![dormakaba]

ST FLEX
Green

Energy-saving sliding door

ST FLEX Green
Slender profile with excellent thermal insulation

Think
Green

Energy-saving products for buildings are the trend of the future. With the ST FLEX Green sliding door dormakaba underlines their contribution to increase energy efficiency and thus to improve the sustainability of buildings.

This automatic sliding door system is excelled by its slender profile with improved thermal separation on the basis of the FLEX profile system. Despite its lean design, ST FLEX Green convinces with outstanding thermal insulation, which is also approved by the German testing, surveillance and certification body ift Rosenheim. Further-more, it fulfils the requirements of the latest German

energy-saving regulation (EnEV 2016) and harmonizes perfectly with the existing dormakaba sliding door range. Even the smallest ST FLEX Green door system meets the requirements of the German EnEV 2016, which stipulates a certain U_D-value (thermal transmission co-efficient) for complete door systems. In addition, dormakaba provides a certificate with the respective UD-value for each door system.
The bigger the door system, the considerably lower the U_D-value compared to the respective reference value. Despite its slender profile system with improved thermal insulation, the ST FLEX GREEN is extremely solid.

Very energy-efficient
ST FLEX Green considerably reduces running energy and heating expenses and cuts CO_2-emission. Despite the improved thermal separation, the profiles almost look like standard ST FLEX systems so that they harmonize perfectly with the façade's overall design.

ES 200 operator technology sets new trends
The ES 200 system provides three different operator versions (ES 200 Easy, ES 200 and ES 200-2D) in order to meet all requirements. Doors with ES 200 Easy are suitable for door weights of 2 x 100 kg while the ES 200 may handle doors of 2 x 160 kg. The ES 200-2D escape route version is designed for door panel weights of 2 x 130 kg. In addition, passage widths of up to 3000 mm may easily be realized.

Type-approved systems for emergency exits and escape routes
With their established Dual Drive technology (ES 200-2D) dormakaba sliding doors are convincing and reliable applications for emergency exits and escape routes.
All operators are of redundant design and supplied with an auxiliary control unit and a radar motion detector with self-monitoring function.
Furthermore, the systems are characterized by an additional F in their name and type-approved as "automatic sliding door without break-out unit for application in escape routes".

ST FLEX Green with an operator height of only 100 mm

100 mm high
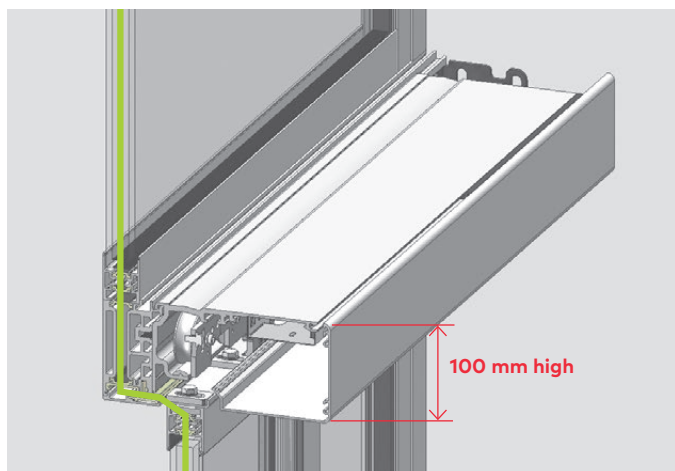
ST FLEX Green, horizontal section
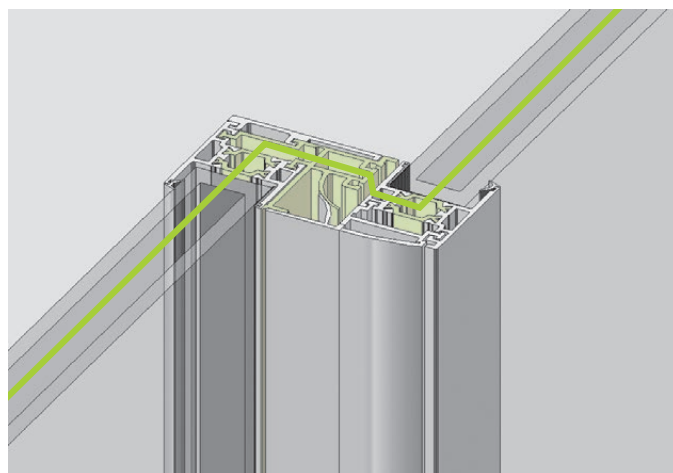
Our commitment to a sustainable future
We are committed to sustainable development as one of our business maxims. dormakaba's aim is to ensure energy-saving and resource-conserving production, a high recycling ratio and the longevity of our quality products.
Environmental Product Declarations (EPD), based on a holistic life cycle assessment, are used for the calculation of the sustainability of buildings.

EPD certificates are available on www.dormakaba.com

THIRD-PARTY VERIFIED
EPD
ISO 14025 and EN 15804
Institut Bauen und Umwelt e.V.

Important customer benefits at a glance

- Very low U_D-values from 1.4 to max. 1.8 (thermal transmission co-efficient)
- Tested quality with ift Rosenheim approval
- Compliant with the German energy-saving regulation (EnEV 2016)
- Sustainable, reliable and energy-saving system
- Interior and entrance doors in the same design to harmonize with the building's overall look
- Individual U_D-value certificates for each ST FLEX Green door system
- Glass panes with rugged but elegant frames

Nachweis
Wärmedurchgangskoeffizient

Prüfbericht 10-001011-PB09-A01-06-de-01

ift ROSENHEIM

Auftraggeber	**DORMA GmbH + Co. KG** DORMA Platz 1 58256 Ennepetal
Produkt	automatische Schiebetür, zweiflügelig
Bezeichnung	ST FLEX Green
Außenmaß (B x H)	6250 mm x 3305 mm oben: 147 mm seitlich: 69 mm mitte: 50 mm / 104 mm
Ansichtsbreite	unten: 66 mm
Material	Aluminiumprofil mit thermischer Trennung
Oberfläche	pulverbeschichtet, eloxiert Art: Stege durchgehend Material: Polyamid 6.6 verstärkt mit 25 % Glasfaser Einlage: Polyurethan-Hartschaum in den oberen Profilen Metalloberflächen im Dämmzonenbereich: leicht oxidierte Oberflächen, z. B. Hohlräume nach Oberflächenbehandlungen im Tauchverfahren
Öffnungsart	Parallel verschiebbare Flügelrahmen
Füllung	Mehrscheiben-Isolierglas: U_g-Wert von 1,0 W/(m^2 · K) Aufbau: 7VSG / 15 / 7VSG mm Gasfüllung: Argon 90 % Beschichtungsebene: Pos 3. ε_n = 0,01 (Nennwert) Abstandhalter: TGI-Spacer
Besonderheiten	-

Wärmedurchgangskoeffizient

$$U_D = 1,4 \ W/(m^2 \cdot K)$$

ift Rosenheim
21. Dezember 2010

Klaus Specht, Dipl.-Ing. (FH)
Stv. Prüfstellenleiter
Bauphysik

Thomas Thiel, Dipl.-Ing. (FH)
Prüfingenieur
rechnergestützte Simulation

Grundlagen
EN ISO 10077-1 : 2006
Wärmetechnisches Verhalten von Fenstern, Türen und Abschlüssen - Berechnung des Wärmedurchgangskoeffizienten – Teil 1: Vereinfachtes Verfahren

EN ISO 10077-2 : 2003
Wärmetechnisches Verhalten von Fenstern, Türen und Abschlüssen - Berechnung des Wärmedurchgangskoeffizienten - Teil 2: Numerisches Verfahren für Rahmen Prüfberichte
10-001011-PB01-K20-06-de-01 vom 21.12.2010 bis
10-001011-PB07-K20-06-de-01 vom 21.12.2010

Darstellung

Verwendungshinweise
Dieser Prüfbericht dient zum Nachweis des Wärmedurchgangskoeffizienten U_D.

Gültigkeit
Die genannten Daten und Ergebnisse beziehen sich ausschließlich auf den geprüften und beschriebenen Gegenstand.

Die Prüfung des Wärmedurchgangskoeffizienten ermöglicht keine Aussage über weitere leistungs- und qualitätsbestimmende Eigenschaften der vorliegenden Konstruktion.

Veröffentlichungshinweise
Es gilt das ift-Merkblatt „Bedingungen und Hinweise zur Benutzung von ift-Prüfdokumentationen".

Das Deckblatt kann zusammen mit der Typenliste als Kurzfassung verwendet werden.

Inhalt
Der Nachweis umfasst insgesamt 12 Seiten
1 Gegenstand
2 Durchführung
3 Einzelergebnisse

ift Rosenheim GmbH
Geschäftsführer:
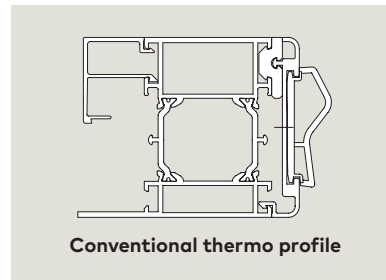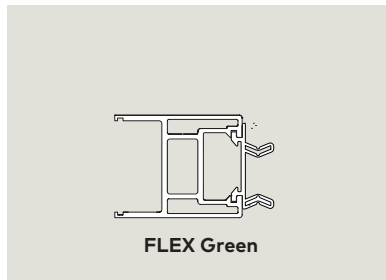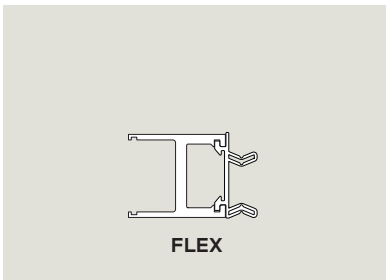Dipl.-Ing. (FH) Ulrich Sieberath
Dr. Jochen Peichl

Theodor-Gietl-Str. 7 - 9
D-83026 Rosenheim
Tel.: +49 (0)8031/261-0
Fax: +49 (0)8031/261-290
www.ift-rosenheim.de

Sitz: 83026 Rosenheim
AG Traunstein, HRB 14763
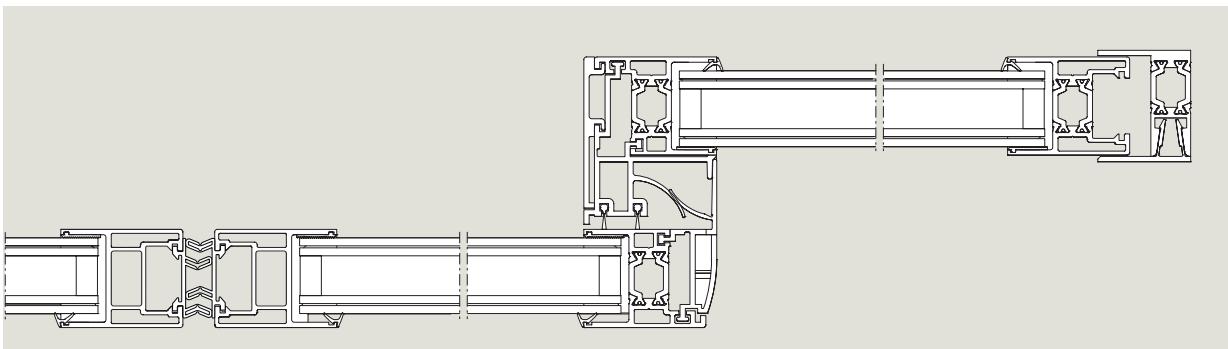Sparkasse Rosenheim
Kto. 3622
BLZ 711 500 00

Notified Body No : 0757
Anerkannte PÜZ-Stelle: BAY 18

The certificate only exists in German.

Profile comparison

FLEX

FLEX Green

Conventional thermo profile

Double-panel version with side screen

ST FLEX Green – Energy efficiency in elegant design

System dimensions and max. door-panel weight

| Operator | Single-panel version* | | | Double-panel version | | |
	Min. system width (B) =	LW	Max. door-panel weight	Min. system width (B) =	LW	Max. door-panel weight
ES 200 Easy without side screens with side screens	2 x LW + 60 mm 2 x LW + 80 mm	700 – 3000	1 x 120 kg	2 x LW + 120 mm	800 – 3000	2 x 100 kg
ES 200 without side screens with side screens	2 x LW + 60 mm 2 x LW + 80 mm	700 – 3000	1 x 200 kg	2 x LW + 120 mm	800 – 3000	2 x 160 kg
ES 200-2D without side screens with side screens	2 x LW + 60 mm 2 x LW + 80 mm	900 – 1800	1 x 150 kg	2 x LW + 120 mm	900 – 3000	2 x 130 kg

* not considering the width of the door post

Characteristics

- Despite the slender profile system with improved thermal separation on the basis of the FLEX profile system , the ST FLEX Green satisfies with excellent energy-saving features

- Elegant fine-frame design
- High stability and rigidity
- Protection against draughts via circumferential seals
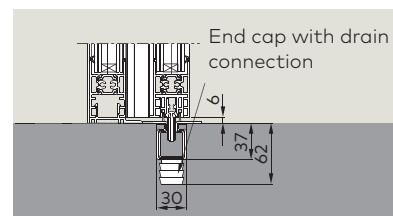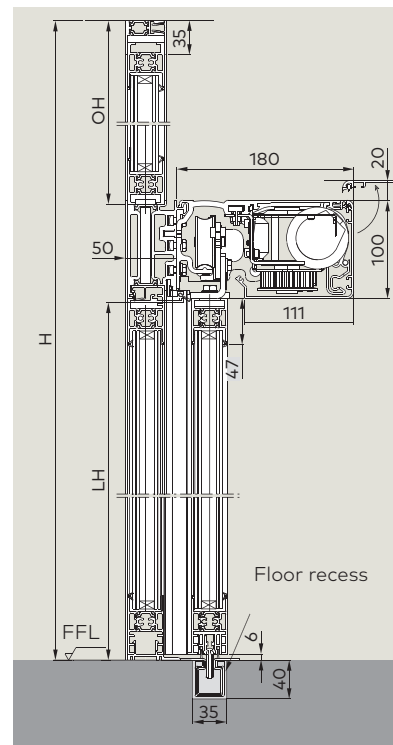
Corridor-mounted version with side screen and fanlight
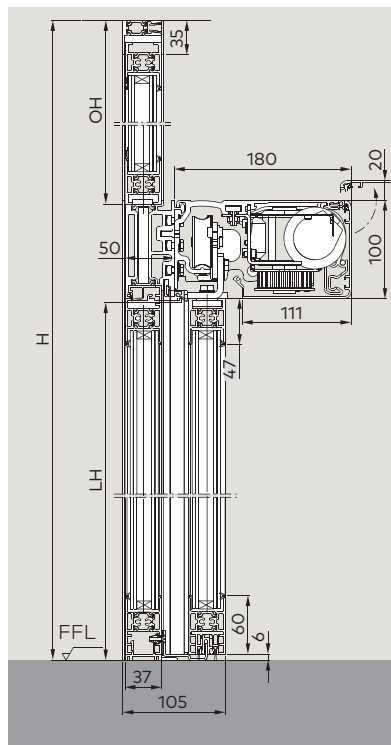
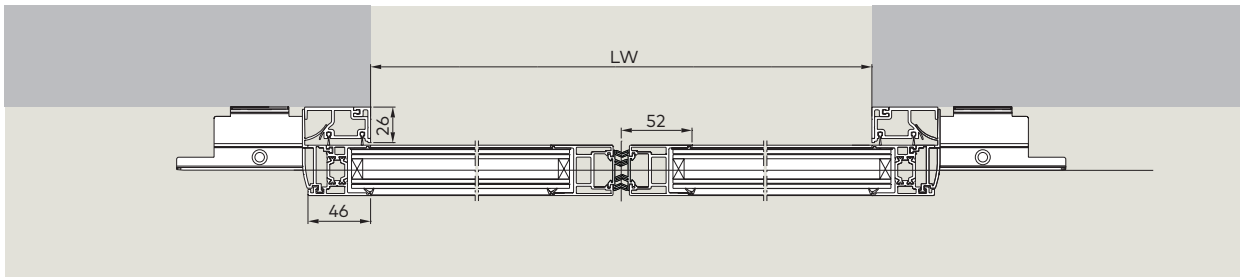**Lintel-mounted version installed on façade by others**

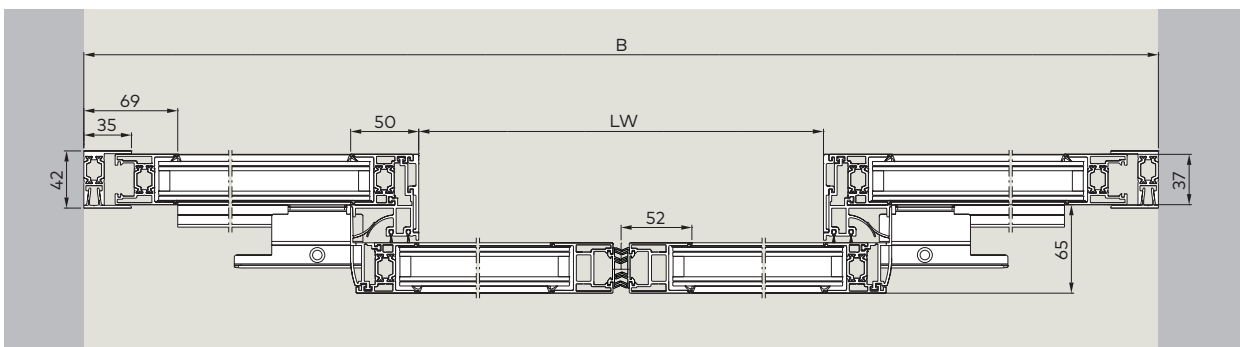**Corridor-mounted version with floor-integrated guide rail**

End cap with drain connection
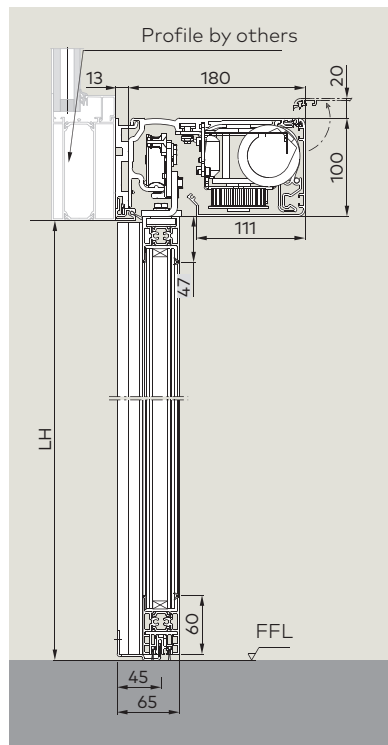
|	
OH Height of fanlight	**B** System width
LH Clear passage height	**LW** Clear passage width
H System height	**OFF** Finished Floor Level

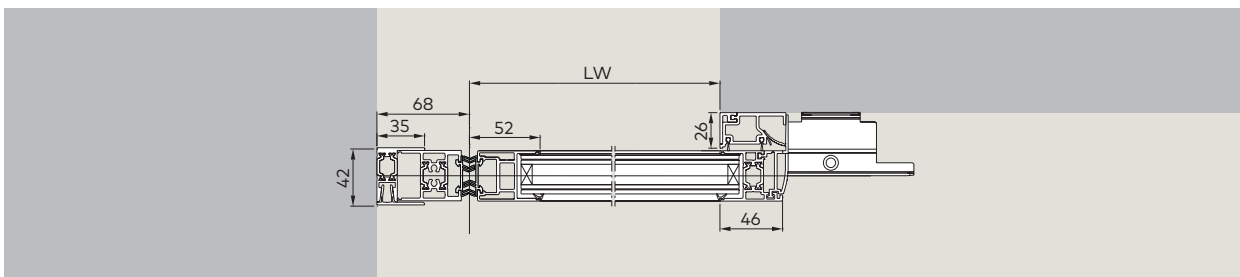**Horizontal section of lintel-mounted double-panel version**

Horizontal section of double-panel version with side screens, corridor-mounting
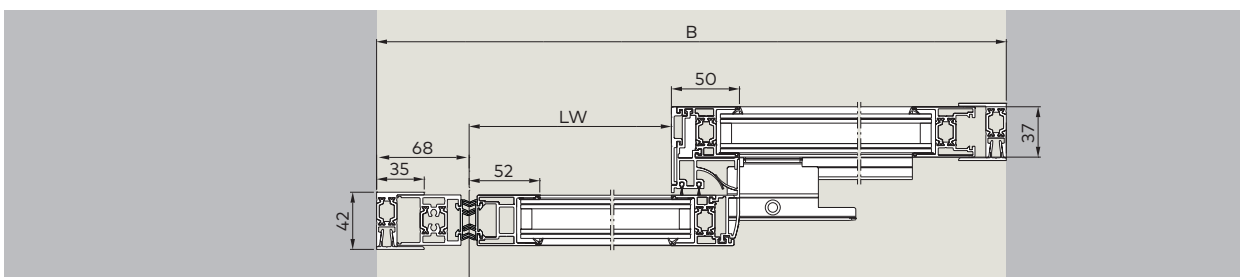
Horizontal section of double-panel version with floor-integrated guide rail, corridor-mounting
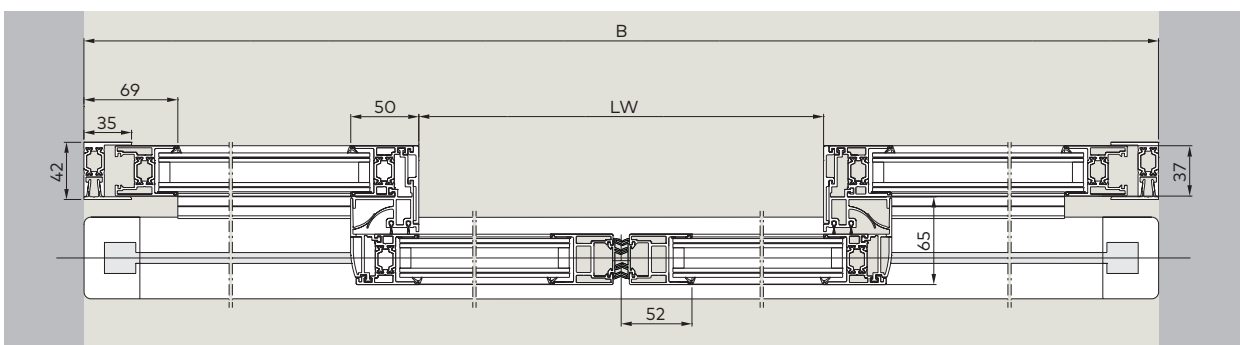
Horizontal section of lintel-mounted single-panel version

Horizontal section of single-panel version with side screen, corridor-mounting

Door parameters		ES 200 Easy	ES 200	ES 200-2D
Single-panel sliding door	– Clear passage width (LW)* – Max. door-panel weight	700 – 3000 mm 1 x 120 kg	700 – 3000 mm 1 x 200 kg	900 – 1800 mm 1 x 150 kg
Double-panel sliding door	– Clear passage width (LW)* – Max. door-panel weight	800 – 3000 mm 2 x 100 kg	800 – 3000 mm 2 x 160 kg	900 – 3000 mm 2 x 130 kg
Clear passage height*		2100 – 3000 mm	2100 – 3000 mm	2100 – 3000 mm

*Other dimensions on request.

Technical specifications	ES 200 Easy	ES 200	ES 200-2D
Suitable for application in emergency exits and escape routes	–	–	▯🏃
Max. opening and closing force 150 N	●	●	●
Opening speed (incremental setting)	10 – 50 cm/s	10 – 75 cm/s	10 – 75 cm/s
Closing speed (incremental setting)	10 – 40 cm/s	10 – 50 cm/s	10 – 50 cm/s
Hold-open time	0.5 – 30 s	0 – 180 s	0 – 180 s
Supply voltage, frequency	230 V, 50/60 Hz	230 V, 50/60 Hz	230 V, 50/60 Hz
Power consumption	180 W	250 W	250 W
Class of protection	IP 20	IP 20	IP 20
Admissible temperature	- 20 – + 60 ℃	- 20 – + 60 ℃	- 20 – + 60 ℃
Admissible humidity (relative)	max. 93 % (non-condensing)	max. 93 % (non-condensing)	max. 93 % (non-condensing)
Tested according to Low Voltage Directive	●	●	●
Manufactured to ISO 9001	●	●	●
Environmental product declaration in accordance with ISO 14025 Programme holder: Institute Construction and Environment e.V. Declaration number: EPD-DOR-20122231-E	●	●	●

Basic Module (BM)		ES 200 Easy	ES 200	ES 200-2D
Modular design		Basic Module (BM)	Basic Module (BM)	Basic Module (BM)
Microprocessor control		●	●	●
Function programs	– Off – Automatic – Permanent Open – Partial Open – Exit Only – Night-/Bank-Function	●	●	●
Automatic reversing		●	●	●
Connection for electromechanical locking device (bistable)		●	●	●
Connection for safeguarding of passage area (on both sides)		●	●	●
Equipped in accordance with DIN 18650 and EN 16005		●	●	●
Adjustment of all basic parameters via integrated display and keys		●	●	●
Parametrization via PDA		●	●	●
Emergency opening/closing (only with rechargeable battery pack)		● / ●	● / ●	● / – (rechargeable battery pack as standard)
Emergency operation via rechargeable battery pack (only with rechargeable battery pack)		○	●	–
Synchronous operation		○	●	●
24 V output for external accessories		●	●	●
Read-out error log with error codes		●	●	●
DCW® bus connection (Protocol **D**ORMA **C**onnect and **W**ork)		○	●	●

● standard   ○ optional   - no

Function Module (FM) - optional	ES 200 Easy	ES 200	ES 200-2D
Pharmacy Function	○	●	●
Door status contact (3 x)	○	●	●
Safeguarding of main and secondary closing edge/s	● / ●	● / ●	● / –
Panic closing function (observe regulations!)	○	●	–
Bell contact	●	●	●
Airlock control	○	●	–

DIN 18650 and EN 16005 function module - optional	ES 200 Easy	ES 200	ES 200-2D
The DIN 18650 and EN 16005 function module provides tested monitoring of the secondary closing edges for compliance with the German Industrial Standard DIN 18650 and EN 16005	–	●	● (from 80% opening width)

| Additional equipment	ES 200 Easy	ES 200	ES 200-2D
Electromechanical locking device (bistable)	○	○	○
Manual lock release for electromechanical locking device	○	○	○
Light curtains	○	○	○
Rechargeable battery pack (emergency opening/closing)	○	○	● / –
USV emergency power supply unit (external)	○	○	○

● standard   ○ optional   - no

ST FLEX Green in conjunction with different door systems

**Determining the door-panel size**

The diagrams below show how the clear passage height (**LH**) depends on the clear passage width (**LW**).

1. Do not exceed the maximum door panel weight for the respective operator.

2. Unfavorable wind conditions may require the installation of a smaller door or floor-integrated guide rail.

3. Observe height/length ratio of sliding panel (4.5 : 1). Larger clear passage heights (LH) and clear passage widths
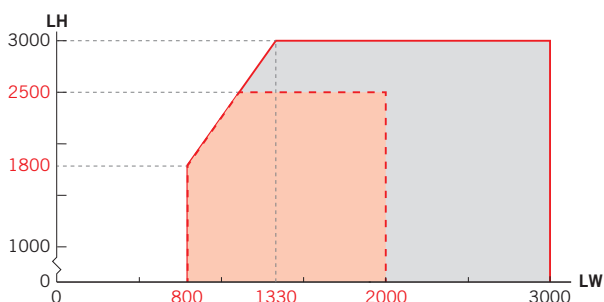
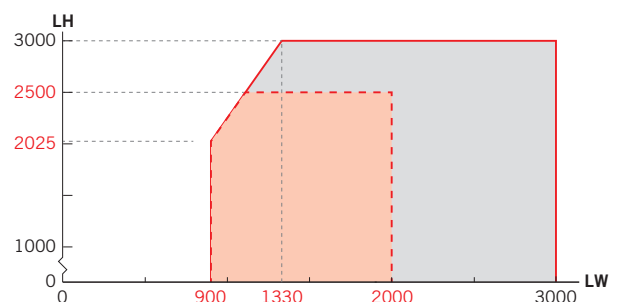**ST-ES 200, single-panel version**
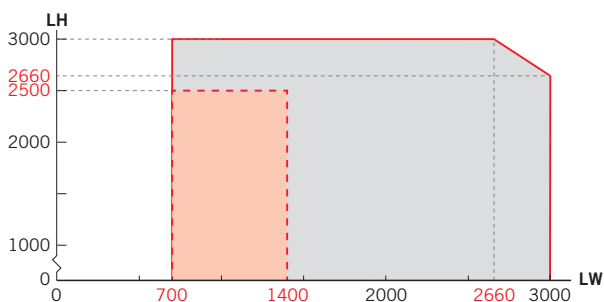
ST-ES 200-2D, single-panel version
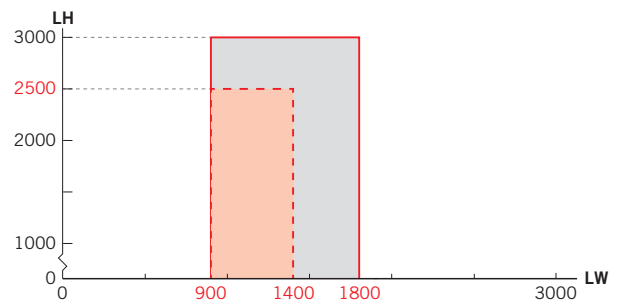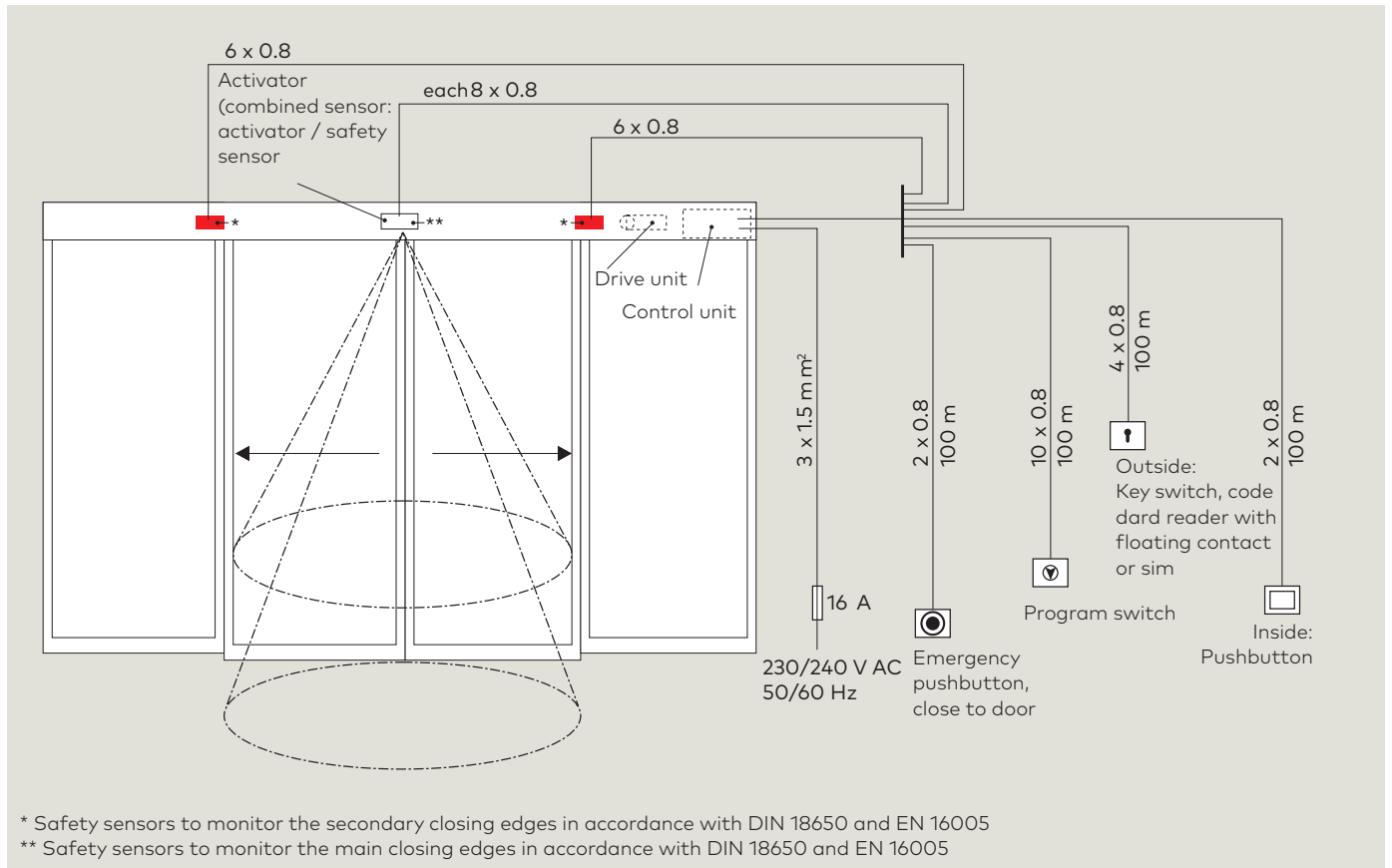

ST-ES 200, double-panel version

ST-ES 200-2D, double-panel version

▭ max. system size   ▭ standard size

Connections

6 x 0.8

Activator
(combined sensor:
activator / safety
sensor

each 8 x 0.8

6 x 0.8

Drive unit
Control unit

3 x 1.5 mm²

16 A

230/240 V AC
50/60 Hz

2 x 0.8
100 m

Emergency
pushbutton,
close to door

10 x 0.8
100 m

Program switch

4 x 0.8
100 m

Outside:
Key switch, code
dard reader with
floating contact
or sim

2 x 0.8
100 m

Inside:
Pushbutton

* Safety sensors to monitor the secondary closing edges in accordance with DIN 18650 and EN 16005
** Safety sensors to monitor the main closing edges in accordance with DIN 18650 and EN 16005

dormakaba has complemented their broad range of Automatic system accessories by further components
to meet all kinds of safety-related requirements.

On the next pages you will find some products out of our extensive range of system accessories.
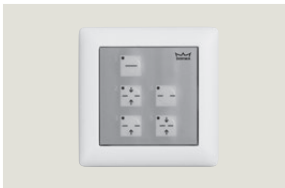
Program switches

A program switch from dormakaba's broad range of accessories allows the automatic door system to meet individual requirements and provides easy handling.
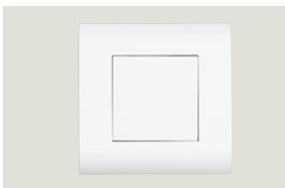
The corresponding 3-position program switches are available in various designs and suitable for all kinds of applications.

They offer various options, from a mechanical to a full-electronic version, alternatively also lockable via profile half-cylinder or in a full-electronic way via code.
- Up to 5 different functions: Off, Automatic, Exit Only, Partial Open, Permanent Open
- Electronic program switches in System 55 design to meet the highest aesthetical demands

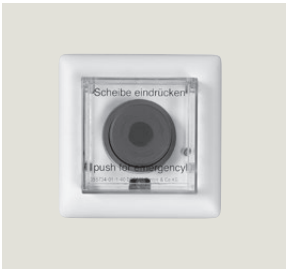| For sliding door operators	Designation	Specification	Installation system	Order No.
	PG-S2	5-position, lockable, aluminum, white, flush-mounted version, 80 x 80 x 40 mm	Gira S-Color	
				19135602150
	EPS-S	Full-electronic program switch in System 55 design, 5-position, lockable via code or additional TL-ST S55 key switch, membrane keypad aluminum-colored, white, flush-mounted version, 80 x 80 mm	System 55	
				16556901150

Switches

	Designation	Specification	Installation system	Order No.
	Radar switch	„MAGIC SWITCH", proximity-type radar switch responds to movement, for flush-mounting, 85 x 85 mm		
				05076831332

Pushbutton

Key switches	Designation	Specification	Installation system	Order No.
	KT 8	Lettering "Auf, Zu" (German for "Open/Closed"), 2 NO contacts, with profile half-cylinder, may be replaced for any profile half-cylinder of a master key system, key only retractable in neutral position, aluminum, metal, 75 x 75 x 60 mm		
	KT 8 UP	flush-mounted version		05054831332
	KT 8 AP	surface-mounted version		05054931332
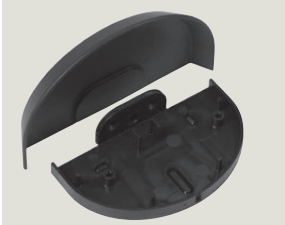
Emergency pushbuttons

	Designation	Specification	Installation system	Order No.
	TL-N S55	Highly-illuminated emergency pushbutton environment with visual locking status indication, optical and acoustic alarm via yellow flashlight and integrated alarm siren, sabotage-proof, behind glass, **not including frame**		
		NO contact: 1, NC contact: 1, max. load current: 1 A at 24 V DC, flush-mounted version, 80 x 80 mm	System 55	56330500

Active infrared detectors

Safety sensors	Designation	Specification	Color	Order No.
	Prosecure Opti Scan	The active infrared curtain according EN 16005 ensures optimum protection of the area at the side of the door. It protects people in the danger area of the opening door panel.	black silver colored white	86301100 86302100 86303100
	Prosecure Opti Scan 1	The active infrared curtain according DIN 18650 and EN 16005 ensures optimum protection of the area at the side of the door. It protects people in the danger area of the opening door panel.	black silver colored white	86301101 86302101 86303101

Combi sensors	Designation	Specification	Color	Order No.
	Prosecure Opti Combi	Quick and easy to install, wide field can be used as a light barrier substitute, LCD display, precise positioning of the AIR curtain thanks to inclination angle display on a clear scale, direction recognition (EN 16005)	black silver colored white	86711400 86712400 86713400
	Prosecure Opti Combi 1	Very flexible field settings, active infrared curtain is self-monitoring, crossing traffic optimization, precise positioning of the AIR curtain thanks to inclination angle display on a clear scale, direction recognition (DIN 18650 and EN 16005)	black silver colored white	86711401 86712401 86713401

Motion detectors

Motion detectors	Designation	Specification	Color	Order No.
	Prosecure Easy Motion Mono	Full-automatic access on pulse activation; adjustable inclination angle, inclined field of view and field size, LED status indicator, not in accordance with EN 16005 Ambient temperature –20 °C – 60 °C	black silver colored white	86001000 86002000 86003000
	Prosecure Easy Motion Stereo	Adjustable inclination angle, inclined field of view and field size, direction recognition, cross-traffic suppression, immunity, LED status indicator, not in accordance with EN 16005 Ambient temperature –20 °C – 60 °C	black silver colored white	86011000 86012000 86013000
	Prosecure Opti Motion Mono	Adjustable inclination angle, inclined field of view and field size, direction recognition, immunity, LED status indicator Ambient temperature –20 °C – 60 °C	black silver colored white	86101000 86102000 86103000
	Prosecure Opti Motion Stereo	Adjustable inclination angle, inclined field of view and field size, direction recognition, cross-traffic suppression, Slow Motion function, immunity, LED status indicator Ambient temperature –20 °C – 60 °C	black silver colored white	86111000 86112000 86113000

Accessories	Designation	Specification		Order No.
	Rain protection cover	For Easy Motion detectors		86031900
	Rain protection cover/ ceiling angle bracket	For Opti Motion detectors		86131900

CE

CE

www.dormakaba.com