



Reference Report

on possible energy savings with MotionIQ





This report was created using the dormakaba Door Efficiency Calculator and shows the potential energy savings that can be achieved by doors in combination with MotionIQ technology.

We will be happy to calculate your individual energy saving potential.

Please contact us.

Door Efficiency Calculator

Calculation of energy losses during operation of automatic entrance doors

1. Introduction

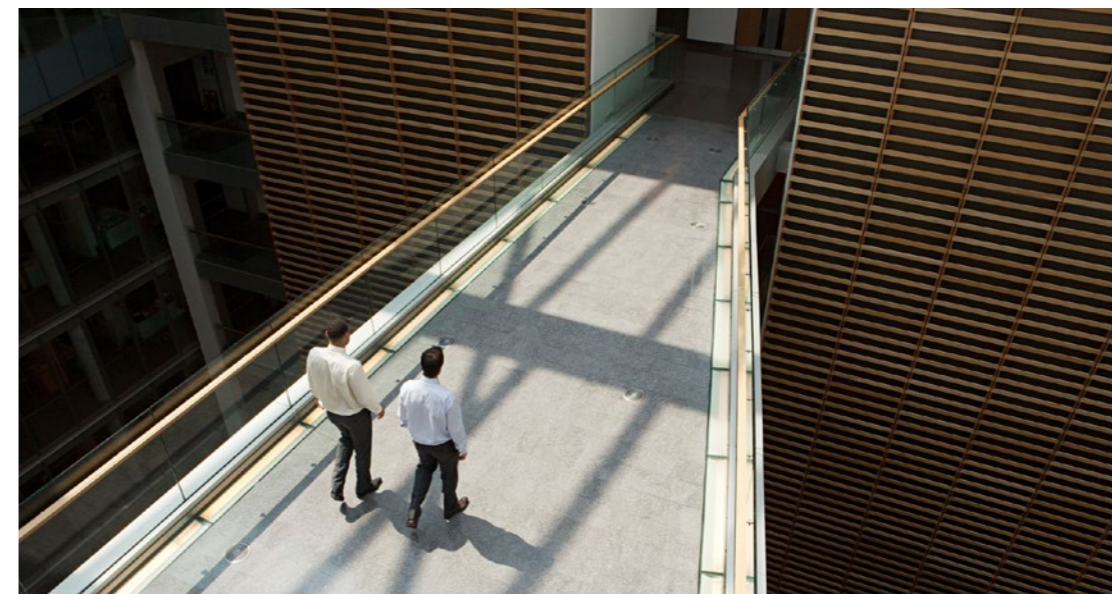
Door Efficiency Calculator (DEC) determinates for different automatic entrance doors

- Potential turnover of thermal energy during operation,
- CO₂-equivalents for thermal energy consumption,
- Necessary heating and cooling costs for compensation of energy losses,
- Payback time between the best and worst automatic door in years.

2. Basic information

a) Location of the building

Project title:	Reference report on possible energy savings with MotionIQ
Reporter:	dormakaba
Date:	19-Mar-2024



3. Calculation parameter

a) Location of the building

Continent:	Europe
Country:	Germany
City:	Berlin

b) Specific building data

Desired room temperature (°C):	21
Terrain type:	City
Building height:	Medium (5-10 floors)
Building condition:	Low draught, e.g. new building




c) Energy costs and CO₂ emissions

Heating system type:	Gas heating	0.20	EUR / kWh
Cooling energy source:	Electric energy. Conventional electricity (e.g. nuclear, coal, gas)	0.30	EUR / kWh

d) Building and door usage

Building use:	Retail
Customer per day:	940
Working days per week:	6

e) Door specification

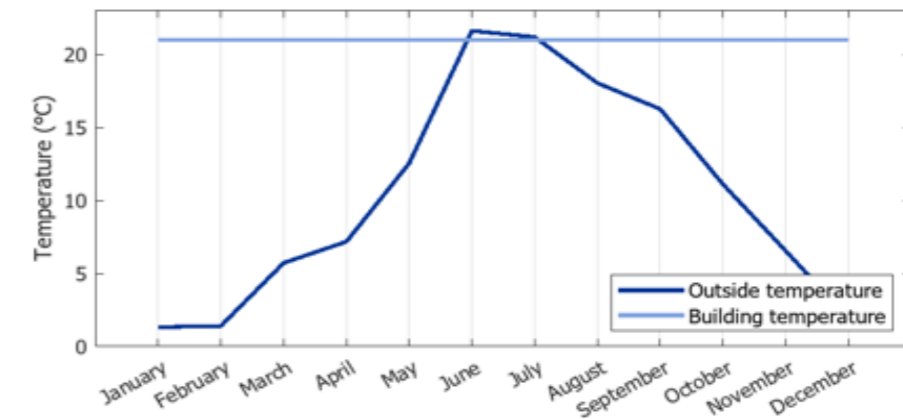
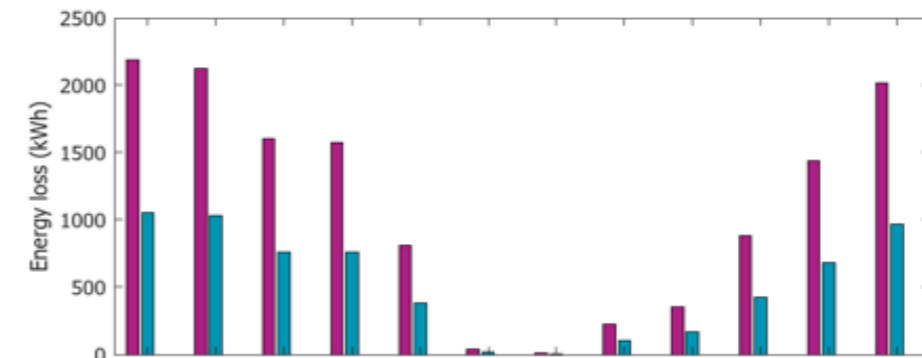
Door number	Door 1	Door 2	Door 3
Door type	Swing door	Swing door	-
Picture			
Door model	ED 250 swing door	ED 250 swing door	-
No. of opening directions / wings	1	1	-
MotionIQ	Off	On	-
Clear passage width	mm 1200	mm 1200	-
Diameter	mm -	mm -	-
Clear passage height	mm 2100	mm 2100	-
Opening speed	- 3 s	- 3 s	-
Closing speed	- 4 s	- 4 s	-
Hold-open time	sec 15	sec 1	-
Revolutions	rpm -	rpm -	-
U-value	W / m²K 1.2	W / m²K 1.2	-
Miscellaneous	-	-	-



4. Results

a) Summary of energy losses

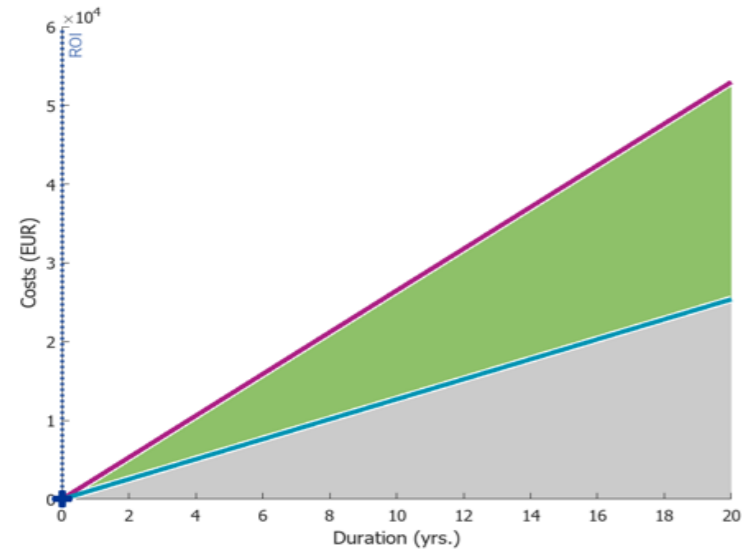
Door number		Door 1	Door 2	Door 3
Sum of thermal energy loss	kWh/ year	13278	6361	-
Part caused by transmission	kWh/ year	167	208	-



Potential annual savings of door 2: 6917 kWh / 52 %, 1380 EUR.

b) Summary of heating costs and payback time chart

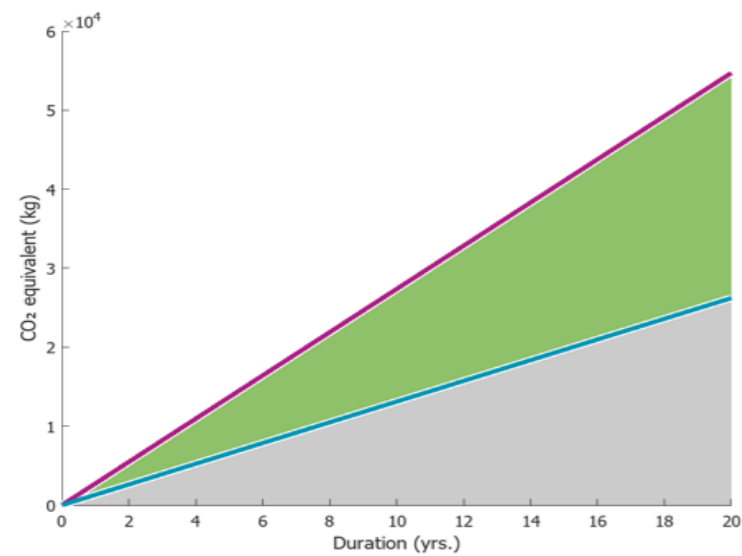
Door number		Door 1	Door 2	Door 3
Initial door costs	EUR	0	0	-
Annual maintenance costs	EUR/ year	0	0	-
Annual heating and cooling costs	EUR/ year	2649	1269	-



From the beginning, door 2 is more cost effective.

c) CO₂ equivalent per year in detail

Door number		Door 1	Door 2	Door 3
CO ₂ emissions	kg/year	2736	1311	-



Potential annual savings of door 2: 1425 kg / 52 %, 8796 km.

If you have any questions, please contact your dormakaba sales representative.

To ensure the calculation results of the dormakaba Door Efficiency Calculator (DEC) are relevant, the "Institut für Luft- und Kältetechnik GmbH" (ILK), Dresden, was commissioned to validate the calculation kernel and the algorithms used.

The ILK confirmed in March 2023 that the calculation methodology complies with current scientific standards and is suitable for making plausible statements regarding thermal energy losses for the scenarios under consideration.



<https://www.ilkdresden.de/en/>

Climate data provided by NOAA, Deutscher Wetterdienst and Environment Canada via mete-ostat.net.

Note On Use

All values determined by the Door Efficiency Calculator are estimates and approximations only. In addition to the data entered by you, the results are based on average values of various factors carefully determined by us, which, however, do not fully represent the real conditions. The values actually determined may therefore deviate from these. We therefore accept no responsibility for any differences between calculated and actual energy losses or savings, nor for the resulting savings. In addition, the values entered by the respective consultant for installation and maintenance do not represent a binding offer.

Data Protection

No personal data is collected when using the app. The building-specific data provided by you, will be deleted immediately after the report has been completed.

Software Version: 1.4.2

Our Sustainability Commitment

We are committed to foster a sustainable development along our entire value chain in line with our economic, environmental and social responsibilities toward current and future generations. Sustainability at product level is an important, future-oriented approach in the field of construction. In order to give quantified disclosures of a product's environmental impact through its entire life cycle, dormakaba provides Environmental Product Declarations (EPD), based on holistic life cycle assessments.

www.dormakaba.com/sustainability



Our offering

Access Automation Solutions

Entrance Automation
Entrance Security



Access Control Solutions

Electronic Access & Data
Escape and Rescue Systems
Lodging Systems



Access Hardware Solutions

Door Closers
Architectural Hardware
Mechanical Key Systems



Services

Technical Support
Installation and commissioning
Maintenance and Repair



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