

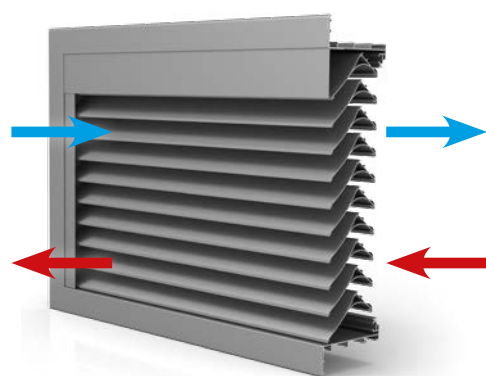
AIRFLOW K-FACTOR

Information sheet

The K-factor is a value that expresses the grille's **aerodynamic resistance** to airflow. This factor is used when grille dimensions need to be determined based on air velocity and airflow. The K-factor takes into account the difference in air pressure before and behind the grille.

Placing a grille in an opening creates resistance to the airflow. In order to determine this resistance, the K-factor needs to be calculated. When developing a grille, the K-factor is tested. For each type of grille, the brochure provides the K-factor for air intake.

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



K-factor intake
Coefficient of entry (Ce)

K-factor exhaust
Coefficient of discharge (Cd)

CONVERSION FORMULA
between K-factor and Ce/Cd values:

$$K = \frac{1}{(Ce)^2}$$

Use this method to calculate the **surface of the grille** based on air pressure difference and airflow:

- 1 Choose a grille type from the table based on the K-factor (K).
 - 2 Choose the maximum air pressure difference in Pa (Δp) from, e.g., the Building Decree.
 - 3 Select the desired airflow (Q) in m³/s from, e.g., the Building Decree.
- Calculate the air velocity (V):
- 4
$$V \text{ (m/s)} = \sqrt{\frac{2 \times \Delta p \text{ (Pa)}}{K \times (\text{kg/m}^3)}}$$
- Calculate the size of the wall louvre (A) in m²:
- 5
$$A \text{ (m}^2\text{)} = \frac{Q \text{ (m}^3\text{/s)}}{V \text{ (m/s)}}$$

Class airflow	Ce or Cd
1	0.4 and higher
2	0.3 to 0.399
3	0.2 to 0.299
4	0.199 and lower



ONLINE CALCULATION TOOL

Also use our simple tool that performs these calculations for you. Go to en.duco.eu/air-flow-calculation or scan the QR code.

STND and +OPT version

Louvre grilles (DucoGrille)

The technical values of our grilles have been tested in two ways:

STND = 'Standard'

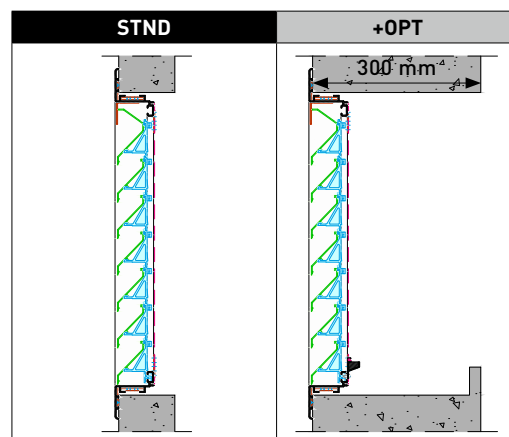
This is the standard version.

+OPT = '+Options'

This is an optional version where the grille was tested in an installation situation of 300 mm and with (integrated) water gutter*.

The **+OPT** version will often bring better results in terms of water resistance. See each product page for all values per grille type.

* Depending on the type of grille



Louvre walls (DucoWall)

The technical values of our grilles have been tested in two ways:

STND = 'Standard'

This is the standard version.

+OPT = '+Options'

This is an optional version where the louvre wall has been tested incl. insect screen.

The **+OPT** version will often bring better results in terms of water resistance. See each product page for all values per grille type.

