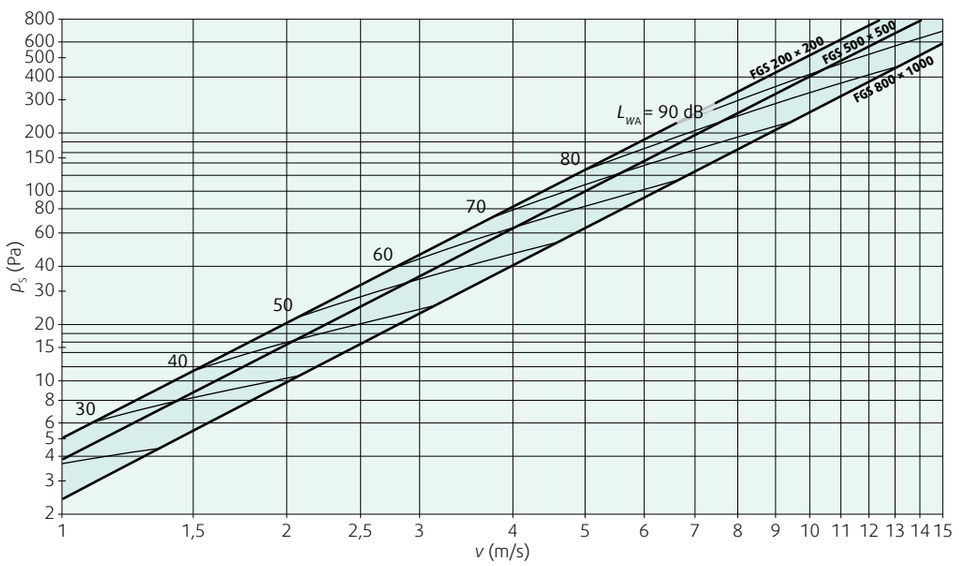

Diagram 1: Pressure drop A-weighted total discharged sound power level depending on air face velocity at different duct pressures (PKIS EI120S)

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Installation, Maintenance & Operation

Information about installation, maintenance and operation is available in the document “UserManual_FGS”.

FGS air transfer grille is maintenance free.

The FGS is designed to be situated only in internal conditions with humidity lower than 85% RH where the operating temperatures do not fall below 0 °C and installed in vertical supporting construction.
Transfered air must be without mechanical or chemical contamination, condensation, ice coating or ice.

Transport & Storage

Dry indoor conditions with a temperature range of -20 °C to +40 °C with blades in closed position.

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters.

Current information on all fire safety products is available at www.systemair.com/FSPoverview

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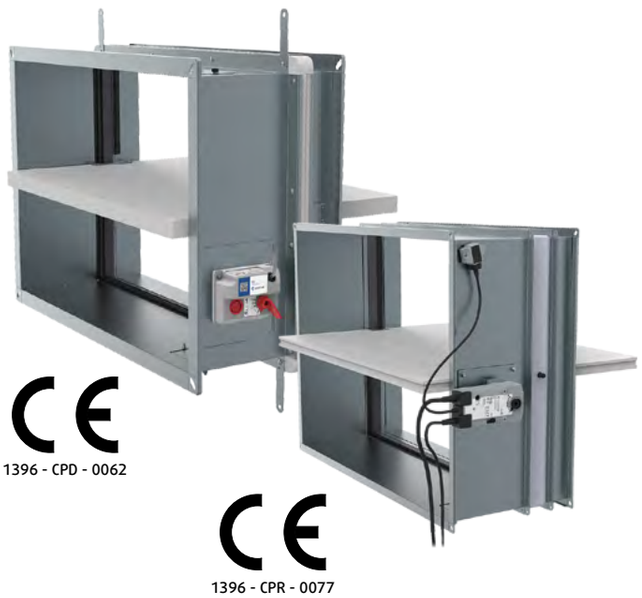
Related Products

PKIR3G, PKIS3G, PKIS3GA, PKIS EI90S, PKIS EI120S

Fire Dampers

Product information is available within the technical documentation “DataSheet_PKIR_PKIS” or at Systemair DESIGN.



PKI-C

Cartridge Fire Damper

Product information is available within the technical documentation “DataSheet_PKI-C” or at Systemair DESIGN.

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