ST FLEX GREEN

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Energy-saving sliding door

ST FLEX GREEN
# SLENDER PROFILE WITH EXCELLENT THERMAL INSULATION

Energy-saving products for buildings are the trend of the future.
With the ST FLEX Green sliding door DORMA 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 thermally insulated profile 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. Furthermore, it fulfils the requirements of the latest German energy-saving regulation (EnEV 2009) and harmonises perfectly with the existing DORMA sliding door range. Even the smallest ST FLEX Green door system meets the

requirements of the German EnEV 2009, which stipulates a certain U_D-value (thermal transmission co-efficient) for complete door systems. In addition, DORMA provides a certificate with the respective U_D-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

thermal insulation, the ST FLEX GREEN is extremely solid.

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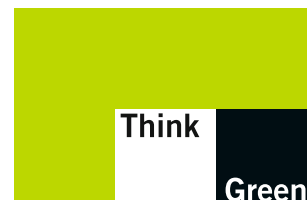
Very energy-efficient
ST FLEX Green considerably reduces running energy and heating expenses and cuts CO_2-emission. Despite their thermal insulation, the profiles almost look like standard ST FLEX systems so that they harmonise perfectly with the façade's overall design.

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 realised.

Type-approved systems for emergency exits and escape routes
With their established Dual Drive technology (ES 200-2D) DORMA 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 characterised by an additional
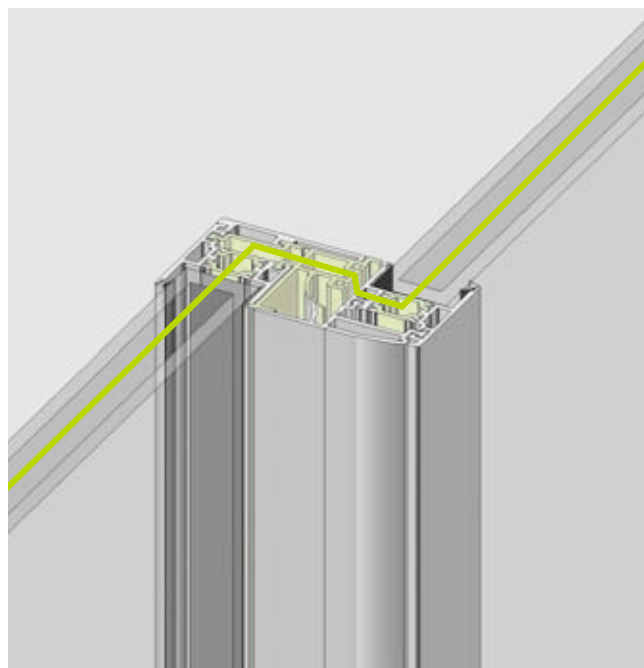
F in their name and type-approved as "automatic sliding door without break-out unit for application in escape routes".

ST FLEX Green with an operator height of only 100 mm

100 mm high
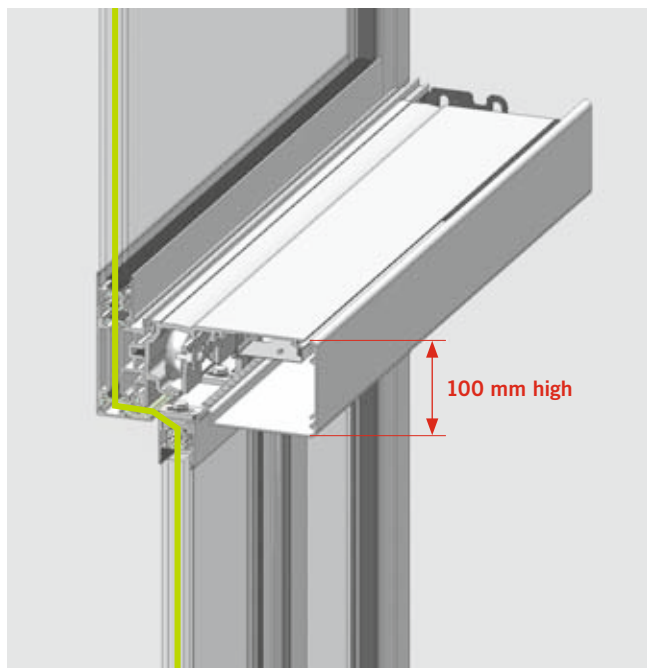
ST FLEX Green, horizontal section
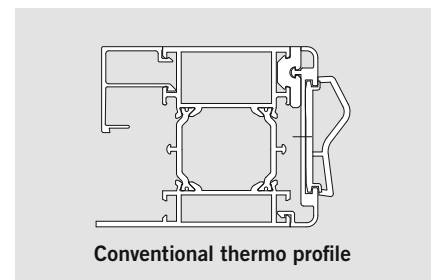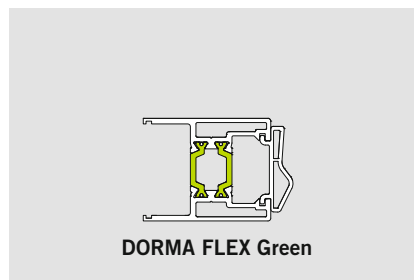
Important customer benefits at a glance

- 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 2009)
- Sustainable, reliable and energy-saving system

- Interior and entrance doors in the same design to harmonise with the building's overall look
- Individual U_D-value certificates for each ST FLEX Green door system
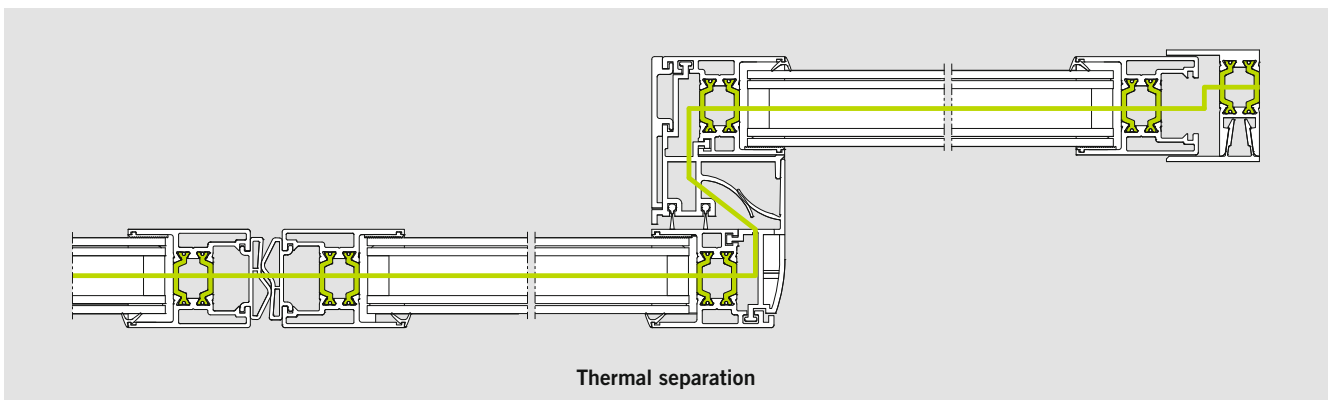- Glass panes with rugged but elegant frames

Nachweis
Wärmedurchgangskoeffizient

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

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
Ansichtsbreite	oben: 147 mm
	seitlich: 69 mm
	mitte: 50 mm / 104 mm
	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$^2 \cdot$ 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

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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

The certificate only exisists in German.

Profile comparison

DORMA FLEX

DORMA FLEX Green

Conventional thermo profile

Double-panel version with side screen

Thermal separation

ST FLEX GREEN
ENERGY EFFICIENCY IN ELEGANT DESIGN
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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

- The slender ST FLEX Green profile system is based on the FLEX profile system and provides thermal insulation in conjunction with excellent energy-saving features.
- Elegant fine-frame design
- High stability and rigidity
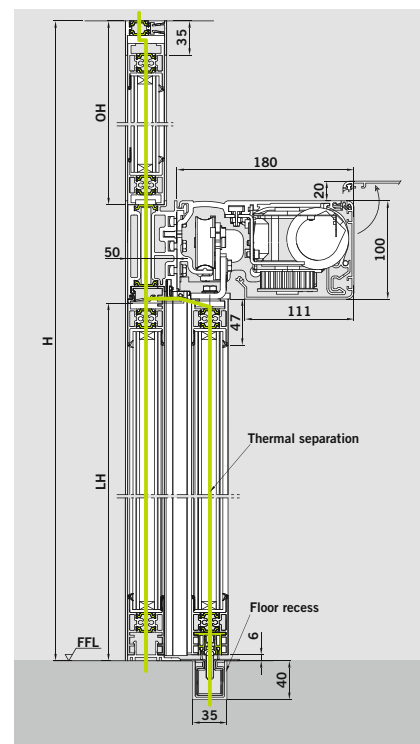- Protection against draughts via circumferential seals

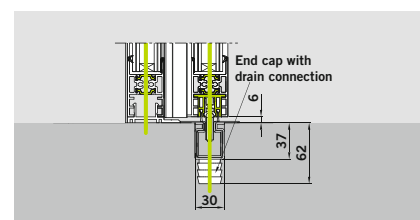**Corridor-mounted version with side screen and fanlight**
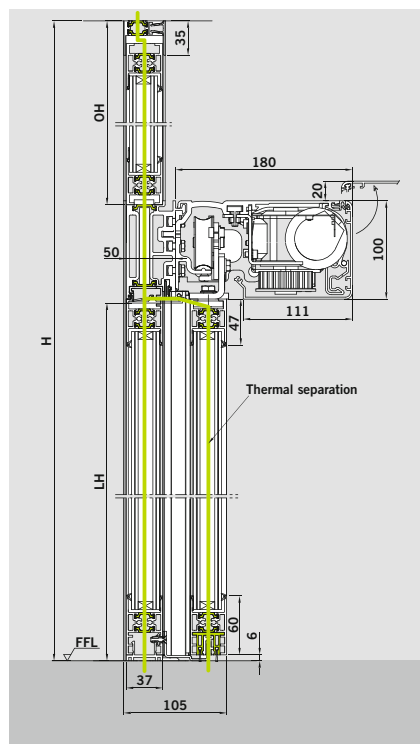
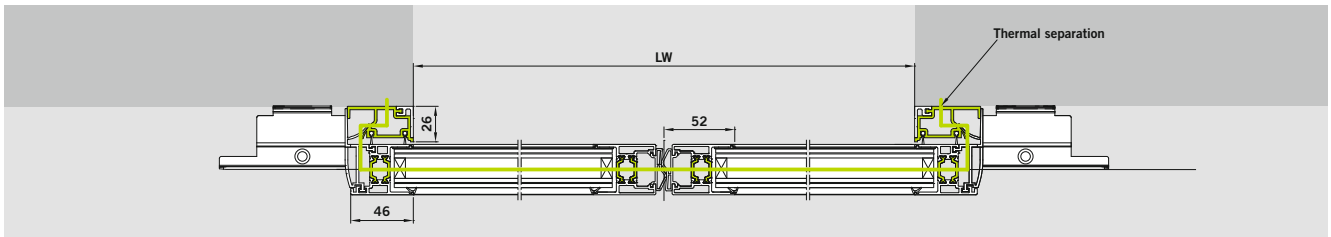**Lintel-mounted version installed on façade by others**
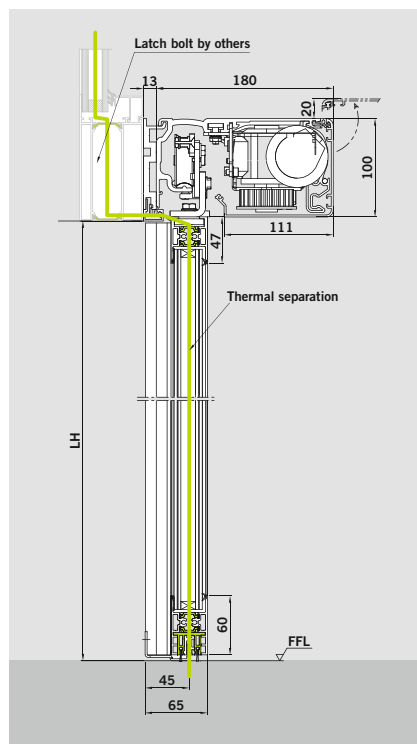
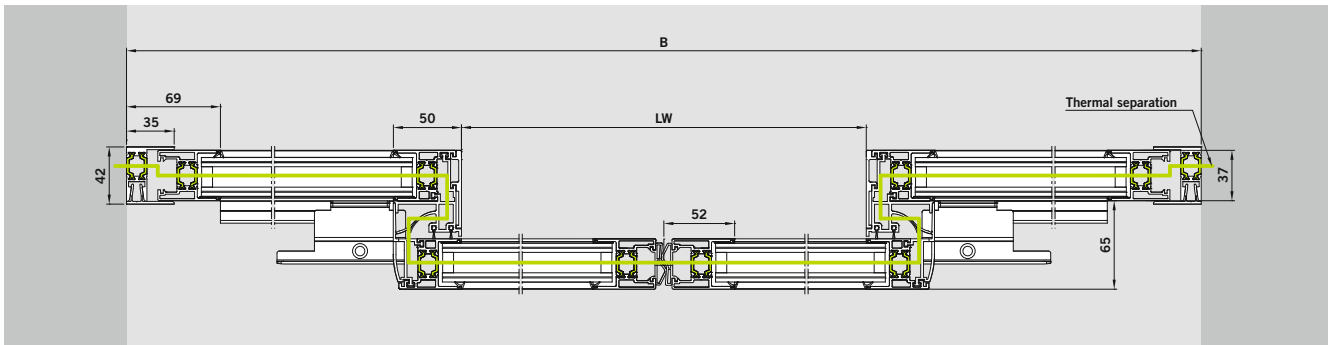**Corridor-mounted version with floor-integrated guide rail**

|			
OH	Height of fanlight	**B**	System width
LH	Clear passage height	**LW**	Clear passage width
H	System height	**FFL**	Finished Floor Level

Horizontal section of lintel-mounted double-panel version
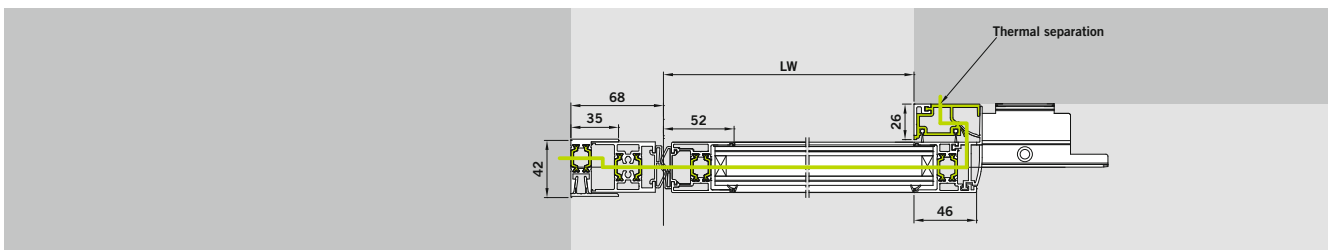

Horizontal section of double-panel version with side screens, corridor-mounting
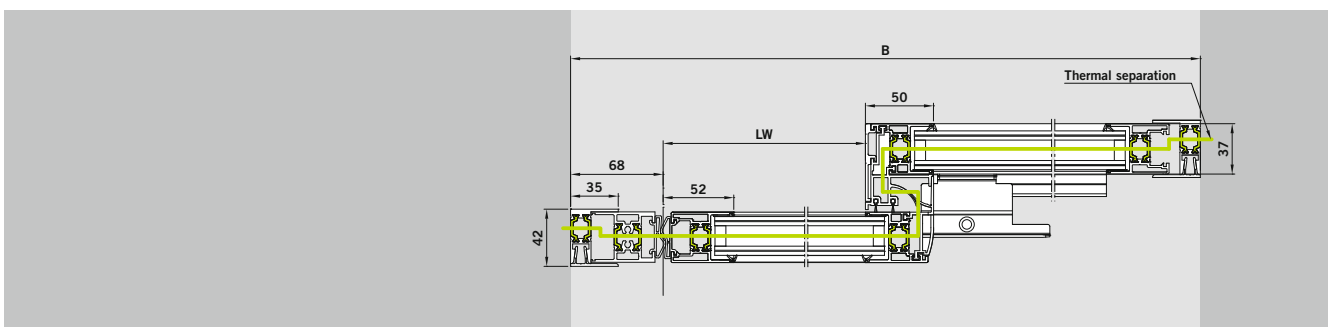

Horizontal section of double-panel version with floor-integrated guide rail, corridor-mounting
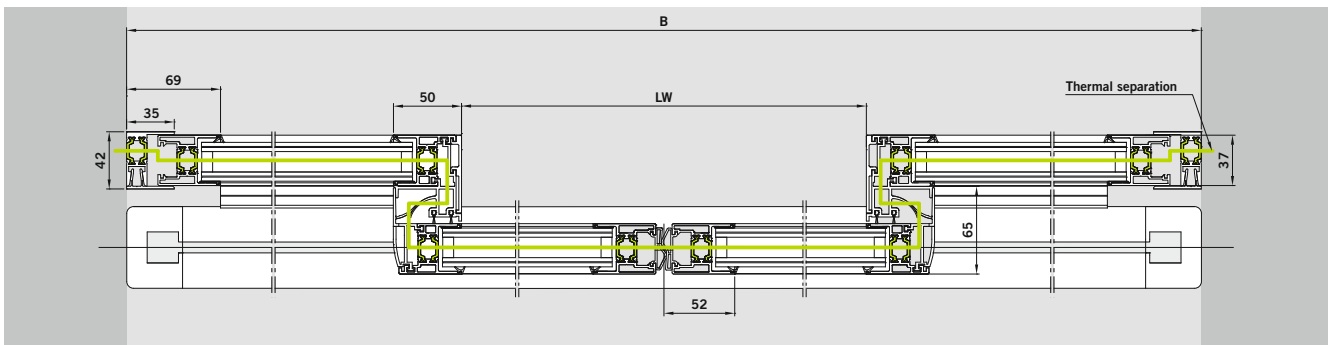
Horizontal section of lintel-mounted single-panel version

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 °C	- 20 – + 60 °C	- 20 – + 60 °C
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	●	●	●

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		●	●	●
Parametrisation 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 DORMA Connect and Work)		○	●	●

● 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)	○	○	● / –
DORMA USV emergency power supply unit (external)	○	○	○

● standard   ○ optional   - no

Determining the door-panel size

The below diagrams 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. Unfavourable 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 (LW) on request.

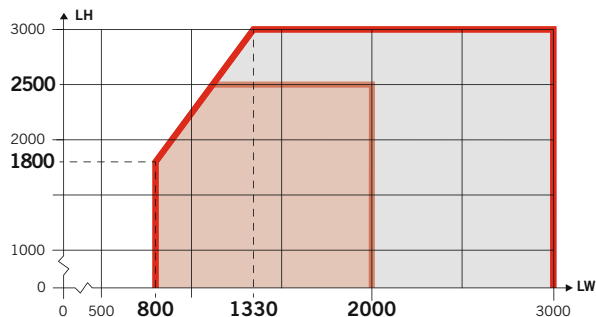# ST FLEX GREEN IN CONJUNCTION WITH DIFFERENT DOOR SYSTEMS
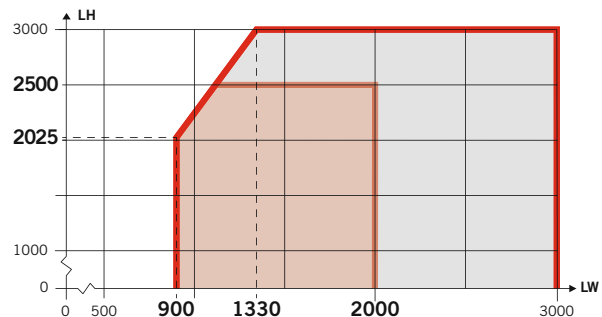
ST-ES 200, single-panel version
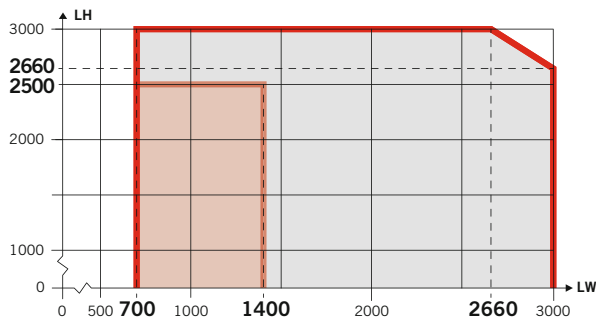
ST-ES 200-2D, single-panel version
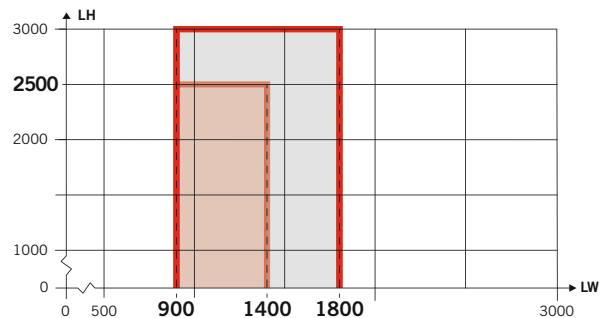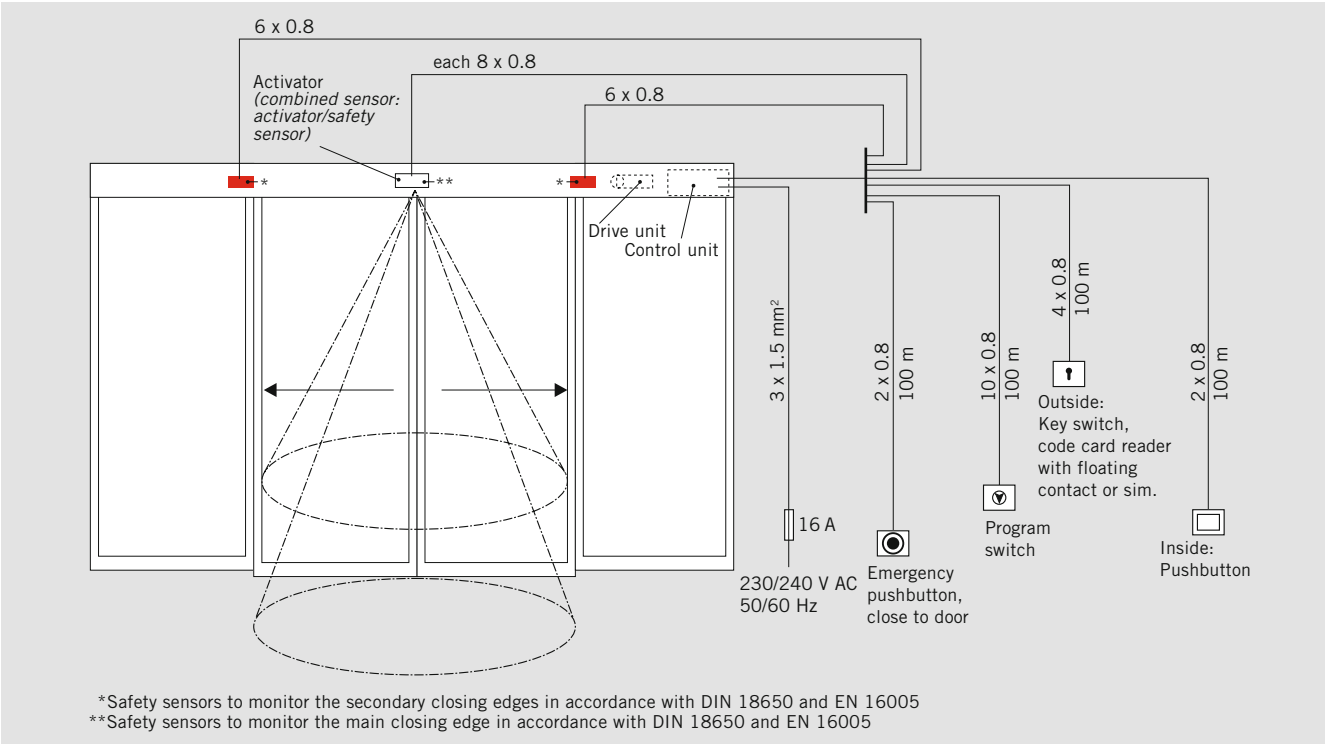

ST-ES 200, double-panel version

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

□ max. system size   ▨ standard size

CONNECTIONS

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6 x 0.8

each 8 x 0.8

6 x 0.8

Activator
*(combined sensor:
activator/safety
sensor)*

Drive unit
Control unit

3 x 1.5 mm²

2 x 0.8
100 m

10 x 0.8
100 m

4 x 0.8
100 m

2 x 0.8
100 m

16 A

230/240 V AC
50/60 Hz

Emergency
pushbutton,
close to door

Program
switch

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

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 edge in accordance with DIN 18650 and EN 16005

DORMA 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 DORMA'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, aluminium, 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 aluminium-coloured, white, flush-mounted version, 80 x 80 mm	System 55	16556901150

PROGRAM SWITCHES

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For sliding door operators in emergency exits and escape routes (FST)	Designation	Specification	Installation system	Order No.
	PG-FST2	5-position, lockable via profile half-cylinder, aluminium, white, flush-mounted version, 105 x 80 x 65 mm, Box for surface-mounting: 19142201170	Deutsche Solenoid	19142001170

SWITCHES

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	Designation	Specification	Installation system	Order No.
	Radar switch	„MAGIC SWITCH", proximity-type radar switch responds to movement, for flush-mounting, 80 x 80 mm		05076831332

PUSHBUTTON

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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, aluminium, metal, 75 x 75 x 60 mm		
	KT 8 UP	flush-mounted version		05054831332
	KT 8 AP	surface-mounted version		05054931332

EMERGENCY PUSHBUTTONS

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	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

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Safety sensors	Designation	Specification	Colour	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 coloured 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 coloured white	86301101 86302101 86303101

Combi sensors	Designation	Specification	Colour	Order No.
	Prosecure Opti Combi	Quick and easy to install, wide field can be used as a light barrier substitute, LCDDisplay, Precise positioning of the AIR curtain thanks to inclination angle display on a clear scale, direction recognition (DIN 18650 and EN 16005)	black silver coloured 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 coloured white	86711401 86712401 86713401

ACTIVE INFRARED SAFETY SENSOR

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Prosecure Opti Save safety sensors are excelled by their easy commissioning and adjustment. The sensors' monitoring quality within the driving path depends on the condition of the floor in the close range of the door system. Prosecure Opti Save sensors are suitable to monitor standard floors and floors with low reflectance levels, gratings or floor mats.
The operator and the Prosecure Opti Save communicate bidirectionally via the integrated communication interface. The system performs the cyclical sensor test and activates the Energy Saving Mode (ESM) in a fast and reliable way, while the operator automatically assesses its utilisation degree and switches the Prosecure Opti Save to Energy Saving Mode as soon as it is not required.

Designation	Specification	Colour	Order No.
Prosecure Opti Safe 700	with 1 master module and 2 pairs of transmitter/receiver modules, Length 700 mm, Type-approved in accordance DIN 18650 and EN 16005	Black Silver coloured Special colour White	86501070 86502070 86504070 86505070
Prosecure Opti Safe 900	with 1 master module and 2 pairs of transmitter/receiver modules, Length 900 mm, Type-approved in accordance DIN 18650 and EN 16005	Black Silver coloured Special colour White	86501090 86502090 86504090 86505090
Prosecure Opti Safe 1200	with 1 master module and 2 pairs of transmitter/receiver modules, Length 1200 mm, Type-approved in accordance DIN 18650 and EN 16005	Black Silver coloured Special colour White	86501120 86502120 86504120 86505120
Prosecure Opti Safe 1600	with 1 master module and 4 pairs of transmitter/receiver modules, Length 1600 mm, Type-approved in accordance DIN 18650 and EN 16005	Black Silver coloured Special colour White	86501160 86502160 86504160 86505160

MOTION DETECTORS

	Designation	Specification	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 Ambient temperature –20 °C to 60 °C	
		Black Silver-coloured 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 Ambient temperature –20 °C to 60 °C	
		Black Silver-coloured 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 to 60 °C	
		Black Silver-coloured 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 to 60 °C	
		Black Silver-coloured 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
	Prosecure Remote Control	Remote control for programming Prosecure Opti motion detectors or products from other brands; for the convenient and exact adjustment of high-mounted sensors; self-explaining menu navigation, LCD display Ambient temperature –20 °C to 60 °C	86991900

DORMA

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