

DUCO
Ventilation & Sun Control

ARCHITECTURAL GRILLES



HOME OF OXYGEN

An optimal indoor climate is healthy and gives a good feeling. Duco developed its Green Building Solution for this reason where basic ventilation, intensive ventilation and sun control are combined. This enables us to guarantee an optimum air quality and thermal

comfort, for both residential and non-residential housing, with a minimum of energy consumption. Because Duco's solutions are natural and energy efficient. They give homes and non-domestic buildings an aesthetic added value. **Duco , Home of Oxygen**

DUCO
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A pleasant indoor climate in a **natural** way

Intensive ventilation, unique design

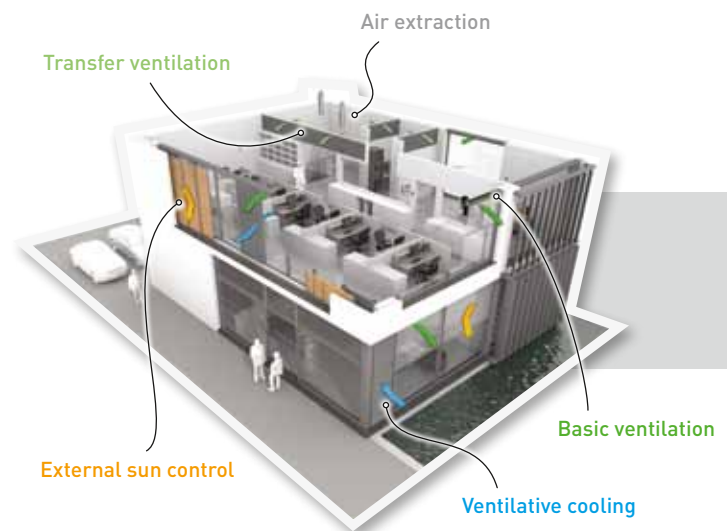
The wall- and window grills from Duco have been designed for intensive ventilation. This makes them ideal for intensive ventilation as well as for night-time air conditioning and this is why they integrate perfectly with Duco's well-developed concepts: **DUCO at WORK**, **DUCO at SCHOOL** and **DUCO at CARE**. Thanks to a combination of natural basic ventilation, outdoor sun protection & ventilative cooling, a healthy, comfortable and energy-efficient indoor climate can be created in a natural way, where the user occupies centre stage.

Ideal for ventilative cooling

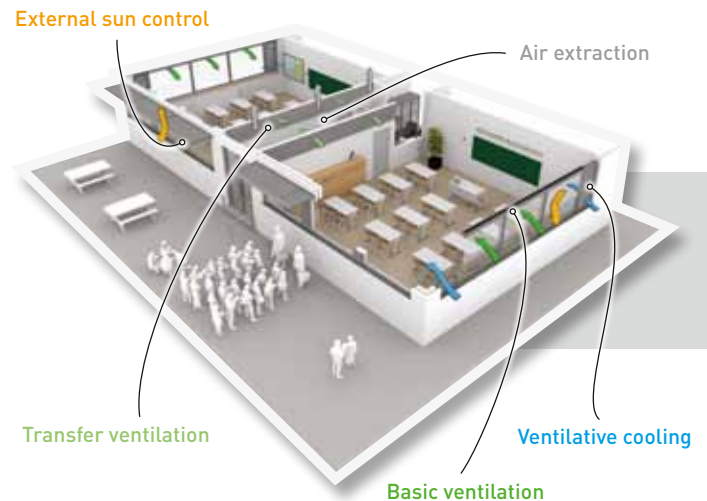
Ventilative cooling is a free kind of ventilation for cooling buildings during the warmer months in a natural way. By using a blades wall, large amounts of fresh air can enter (= intensive ventilation) in order to cool down the building. A precondition for this is that sufficient thermal mass, such as bare concrete components, must exist in the building in order to absorb the cool air.

In combination with Duco's outdoor sun protection, the heating up of a building is prevented in a natural way. This ensures that energy-intensive airco is rendered superfluous.

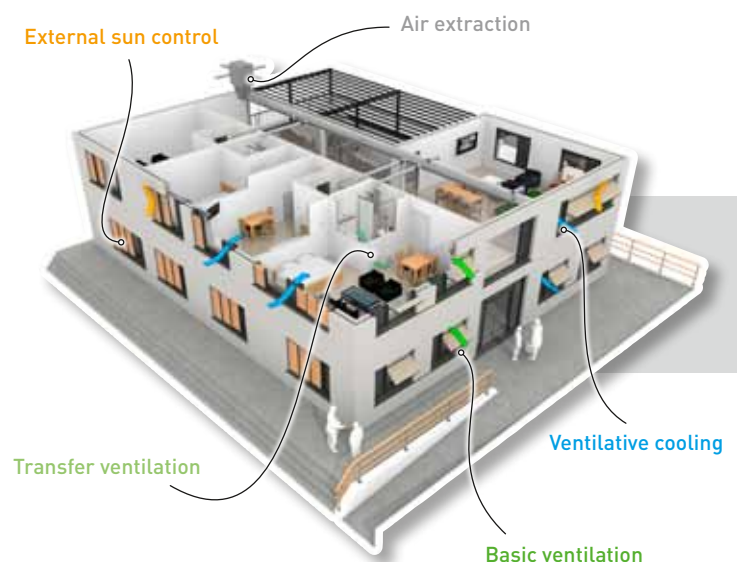
DUCO at WORK



DUCO at SCHOOL



DUCO at CARE



→ Four types

Duco louvres are suitable for window and wall mounting. Four options are available to you :

1. DucoGrille Solid

Glazed-in window or recessed mounted wall louvres consisting of **mounted stacked Z-shaped blades**. They are very sturdy louvres that are vandal-proof. The DucoGrille Solid++ is certified for burglar-resistance to European Classification Class 2.

2. DucoGrille Classic

Glazed-in window or recessed mounted wall louvres with aluminium blade profiles clipped onto the plastic blade holders using the patented Duco Turn and Click system. A wide range of **blade profiles** is available.

3. DucoGrille Acoustic

Glazed-in wall louvre, with blades which contain sound-absorbing, non-combustible mineral wool. The aluminium blades are clicked onto plastic blade holders.

4. DucoGrille Close

Glazed-in window or recessed mounted wall louvres that are **closable** and either manually or electrically operated.

→ Any building situation

Duco has an extensive range of natural air intake louvres for both new build and renovation projects. We offer a range of louvres appropriate to each situation :

Glazed-in window louvre

(suited for aluminium, timber and PVCu window frames)

Recessed mounting wall louvre

(with or without flange)

Surface mounted wall louvre

(ideally suited for covering round or rectangular apertures)

→ Insect or vermin screen

DucoGrille Solid: The perforated blade profiles act as an insect screen :

P1: Small diameter mesh

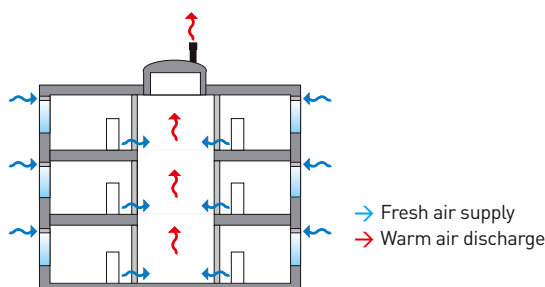
P2: Large diameter mesh + standard stainless steel insect screen.

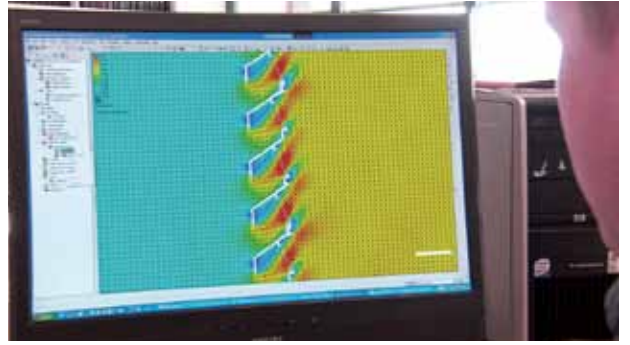
NP: Zero mesh size (100% screening louvre)

DucoGrille Classic, Close and Acoustic:

Supplied as standard with stainless steel insect-proof mesh: 2,3 x 2,3 mm. Alternatively, 6 x 6 mm or 20 x 20 mm meshes are available.

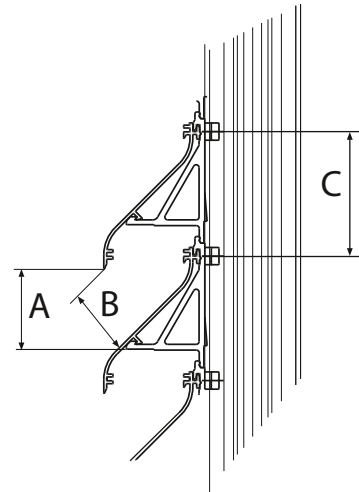
→ Ventilative cooling





→ Air flow

The choice of louvre depends on esthetical reasons and on the desired or required air flow. Two methods can be used for making the right choice (see below). In this respect, it is essential that the figures available have proved reliable. The Duco consultants will be happy to work with you to help you with your calculations.



- A = largest air flow area
- B = smallest air flow area
- C = blade pitch

1. Free open area (percentage rule)

The free open area or percentage rule is based either on the method of physical free area or the method of visual free area.

A. Physical free area

$$\text{PHYSICAL FREE AREA} = \frac{\text{smallest air flow area (B)}}{\text{blade pitch (C)}}$$

Use this method to :

→ Calculate **louvre size** (gross louvre open area) when a minimum net free open area is being asked for.

$$\text{GROSS LOUVRE OPEN AREA} = \frac{\text{net free open area}}{\text{physical free area}}$$

Example

Desired net free open area : 0,035 m²

Desired type of louvre : DucoGrille Solid 30Z P2 (physical free area of 48%)

$$\text{GROSS LOUVRE OPEN AREA} = \frac{0,035 \text{ m}^2}{0,48} = 0,073 \text{ m}^2.$$

If we want a louvre to be 200 mm in width, then the louvre height is 365 mm (0.073/0.200).

→ Calculate **the net free open area** when the louvre size has already been determined.

$$\text{NET FREE OPEN AREA} = \text{GROSS SURFACE} \times \text{PHYSICAL FREE AREA}$$

Example

Desired louvre open area : 200 mm (W) x 365 mm (H) (= 0,073 m²)

Desired type of louvre : DucoGrille Solid 30Z P2 (physical free area of 48%)

Net free open area : 0,073 m² x 0,48 = 0,035 m²

B. Visual free area

$$\text{VISUAL FREE AREA} = \frac{\text{largest air-flow surface (A)}}{\text{blade pitch (C)}}$$

The visual free area uses the largest open area rather than the smallest open area. This use however is to be discouraged as the visual free area is no benchmark for the effective free area.

2. K factor

The K factor is a value that indicates **the aerodynamic resistance of the louvre to the air flow**. This factor is used when the dimensions of the continuous louvre system should be identified based on air velocity and air flow rate.

Unlike the previously mentioned free open area, the K factor takes into account the differing air pressure at the louvre intake and exhaust faces.

$$K = \frac{P_s \text{ (pressure drop across the louvre in Pa) } \times 2}{\rho \text{ (air density) } \times V \text{ (air velocity)}^2}$$

Any louvre fitted in an opening will interfere with the free flow of air. In order to determine this resistance, the K factor needs to be calculated. When developing a louvre, the K factor is determined using a computer simulation model (EFD) first and then tested. The K factor for air intake and exhaust for each type of louvre is tabulated in the overview table at the end of this product brochure . Additionally, the associated coefficient (C) is given as well, which indicates the ratio of the effective flow area through a louvre to the theoretical air flow. A distinction is made between :

- 'Ce': for the resistance to air flow at the air inlet (Entry Loss Coefficient).
- 'Cd': for the resistance to air flow at the air outlet (Discharge Loss Coefficient).



Use this method to :

→ Calculate the louvre surface based upon the K-factor of the selected type of louvre, differential air pressure and air flow rate :

- Select a type of louvre from the table based on the K factor (K).
- Select the required maximum differential air pressure across the louvre in Pa (Δp).
- Select the required air flow rate (Q)
- Calculate air velocity (V)

$$V \text{ [m/s]} = \sqrt{\text{of } \frac{2 \times \Delta p \text{ [Pa]}}{K \times \rho \text{ [kg/m}^3\text{]}}$$

ρ = constant value = 1.2 kg/m³

- Calculate the surface of the louvre (A)

$$A \text{ [m}^2\text{]} = \frac{Q \text{ [m}^3\text{/s]}}{v \text{ [m/s]}}$$

Example

What should be the size of a DucoGrille Solid G 30Z P2 when the maximum differential air pressure (Δp) that can be accommodated is 25 Pa at an air flow rate (Q) of 2500 l/s?

- Ke of the DucoGrille Solid G 30Z P2 (see page 13) = 12.85
- Δp = 25 Pa
- Q = 2500 l/s = 2.5 m³/s

- $v \text{ [m/s]} = \sqrt{\text{of } \frac{2 \times 25 \text{ [Pa]}}{12.85 \times 1.2 \text{ [kg/m}^3\text{]}} = 1.80 \text{ m/s}$

- $A \text{ [m}^2\text{]} = \frac{2.5 \text{ [m}^3\text{/s]}}{1.80 \text{ [m/s]}} = 1.39 \text{ m}^2$

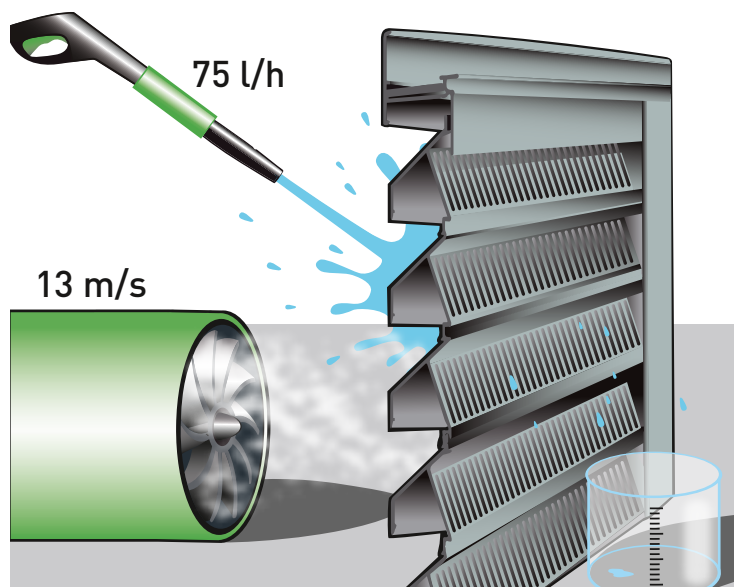
→ Water repellent efficiency

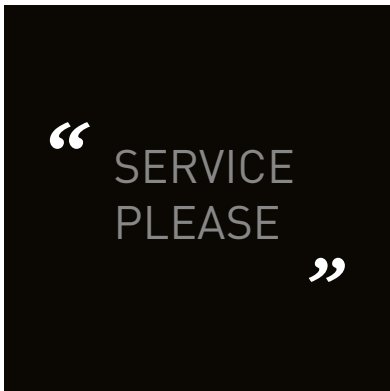
The extent to which a louvre is repellent to water on the one hand and its water tightness on the other can only be verified through testing. BSRIA is an European leading-edge independent research organisation in water tightness tests of building products. The tests have been designed in conjunction with HEVAC (Heating, Ventilating and Air Conditioning Manufacturers Association). All DucoGrille louvres presented in this brochure have been BSRIA tested.

When tested, the louvre was subjected to a simulated rainfall of 75 litres per hour and a wind speed of 13 m/s (see diagram). The louvre was then assigned a class in relation to the air velocity and the % of water tightness :

Water tightness (%)

→ Class A	100 – 99%
→ Class B	98,5 – 95%
→ Class C	94,9 – 80%
→ Class D	< 80%





We inspire at www.duco.eu



Duco's R&D department is constantly developing and testing new solutions using the latest cutting-edge technologies. Duco works in partnership with reputable institutions such as the WTCB (Wetenschappelijk en Technisch Centrum voor het Bouwbedrijf; Scientific and Technical Centre for the Building Trade), the von Karman Institute, etc. Duco's knowledge and many years of experience ensure that a suitable solution can be offered for every one of your projects.

... Like us



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Duco's project team will be delighted to help you make a responsible choice in the selection of the correct sun control system for your specific projects. To this end, the team uses proprietary software, among other things, to perform all the required calculations including strength calculations, calculations of the correct spans and of the substructure fixing options. The ideal shadow angles are calculated as well. Here, consideration is also given to façade orientation, the orbit of the sun, etc.

→ www.duco.eu

- Professional intersection planes and fitting drawings.
- **Specification service:**
 - STABU certified specification text for each type of sun control device.
- **Fitting and installation instructions** on request.

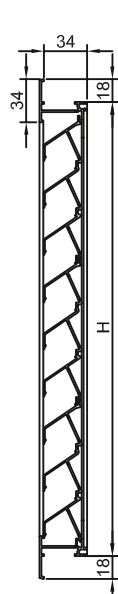


DucoGrille Solid 30Z

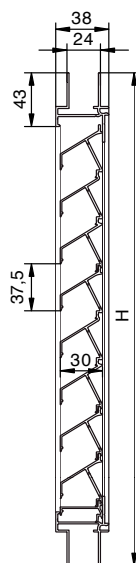
Duco Grille Solid 30Z consists of three different types : a recessed mounted wall louvre (G), an architectural window louvre (F) and a surface mounted wall louvre (M). All types are manufactured from extruded aluminium profiles. The stackable blades guarantee a unique robustness. The perforated blade profiles act as an insect screen (2 types of perforations). The Z shaped blade ensures a robust design.

Exploded
view of
DucoGrille
Solid 30Z

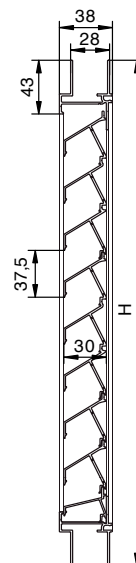
→ Solid G 30Z



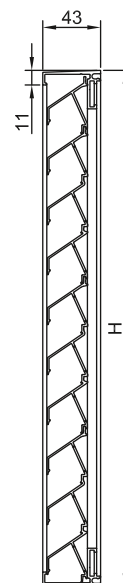
→ Solid F 30Z/24



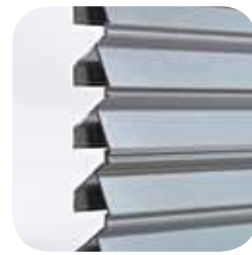
→ Solid F 30Z/28



→ Solid M 30Z



Technical Specifications

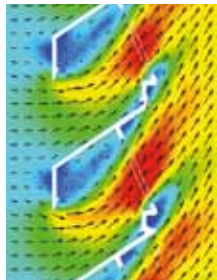


G 30Z	P1	P2	NP
- Fitting depth:	34,4 mm	34,4 mm	34,4 mm
- Blade pitch:	37,5 mm	37,5 mm	37,5 mm
- Frame flange:	18,2 mm	18,2 mm	18,2 mm
- Visual free area:	60%	86%	0%
- Physical free area:	34%	48%	0%
F 30Z			
- Framework width:	38 mm	38 mm	38 mm
- Blade pitch:	37,5 mm	37,5 mm	37,5 mm
- Flange width:	24 of 28 mm	24 of 28 mm	24 of 28 mm
- Visual free area:	60%	86%	0%
- Physical free area:	34%	48%	0%
M 30Z			
- Framework width:	43,0 mm	43,0 mm	43,0 mm
- Blade pitch:	37,5 mm	37,5 mm	37,5 mm
- Visual free area:	60%	86%	0%
- Physical free area:	34%	48%	0%
- Insect screen:	Perforated blade profiles as insect screen	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm or 20 x 20 mm	100% screening louvre

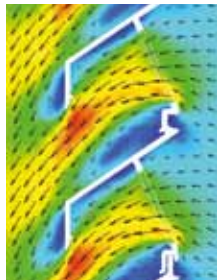
EFD Simulation

P1 (small diameter mesh)

/IN



/OUT

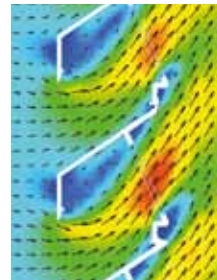


K-factor
Intake: 17,70
Ce: 0,24

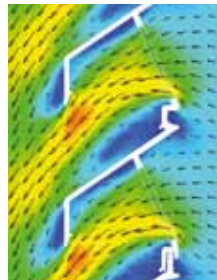
K-factor
Exhaust: 19,13
Cd: 0,23

P2 (large diameter mesh)

/IN



/OUT

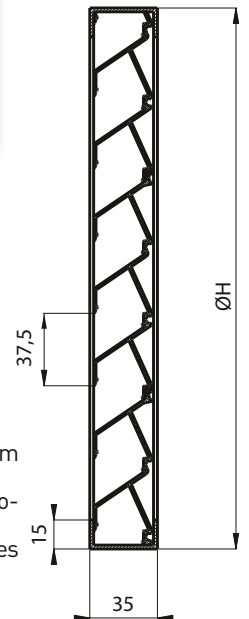


K-factor
Intake: 12,85
Ce: 0,28

K-factor
Exhaust: 12,90
Cd: 0,28



→ Solid MR 30Z



DucoGrille Solid MR 30Z

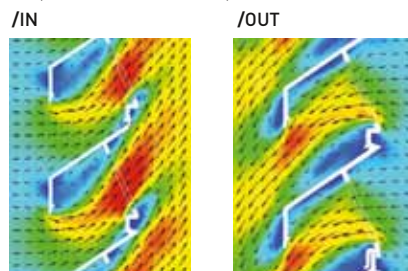
The DucoGrille Solid MR 30Z is a round, surface mounted wall louvre manufactured from extruded aluminium profiles. The stackable blades guarantee a unique robustness. The perforated blade profiles act as an insect screen (2 types of perforations). The Z shaped blade ensures a robust design.

Technical Specifications

	P1	P2	NP
- Framework width:	35,0 mm	35,0 mm	35,0 mm
- Blade pitch:	37,5 mm	37,5 mm	37,5 mm
- Visual free area:	60%	86%	0%
- Physical free area:	34%	48%	0%
- Insect screen:	Perforated blade profiles as insect screen		100% screening louvre

EFD simulation

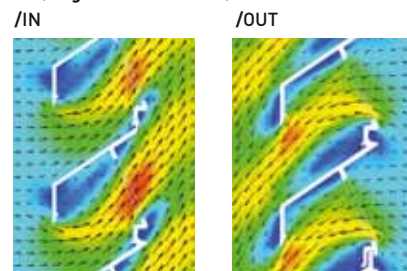
P1 (small diameter mesh)



K-factor
Intake: 17,70
Ce: 0,24

K-factor
Exhaust: 19,13
Cd: 0,23

P2 (large diameter mesh)



K-factor
Intake: 12,85
Ce: 0,28

K-factor
Exhaust: 12,90
Cd: 0,28

Exploded view of DucoGrille Solid MR 30Z



Residence, Koksijde (Belgium)
DucoGrille Solid MR 30Z

REFERENCE



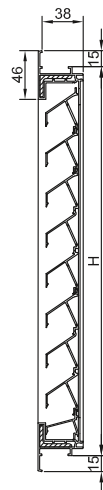
DucoGrille Solid ++ G 30Z & M 30Z

DucoGrille Solid ++ 30Z is a burglar-proof wall grill that is available in two different types: a built-in variant (G) and a surface-mounted variant (M). Both types are manufactured from extruded aluminium profiles. The 'stackable' blades are combined with a reinforced frame profile. This makes the grills **burglar-proof up to class 2***, in accordance with the European standards. The perforated blades provide insect protection. The "Z"-shaped blade has a unique design.

* DucoGrille Solid ++ 30Z has successfully passed all tests that are prescribed in the 'Burglar resistance Construction products' prEN 1627 to prEN 1630 design standards for burglar resistance class 2.

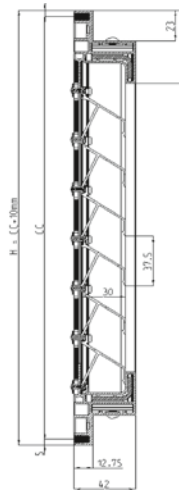
Exploded view of DucoGrille Solid ++ 30Z

→ Solid ++ G 30Z



The Solid ++ G 30Z is ideal for building in

→ Solid ++ M 30Z



The Solid ++ M30Z is ideal for surface-mounting

Technical Specifications



	++ G 30Z	++ M 30Z
- Fitting depth:	38,4 mm	-
- Framework width:	-	42 mm
- Blade pitch:	37,5 mm	37,5 mm
- Frame flange:	15 mm	-
- Visual free area:	60%	60%
- Physical free area:	34%	34%
- Insect screen:	Perforated blades (P1) as insect protection	Perforated blades (P1) as insect protection

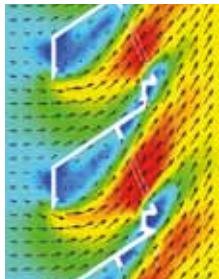
→ Burglarproof up to class 2

DucoGrille Solid ++ 30Z has successfully passed all tests that are prescribed in the 'Burglar resistance Construction products' prEN 1627 to prEN 1630 design standards for burglar resistance class 2.

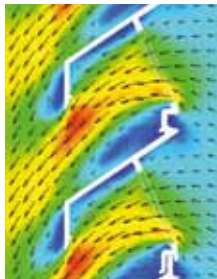
EFD Simulation

P1 (small diameter mesh)

/IN



/OUT



K-factor

Intake: 17,70

Ce: 0,24

K-factor

Exhaust: 19,13

Cd: 0,23

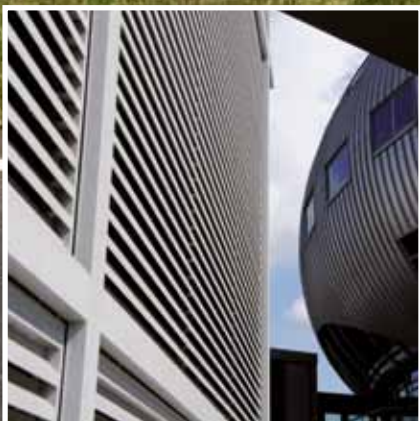
Burglarproof up to class 2



The complete test report is available on request.

The Cube, Almere (The Netherlands)

DucoGrille Classic G 20Z & F 20Z



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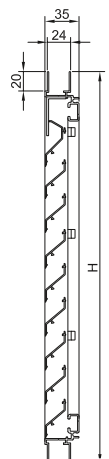
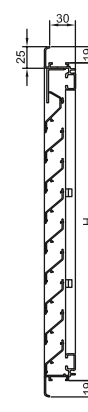


→ Classic G 20Z

→ Classic F 20Z

DucoGrille Classic G 20Z & F 20Z

DucoGrille Classic 20Z consists of two different types: a built-in variant (G) and an architectural window louvre (F). All types manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The Z shaped blade ensures a robust design.

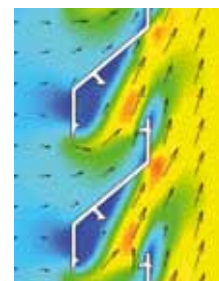


Technical Specifications

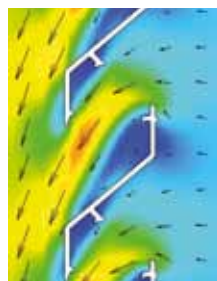
	G 20Z	F 20Z
- Fitting depth:	30 mm	-
- Framework width:	-	35 mm
- Flange width:	-	-
- Blade pitch:	35 mm	35 mm
- Frame flange:	-	-
- Visual free area:	63%	63%
- Physical free area:	41%	41%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	

EFD Simulation

IN



OUT



K-factor

Intake: 22,73

Ce: 0,21

K-factor

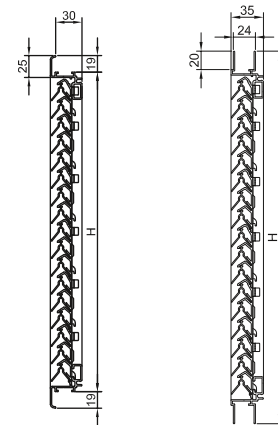
Exhaust: 30,52

Cd: 0,18



→ Classic G 20V

→ Classic F 20V



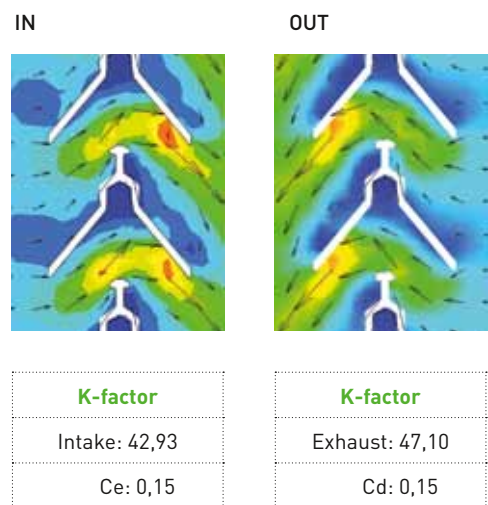
DucoGrille Classic G 20V & F 20V

DucoGrille Classic 20V consists of two different types: a built-in variant (G) and an architectural window louvre (F). All types manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The V shaped blade ensures a robust design.

Technical Specifications

	G 20V	F 20V
- Fitting depth:	30 mm	-
- Framework width:	-	35 mm
- Flange width:	-	-
- Blade pitch:	20 mm	20 mm
- Frame flange:	-	-
- Visual free area:	95%	95%
- Physical free area:	34%	34%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	

EFD Simulation

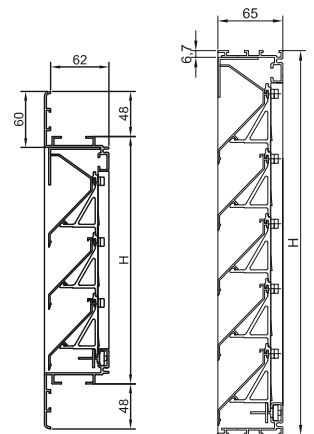




→ Classic G 50Z → Classic N 50Z

DucoGrille Classic G 50Z & N 50Z

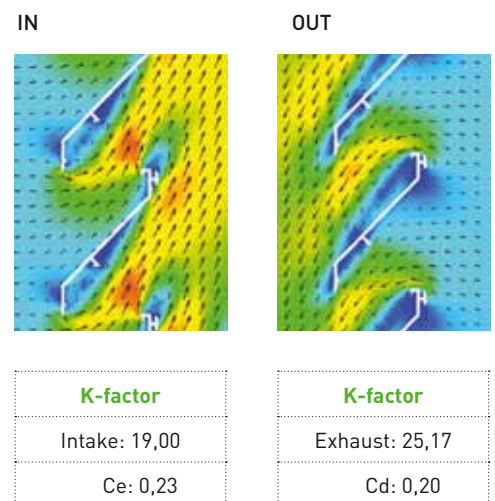
DucoGrille Classic 50Z is a recessed mounted wall louvre manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The Z shaped blade ensures a robust design.



Technical Specifications

	G 50Z	N 50Z
- Fitting depth:	62 mm	65 mm
- Blade pitch:	65 mm	65 mm
- Frame flange:	48 mm	0 mm
- Visual free area:	75%	75%
- Physical free area:	47%	47%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	

EFD Simulation

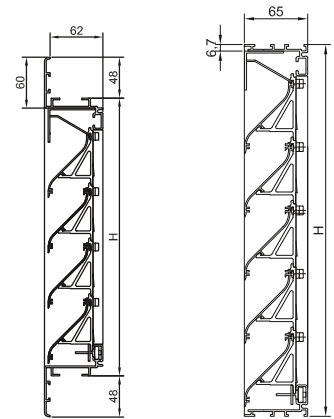




→ Classic G 50S → Classic N 50S

DucoGrille Classic G 50S & N 50S

DucoGrille Classic 50S is a recessed mounted wall louvre manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The S shaped blade ensures a robust design.

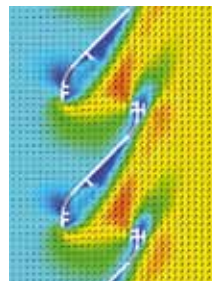


Technical Specifications

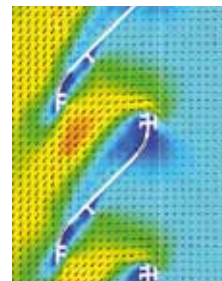
	G 50S	N 50S
- Fitting depth:	62 mm	65 mm
- Blade pitch:	65 mm	65 mm
- Frame flange:	48 mm	0 mm
- Visual free area:	75%	75%
- Physical free area:	47%	47%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	

EFD Simulation

IN



OUT



K-factor

Intake: 17,38

Ce: 0,24

K-factor

Exhaust: 23,48

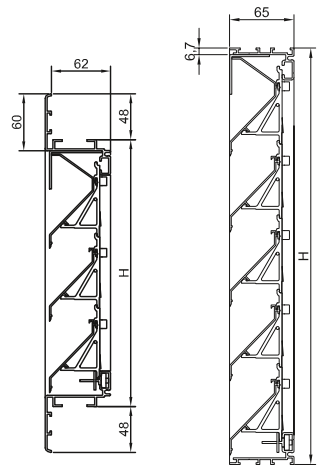
Cd: 0,21



→ Classic G 50/75Z → Classic N 50/75Z

DucoGrille Classic G 50/75Z & N 50/75Z

DucoGrille Classic 50/75Z is a recessed mounted wall louvre manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The Z shaped blade ensures a robust design.

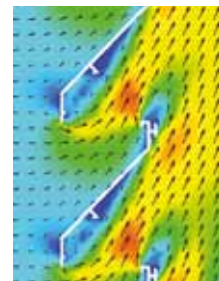


Technical Specifications

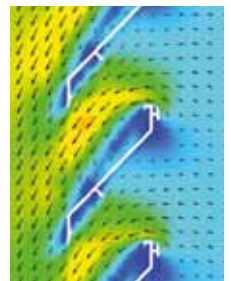
	G 50/75Z	N 50/75Z
- Fitting depth:	62 mm	65 mm
- Blade pitch:	75 mm	75 mm
- Frame flange:	48 mm	0 mm
- Visual free area:	80%	80%
- Physical free area:	49%	49%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	

EFD Simulation

IN



OUT



K-factor

Intake: 9,00

Ce: 0,33

K-factor

Exhaust: 13,87

Cd: 0,27

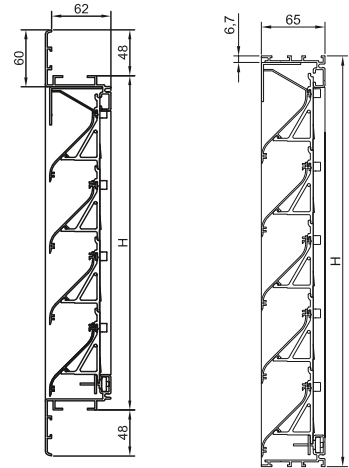


→ Classic G 50/75S

→ Classic N 50/75S

DucoGrille Classic G 50/75S & N 50/75S

DucoGrille Classic 50/75Z is a recessed mounted wall louvre manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The Z shaped blade ensures a robust design.

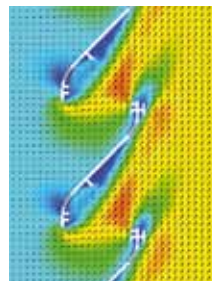


Technical Specifications

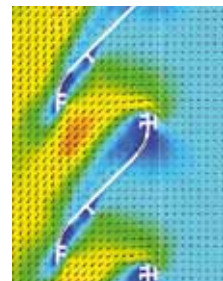
	G 50/75S	N 50/75S
- Fitting depth:	62 mm	65 mm
- Blade pitch:	75 mm	75 mm
- Frame flange:	48 mm	0 mm
- Visual free area:	80%	80%
- Physical free area:	49%	49%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	

EFD Simulation

IN



OUT



K-factor

Intake: 8,75

Ce: 0,34

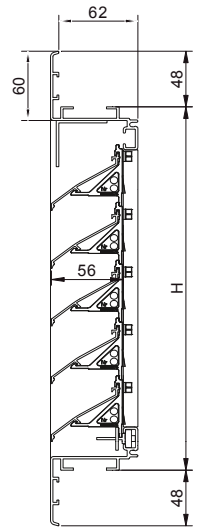
K-factor

Exhaust: 13,62

Cd: 0,27



→ Classic G 50HP



DucoGrille Classic G 50HP

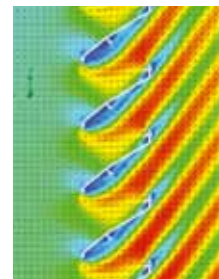
DucoGrille Classic G 50HP is a recessed mounted wall louvre, which is provided with 50HP blades. These aluminium blades have been developed especially for intensive ventilation due to their low resistance factor. The Z shaped blade ensures a robust design.

Technical Specifications

- Fitting depth:	62 mm
- Blade pitch:	50 mm
- Frame flange:	48 mm
- Visual free area:	88%
- Physical free area:	68%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm
	Optional: Stainless steel mesh 6 x 6 mm (vermin screen)

EFD Simulation

IN

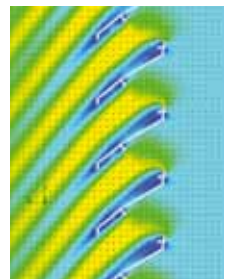


K-Factor

Intake: 4,7

Ce: 0,46

OUT



K-Factor

Exhaust: 4,55

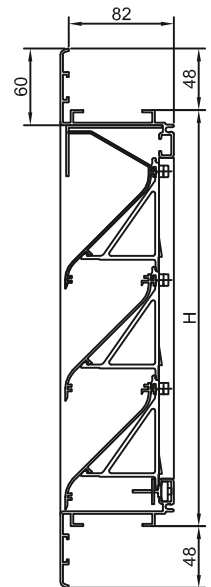
Cd: 0,47



Hospital (Dublin)
DucoGrille Classic



→ Classic G 70S



DucoGrille Classic G 70S

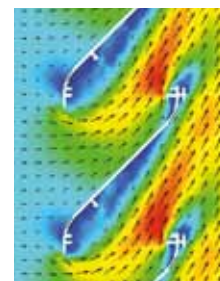
DucoGrille Classic G 70S is a recessed mounted wall louvre manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The unique S shaped blade ensures a stylish design.

Technical Specifications

- Fitting depth:	82 mm
- Blade pitch:	85 mm
- Frame flange:	48 mm
- Visual free area:	79%
- Physical free area:	47%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm
	Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)

EFD Simulation

IN

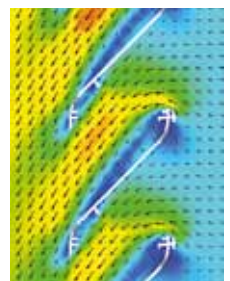


K-factor

Intake: 16,80

Ce: 0,24

OUT



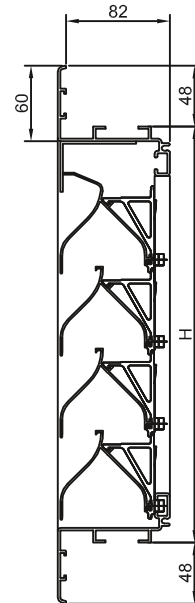
K-factor

Exhaust: 18,00

Cd: 0,24



→ Classic G 70V



DucoGrille Classic G 70V

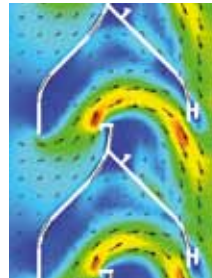
DucoGrille Classic G 70V is a recessed mounted wall louvre manufactured from extruded aluminium profiles. The Turn and Click system ensures quick and easy assembly. An insect screen is fitted as standard. The unique V shaped blade ensures a lower water penetration rate and makes the louvre penetration-proof and difficult to look through from the outside.

Technical Specifications

- Fitting depth:	82 mm
- Blade pitch:	65 mm
- Frame flange:	48 mm
- Visual free area:	65%
- Physical free area:	36%
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm
	Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)

EFD Simulation

IN

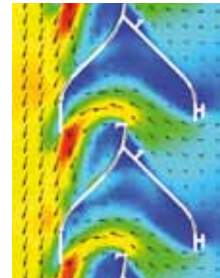


K-factor

Intake: 72,79

Ce: 0,12

OUT



K-factor

Exhaust: 83,88

Cd: 0,11

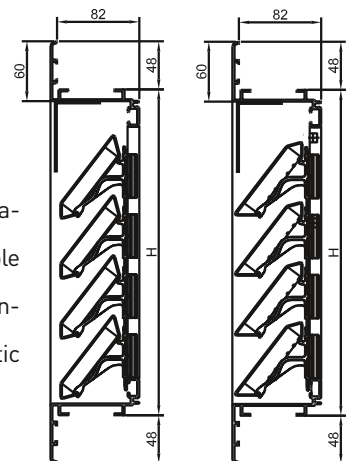


→ Acoustic G 75Z

→ Acoustic G 75L

DucoGrille Acoustic G 75Z & G 75L

DucoGrille Acoustic G75Z/L is a sound absorbing recessed mounted wall louvre manufactured from extruded aluminium profiles. Two aesthetic applications are possible with one type of blade: Z and L. The blades are provided with sound-absorbing, non-combustible mineral wool on the inside. The aluminium blades are clicked onto plastic blade holders.



Technical Specifications

	G 75Z	G 75L
- Fitting depth:	82 mm	82 mm
- Blade pitch:	60 mm	60 mm
- Frame flange:	48 mm	48 mm
- Visual free area:	76%	95%
- Physical free area:	34%	34%
- Acoustic attenuation Dne, W (C;Ctr):	6 (0;-1) dB	6 (0;-2) dB
- Insect screen:		Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)

EFD Simulation



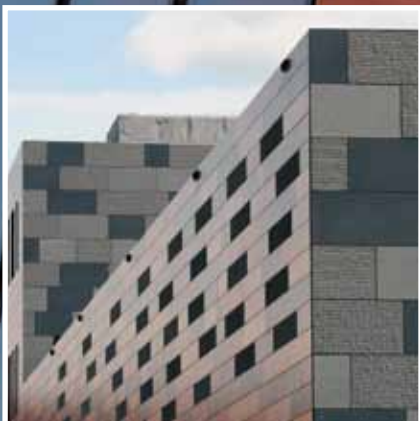


POEL & RAMEN, Ghent (Belgium)
DucoGrille Solid 30Z

Police office,
Alphen aan den Rijn (The Netherlands)
DucoGrille Classic



HOME OF OXYGEN





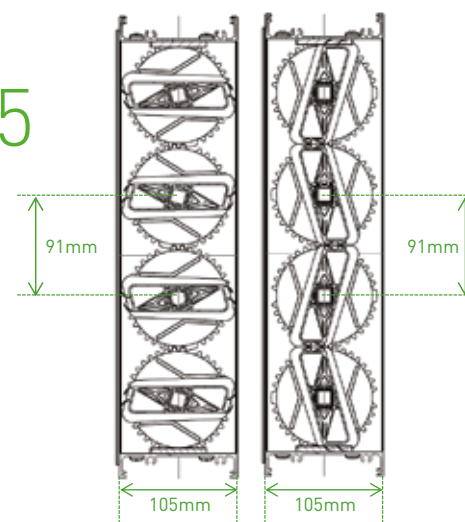


DucoGrille Close 105

The DucoGrille Close 105 is a multi-leaf damper that, thanks to its large cross-sectional area, can be optimally used for the (night-time) ventilation of a building.

The multi-leaf damper can serve as an inlet or outlet grill. In the first case, the DucoGrille Close 105 can be built into a wall or curtain wall, and has a (possibly burglar-proof) aesthetic finish on both sides. Moreover, the multi-leaf damper can also serve as a controllable discharge unit, for example, in combination with Duco's roof hoods.

→ Close 105



Duco Acoustic Panel: for extra acoustic comfort!

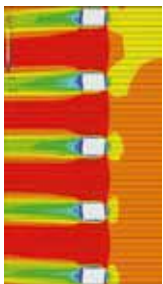
Blades that are equipped on the inside with sound-insulating, non-flammable mineral wool, are installed in front of or behind the multi-leaf damper. This ensures that the acoustic value of the ventilation supply or discharge can be enhanced. Depending on the requirements, a single row of blades (Dne, W up to 19 dB) or a double row (Dne, W up to 22 dB) can be installed for optimal noise reduction.

Technical Specifications

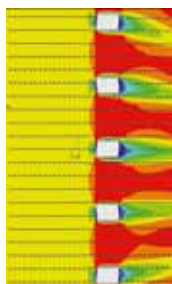
Length:	min. 400 mm / max. 1500 mm
Height:	min. 236 mm / max. 1237 mm
Depth:	105 mm
Blade Pitch:	91 mm
Airflow:	805 l/s/m ² (at 1 Pa)
Air Leakage (in closed position):	Qn50 = 0,79 m ³ /h*m
Watertightness (in closed position):	Waterproof (EN 100027)
Heat Loss:	U = 2 W/m ² K
Control Voltage:	3-position control
Running noises acuator:	< 35 dB (A)
Ambient operating temperature range:	-25°C tot +60 °C
Material:	Aluminium: Al Mg Si 0,5
	Finishing: Stove enamelled polyester powder coated (60-80 µm)
	lamel : HD PVC

EFD Simulation

IN



UIT



K-factor

Intake : 2,57

Exhaust : 2,57

Duco Acoustic Panel





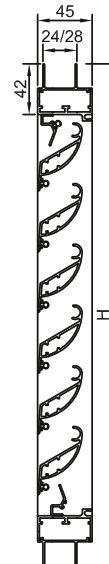
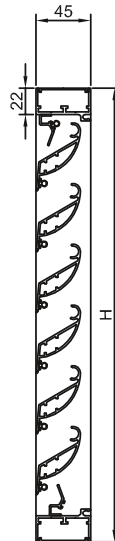
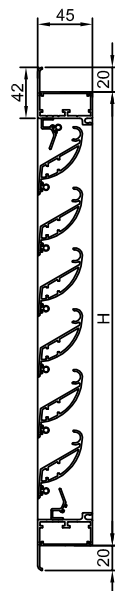
DucoGrille Close 35Z

The DucoGrille Close G 35Z and N 35Z are closable recessed mounted wall louvres made from extruded aluminium profiles. The DucoGrille Close is also available as a closable window louvre (F 35Z), ideally suited for Night Cooling. The unique Z shaped blades provide adjustable ventilation available in manual or electric operation.

→ Close G 35Z

→ Close N 35Z

→ Close F 35Z



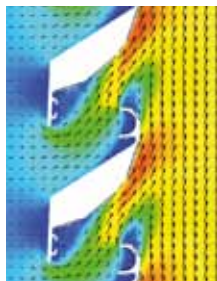
Technical Specifications



Types of Ducogrille Close	G 35Z	N 35Z	F 35Z
- Fitting depth:	45 mm	45 mm	-
- Blade pitch:	50 mm	50 mm	50 mm
- Flange width:	-	-	24 or 28 mm
- Visual free area:	51%	51%	51%
- Physical free area:	39%	39%	39%
- Minimum height (manual operation)	224 mm	224 mm	264 mm
- Minimum height (electrical operation)	524 mm	524 mm	564 mm
- Insect screen:	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)	Standard: Stainless steel mesh 2,3 x 2,3 mm Optional: Stainless steel mesh 6 x 6 mm (vermin screen) Stainless steel mesh 20 x 20 mm (bird guard)

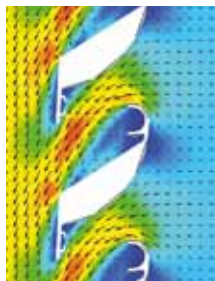
EFD Simulation

IN



K-factor
Intake: 30,38
Ce: 0,18

OUT



K-factor
Exhaust: 23,67
Cd: 0,21

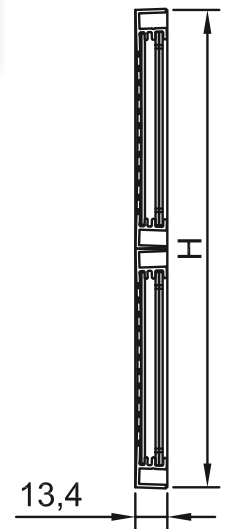
Lockable operation



Manual operation in steps



→ Close M 100



DucoGrille Close M 100

The DucoGrille Close M 100 is a closable surface mounted internal louvre manufactured from extruded aluminium profiles. The plastic slide valves allow for adjustable ventilation. The DucoGrille Close M 100 is available as standard in heights of 200 mm and 300 mm and in widths up to 1,000 mm maximum.

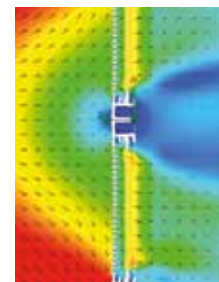
Technical Specifications

- Framework width:	13 mm
- Visual free area:	28%
- Physical free area:	28%
- Louvre height:	200 mm or 300 mm
- Louvre width:	max. 1000 mm
- Insect screen:	Small diameter mesh serves as insect screen
- Open area:	

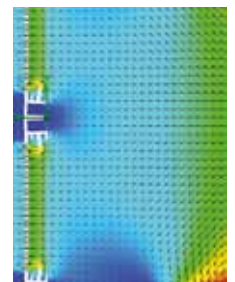
Standard size	Open area (in cm ²)
200 x 200	112
300 x 300	252
Air flow rate at 1Pa (in m ³ /h)	Air flow rate at 2Pa (in m ³ /h)
19,76	27,96
44,48	62,90

EFD Simulation

IN



OUT



K-factor

Intake: 88,43

Ce: 0,11

K-factor

Exhaust: 89,43

Cd: 0,11

→ Dimensions

The DucoGrille Solid, DucoGrille Classic and DucoGrille Acoustic are available in all sizes.

(Width x Height in mm). The DucoGrille Close series louvres are available in a number of fixed heights only, because of the blade pitch.

Minimum dimensions :

DucoGrille Solid: 200 x 200 mm

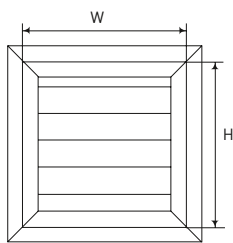
DucoGrille Classic G 20Z / G 20V / F 20Z / F 20V & DucoGrille Acoustic: 245 x 245 mm

All other DucoGrille Classic series louvres : 300 x 300 mm

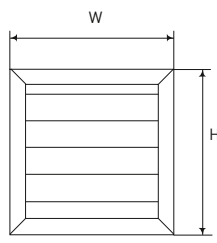
DucoGrille Close: Minimum size is dependent on manual or electric operation (see tabulated values)

DucoGrille types G, N & M: WxH = mounting dimensions

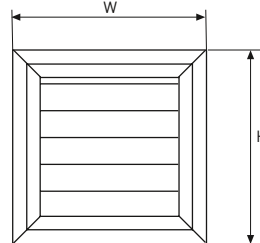
DucoGrille type F: W x H = overall sizes



G series recessed mounting wall louvre



N & M series surface mounting wall louvre



F series overall sizes

→ Fixing options

DucoGrille Solid

G 30Z:

Fixing lugs included as standard.

Allow 5 mm tolerance (all round) between the wall opening and the fixing frame.

M 30Z en MR 30Z:

Screws and wall plugs are supplied as standard.

F 30Z:

Mounting in the window frame.

DucoGrille Classic & Acoustic

For all G and N series recessed mounted louvres:

Fixing lugs included as standard. Allow 5 mm tolerance (all round) between the wall opening and the fixing frame.

For all F series window louvres :

mounting in the window profile.

DucoGrille Close

105:

Fixation to the account and responsibility of the customer

G 35Z / N 35Z:

Fixing lugs included as standard.

Allow 5 mm tolerance (all round) between the wall opening and the fixing frame.

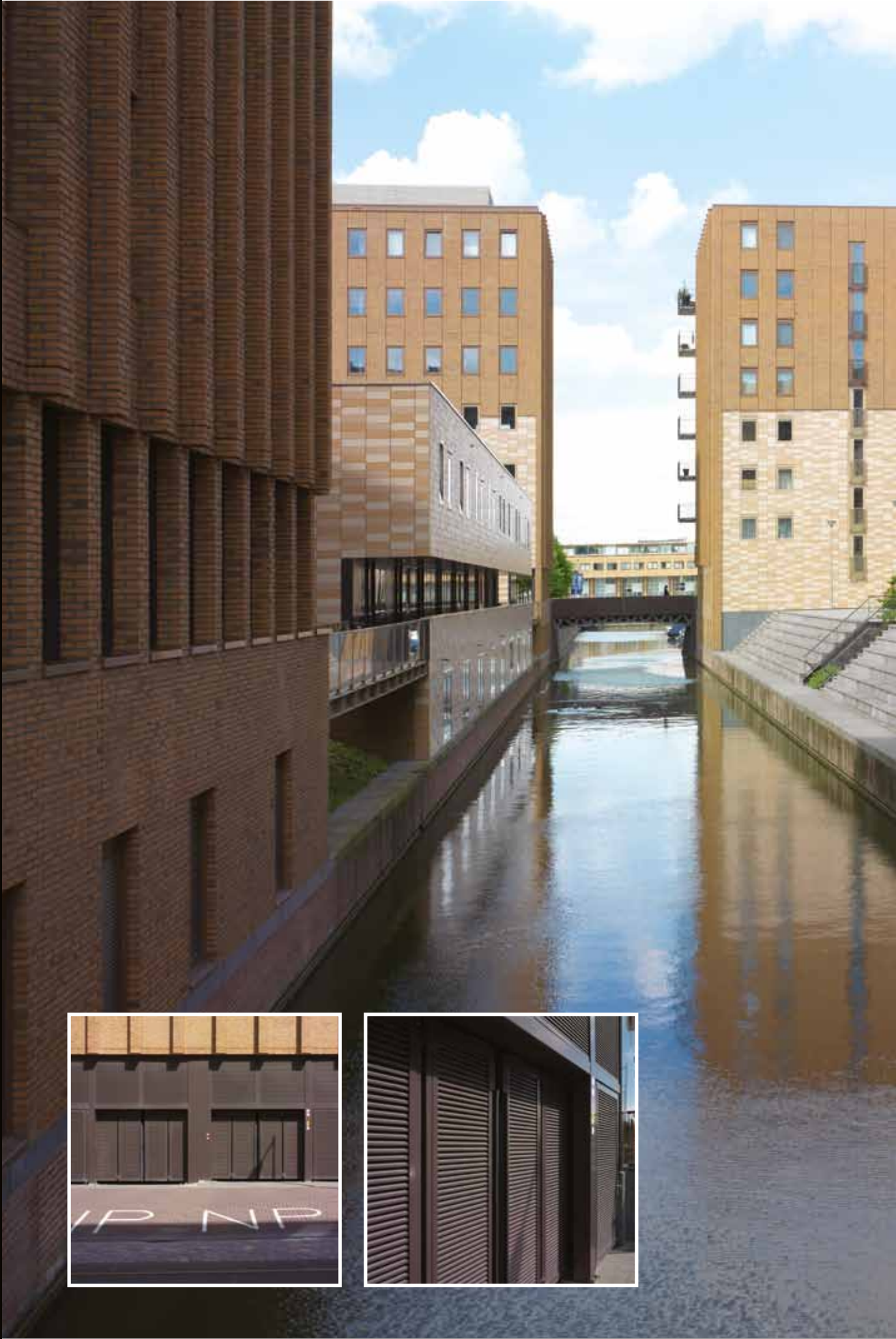
F 35Z:

Mounting in the window frame.

M 100:

Screws and wall plugs are supplied as standard.

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BLOK 47, IJburg (The Netherlands)
DucoGrille Solid

Tabulated values for wall and window louvres

	FITTING DEPTH (MM)	FRAME WIDTH (MM)	BLADE PITCH (MM)	FRAME FLANGE (MM)	FLANGE WIDTH (MM)	WATER REPELLENT EFFICIENCY (WITH INSECT SCREEN FITTED)
						v = 0 m-s
→ DUCOGRILLE SOLID						
Recessed mounted wall louvre						
DucoGrille Solid G 30Z P1	34,4		37,5	18		C(91,11)
DucoGrille Solid G 30Z P2	34,4		37,5	18		B(96,09)
DucoGrille Solid G 30Z NP	34,4		37,5	18		
Window louvre						
DucoGrille Solid F 30/24 Z P1		38	37,5		24	C(91,11)
DucoGrille Solid F 30/24 Z P2		38	37,5		24	B(96,09)
DucoGrille Solid F 30/24 Z NP		38	37,5		24	
DucoGrille Solid F 30/28 Z P1		38	37,5		28	C(91,11)
DucoGrille Solid F 30/28 Z P2		38	37,5		28	B(96,09)
DucoGrille Solid F 30/28 Z NP		38	37,5		28	
Surface mounted wall louvre						
DucoGrille Solid M 30Z P1		43	37,5			C(91,11)
DucoGrille Solid M 30Z P2		43	37,5			B(96,09)
DucoGrille Solid M 30Z NP		43	37,5			
Round surface mounted wall louvre						
DucoGrille Solid MR 30Z P1		35	37,5			C(91,11)
DucoGrille Solid MR 30Z P2		35	37,5			B(96,09)
DucoGrille Solid MR 30Z NP		35	37,5			
→ DUCOGRILLE SOLID ++						
Recessed mounted wall louvre						
DucoGrille Solid '++' G 30Z P1	38,4		37,5	15		C(91,11)
DucoGrille Solid '++' M 30Z P1			37,5	12,75		C(91,11)
→ DUCOGRILLE CLASSIC						
Recessed mounted wall louvre						
DucoGrille Classic G 20Z	30		35	19		C(94,87%)
DucoGrille Classic G 20V	30		20	19		A(99,0%)
DucoGrille Classic G 50Z	62		65	48		B
DucoGrille Classic G 50S	62		65	48		B
DucoGrille Classic G 50/75Z	62		75	48		B(98,6%)
DucoGrille Classic G 50/75S	62		75	48		B(98,6%)
DucoGrille Classic N 50Z	65		65	0		B
DucoGrille Classic N 50S	65		65	0		B
DucoGrille Classic N 50/75Z	65		75	0		B(98,6%)
DucoGrille Classic N 50/75S	65		75	0		B(98,6%)
DucoGrille Classic G 50HP	62		50	48		C(92,3%)
DucoGrille Classic G 70S	82		85	48		B
DucoGrille Classic G 70V	82		65	48		A
Window louvre						
DucoGrille Classic F 20Z		35	35		24	C
DucoGrille Classic F 20V		35	20		24	A(99,0%)
→ DUCOGRILLE ACOUSTIC						
DucoGrille Acoustic G 75Z	82		60	48		B(97,8%)
DucoGrille Acoustic G 75L	82		60	48		B(97,2%)
→ DUCOGRILLE CLOSE						
Opbouwmuurrooster DucoGrille Close 105		105	91			
Inbouwmuurrooster DucoGrille Close G 35Z	42		50			(B)98,25%
Inbouwmuurrooster DucoGrille Close N 35Z	42		50			(B)98,25%
Raamrooster DucoGrille Close F 35/24 Z		45	50		24	(B)98,25%
Raamrooster DucoGrille Close F 35/28 Z		45	50		28	(B)98,25%
Opbouwmuurrooster DucoGrille Close M 100		13		20		

					INSECT SCREEN				
v = 0,5 m-s	v = 1 m-s	v = 1,5 m-s	v = 2 m-s	v = 2,5 m-s	mesh size P1	mesh size P2	Stainless steel insect screen 2,3x2,3mm	Stainless steel insect screen 6x6mm	Stainless steel insect screen 20x20mm
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	S	0	0
					-	-	-	-	-
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	S	0	0
					-	-	-	-	-
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	S	0	0
					-	-	-	-	-
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	S	0	0
					-	-	-	-	-
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	-	-	-
					-	-	-	-	-
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	-	-	-
					-	-	-	-	-
C(83,47)	D(77,65)	D	D	D	S	-	-	-	-
B(95,90)	C(93,53)	C(87,57)	D(67,28)	D	-	S	-	-	-
					-	-	-	-	-
C(93.15%)	D	D(75.4%)	D	D	-	-	S	0	0
B	C(91.5%)	C	C	D	-	-	S	0	0
B(96.55%)	C(94.09%)	C(91.71%)	D	D	-	-	S	0	0
B(96.55%)	C(94.09%)	C(91.71%)	D	D	-	-	S	0	0
C	C(94.7%)	C	C(82.2%)	D	-	-	S	0	0
C	C(94.7%)	C	C(82.2%)	D	-	-	S	0	0
B(96.77%)	C(93.47%)	C(90.53%)	D	D	-	-	S	0	0
B(96.77%)	C(93.47%)	C(90.53%)	D	D	-	-	S	0	0
C	C(94.7%)	C	C(82.2%)	D	-	-	S	0	0
C	C(94.7%)	C	C(82.2%)	D	-	-	S	0	0
C(89.80%)	C(86.5%)	D(79.7%)	D	D	-	-	S	0	-
C	C(94.27%)	C	C(84.90%)	D	-	-	S	0	0
B(98.98%)	B(95.53%)	C(80.43%)	D	D	-	-	S	0	0
C(93.15%)	D	D(75.4%)	D	D	-	-	S	0	0
B	C(91.5%)	C	C	D	-	-	S	0	0
B(95,1%)	C(89,4%)	D(77,3%)	D	D	-	-	S	0	-
C(93,9%)	C(88,2%)	D(75%)	D	D	-	-	S	0	-
B(96,52%)	C(88,82%)	D(39,83%)	D	D	-	-	S	0	0
B(96,52%)	C(88,82%)	D(39,83%)	D	D	-	-	S	0	0
B(96,52%)	C(88,82%)	D(39,83%)	D	D	-	-	S	0	0
B(96,52%)	C(88,82%)	D(39,83%)	D	D	-	-	S	0	0

S : Standard | *0* : Optional

Product survey

	VISUAL FREE AREA (%)	PHYSICAL FREE AREA (%)	K FACTOR FRESH AIR INTAKE	K FACTOR FRESH AIR EXHAUST	CE	CD	page
→ DUCOGRILLE SOLID							
Recessed mounted wall louvre							
DucoGrille Solid G 30Z P1	60	34	17,70	19,13	0,24	0,23	12
DucoGrille Solid G 30Z P2	86	48	12,85	12,90	0,28	0,28	
DucoGrille Solid G 30Z NP	0	0					
Window louvre							
DucoGrille Solid F 30/24 Z P1	60	34	17,70	19,13	0,24	0,23	12
DucoGrille Solid F 30/24 Z P2	86	48	12,85	12,90	0,28	0,28	
DucoGrille Solid F 30/24 Z NP	0	0					
DucoGrille Solid F 30/28 Z P1	60	34	17,70	19,13	0,24	0,23	
DucoGrille Solid F 30/28 Z P2	86	48	12,85	12,90	0,28	0,28	
DucoGrille Solid F 30/28 Z NP	0	0					
Surface mounted wall louvre							
DucoGrille Solid M 30Z P1	60	34	17,70	19,13	0,24	0,23	12
DucoGrille Solid M 30Z P2	86	48	12,85	12,90	0,28	0,28	
DucoGrille Solid M 30Z NP	0	0					
Round surface mounted wall louvre							
DucoGrille Solid MR 30Z P1	60	34	17,70	19,13	0,24	0,23	14
DucoGrille Solid MR 30Z P2	86	48	12,85	12,90	0,28	0,28	
DucoGrille Solid MR 30Z NP	0	0					
→ DUCOGRILLE SOLID ++							
Recessed mounted wall louvre							
DucoGrille Solid '++' G 30Z P1	60	34	17,70	19,13	0,24	0,23	16
DucoGrille Solid '++' M 30Z P1	60	34	17,70	19,13	0,24	0,23	
→ DUCOGRILLE CLASSIC							
Recessed mounted wall louvre							
DucoGrille Classic G 20Z	63	41	22,73	30,52	0,21	0,18	20
DucoGrille Classic G 20V	95	34	42,93	47,10	0,15	0,15	21
DucoGrille Classic G 50Z	75	47	19,00	25,17	0,23	0,20	22
DucoGrille Classic G 50S	75	47	17,38	23,48	0,24	0,21	23
DucoGrille Classic G 50/75Z	80	49	9,00	13,87	0,33	0,27	24
DucoGrille Classic G 50/75S	80	49	8,75	13,62	0,34	0,27	25
DucoGrille Classic N 50Z	75	47	19,00	25,17	0,23	0,20	22
DucoGrille Classic N 50S	75	47	17,38	23,48	0,24	0,21	23
DucoGrille Classic N 50/75Z	80	49	9,00	13,87	0,33	0,27	24
DucoGrille Classic N 50/75S	80	49	8,75	13,62	0,34	0,27	25
DucoGrille Classic G 50HP	88	68	4,7	4,55	0,46	0,47	26
DucoGrille Classic G 70S	79	47	16,80	18,00	0,24	0,24	28
DucoGrille Classic G 70V	65	36	72,79	83,88	0,12	0,11	29
Window louvre							
DucoGrille Classic F 20Z	63	41	22,73	30,52	0,21	0,18	20
DucoGrille Classic F 20V	95	34	42,93	47,10	0,15	0,15	21
→ DUCOGRILLE ACOUSTIC							
DucoGrille Acoustic G 75Z	76	34	16,93	21,83	0,24	0,21	30
DucoGrille Acoustic G 75L	76	34	16,93	21,83	0,24	0,21	30
→ DUCOGRILLE CLOSE							
Opbouwmuurrooster DucoGrille Close 105	74	74	2,57	2,57	0,62	0,62	34
Inbouwmuurrooster DucoGrille Close G 35Z	51	39	30,38	23,67	0,18	0,21	36
Inbouwmuurrooster DucoGrille Close N 35Z	51	39	30,38	23,67	0,18	0,21	36
Raamrooster DucoGrille Close F 35/24 Z	51	39	30,38	23,67	0,18	0,21	36
Raamrooster DucoGrille Close F 35/28 Z	51	39	30,38	23,67	0,18	0,21	36
Opbouwmuurrooster DucoGrille Close M 100	28	28	88,43	89,43	0,11	0,11	38

Please contact one of our Specialist Dealers or our project department Duco ' Ventilation & Sun Control ' to obtain commercial and technical assistance (calculations, specifiers texts, fitting instructions,...)

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→ Ordering info bespoke items

DucoGrille Solid

→ G 30Z and Solid '++' G 30Z

Louvre size : Size of louvre (without flange)

Or specify clearance dimension (wall aperture), with :

Ordering dimensions : Width (-10 mm clearance) x Height (-10 mm clearance) of the wall aperture

→ M 30Z and F 30Z

Ordering dimensions : Overall width x overall height of the louvre.

→ MR 30Z

Ordering dimensions : Louvre diameter

Minimum: 300 mm – Maximum: 1,000 mm

DucoGrille Classic & Acoustic

→ For all G and N series recessed mounting louvres :

Louvre size : Louvre size (without flange), or specify clearance dimension (wall aperture), with :

Ordering dimensions : Width (-10 mm clearance) x Height (-10 mm clearance) of the wall aperture

→ For all F series window louvres :

Ordering dimensions : Overall width x overall height of the louvre.

DucoGrille Close

→ General for DucoGrille Close 105

Ordering dimensions : Overall width x overall height of the louvre.

→ General for DucoGrille Close 35Z

Take account of fixed blade pitch.

Indicate the desired control (manual or electric)

Select a controls location (LH – centre – RH)

→ F 35Z

Ordering dimensions : Overall width x overall height of the louvre.

→ N 35Z / G 35Z

Louvre size : Size of louvre (without flange),

Or specify clearance dimension (wall aperture), with :

Ordering dimensions : Width (-10 mm clearance) x Height (-10 mm clearance) of the wall aperture

→ M 100

Ordering dimensions : Overall width x overall height of the louvre.



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