

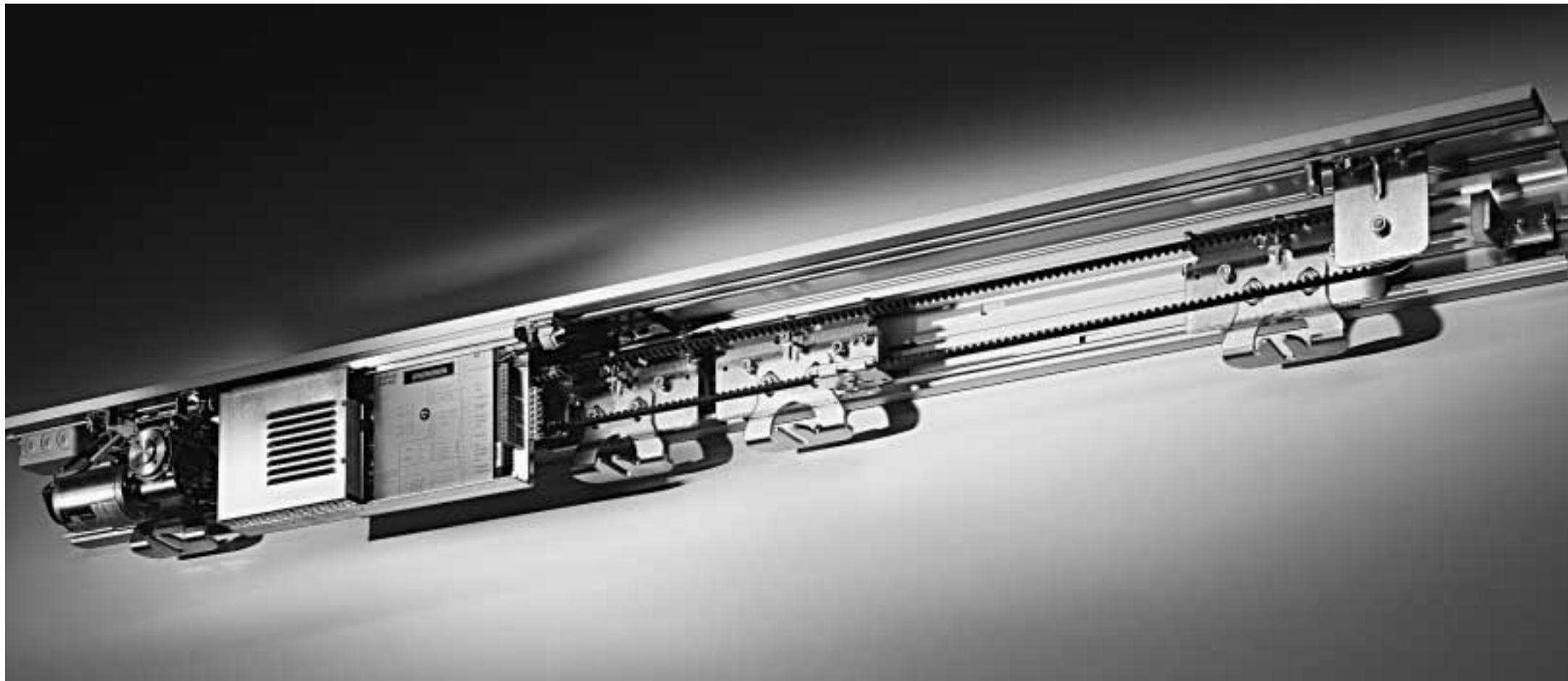


Automatic Sliding
Door Operators

DORMA

ES 90
ES 100

The modular drive unit generation with high-tech sophistication



Benefits and features

- ... for the fabricator/installer**
 - Suitable for sliding doors of all types, including models designed for emergency exits and escape routes (supplied either pre-assembled as a complete drive unit or in component form)
 - Opening widths up to 4000 mm
 - Mechanics, electrics and electronics precisely adapted to individual requirements
 - Time-saving installation and simple adjustment of the mechanics and electrics
 - Fast and problem-free commissioning
- ... for the user**
 - Wide capacity spectrum from lightweight interior doors to heavy external and emergency exit doors
 - High reliability, exceptional safety standards
 - Expansion module available for enhanced functionality whenever required
 - Flexible programming with hand-held terminal on site or in factory
 - Type-approved and quality-assured manufacture to ISO 9000
 - Simple and safe to operate
 - Exceptionally quiet and smooth motion sequence
- ... for the architect/specifier**
 - Tailored, individual solutions to suit virtually any situation
 - Fully comprehensive profiles portfolio for door panels and side screens
 - Optimum adaptability to individual requirements
 - Many settings can be implemented and adjusted at the software level

In developing its ES 90 and ES 100 automatic sliding door operators, DORMA has created a modular drive system to suit virtually every type of sliding door. It facilitates low-cost manufacture and fast delivery of the drive units as they are required. They can even be effectively tailored to individual design and functional requirements or different safety and security needs. And they can be adapted to an extremely wide range of installation conditions. The innovative technology of these operators likewise ensures simple and fast fixing, problem-free operation and maximum reliability.

The system essentially comprises the following:

- Aluminium profile sections with the mechanical and electronic components for the various operator types
- Low-noise (ES 90) or sound-insulated (ES 100) track rail
- Basic control module and optional expansion module with hand-held terminal
- Special profiles for support structures, connections and door panels

The modular components can largely be freely selected and combined to suit specific customer requirements. There are also numerous

active and passive detectors and activators available for door actuation and safety monitoring.

Almost more than any other company, DORMA has exerted an enormous influence on the development of automatic sliding door operators and automatic doors.

It has consistently set new standards in safety, reliability, convenience of use and functionality. With a comprehensive range of products covering everything from door fittings, toughened glass systems and hardware to sophisticated security systems, DORMA has long been a leading international

supplier of "door technology". DORMA products are manufactured to a high and quality-assured standard (in accordance with ISO 9000) and satisfy all the requirements of national and international standard specifications. The new DORMA ES 90 and ES 100 operators thus also come type-approved and with third-party (TÜV) quality verification.



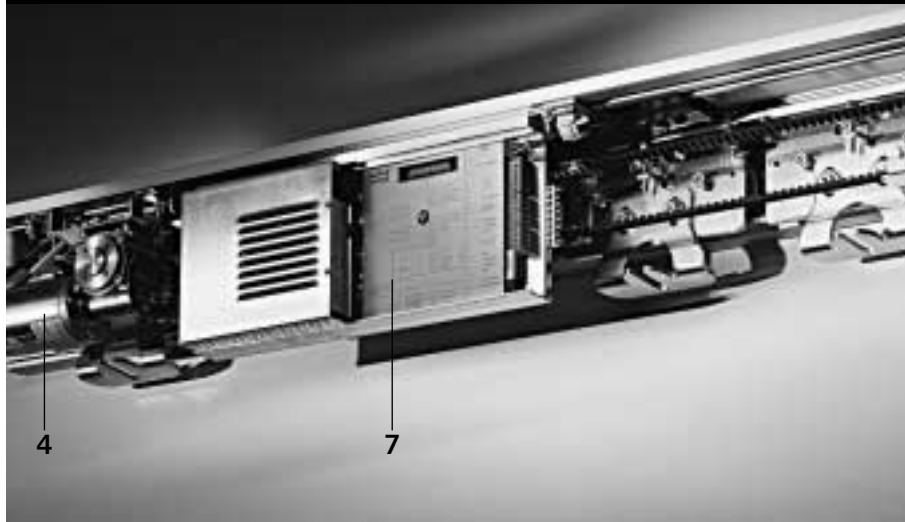
Program switch functions

Program setting	Function
Off	The door is closed and locked.
Automatic	The door can be opened from either side via motion detector, pushbutton, switch or other activator, and will close automatically on expiry of the preset hold-open time.
Exit only	The door can only be activated from one side, the activator serving the other side is disabled.
Partial opening	The door can be activated from both sides, but only opens up to a preset width.
Permanent open	The door opens and will remain open until the program switch setting is changed.

Other program modes available on application

- 1 Track and mounting profile
- 2 Carrier
- 3 Door suspension device
- 4 Motor with decoder
- 5 Track rail
- 6 Return pulley
- 7 Control module with integrated switched power supply unit and multiway connector for expansion module
- 8 Door stop

ES 90 / ES 100 components

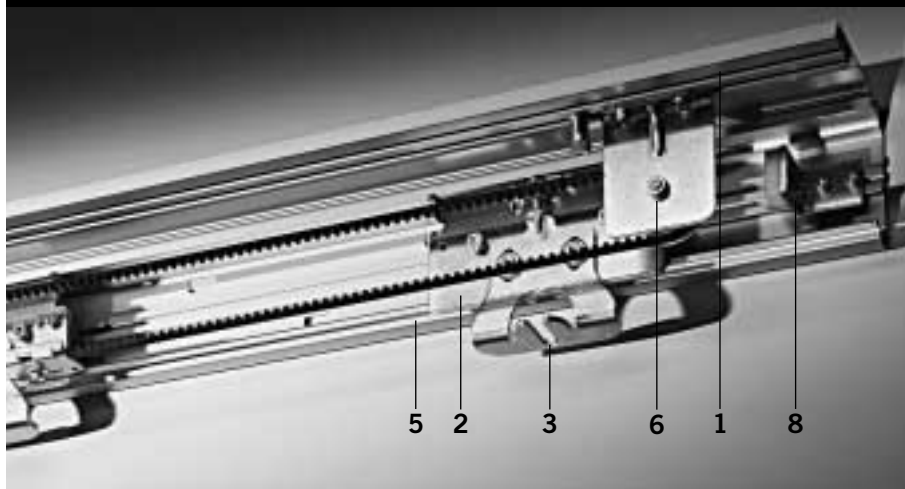


Basic control module



- Microprocessor controlled basic module (GM)
- Suitable for a wide range of drive functions
- For GM functional specification, see page 6

ES 90 / ES 100 components



Expansion module EM 4



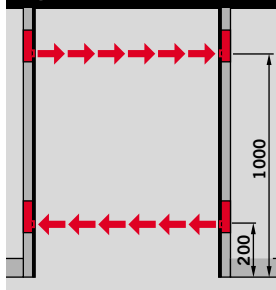
- Fits onto basic module
- For additional drive functions
- For EM 4 functional specification, see page 6

Hand-held terminal



- Enables fast and problem-free commissioning of the operator
- Simple diagnostics for effective trouble-shooting
- Plain text display

Light barriers



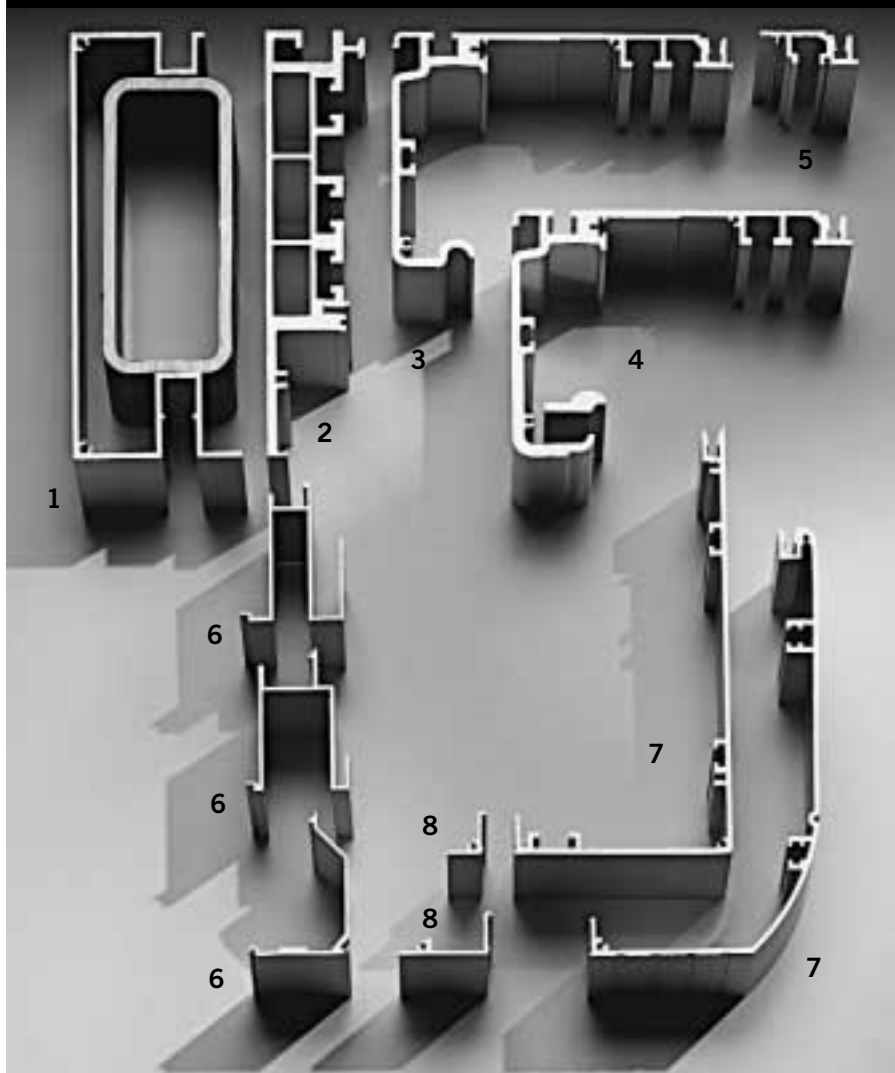
- Counterlight photo-electric cells
- For enhanced protection of the closing sweep – with installation 0.2 m and 1.0 m above the floor surface

Program switches



- For internal or external installation
- For surface or flush mounting
- Lockable

Profiles



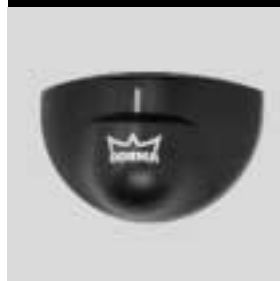
- 1 MSH girder with cover
- 2 Aluminium (LM) girder
- 3 DORMA ES 90 profile
- 4 DORMA ES 100 profile
- 5 Expansion profile
- 6 Cover profiles
- 7 Interior covers
- 8 Trim profiles

Switches / Pushbuttons



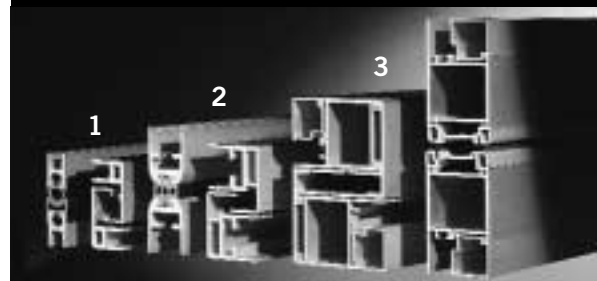
- For surface or flush mounting
- Stainless steel models
- Water-protected models

Radar motion detectors



- Eagle system
- Non-directionally sensitive standard model
- Directionally sensitive if required

Door profiles



- 1 Toughened glass profile system S 90
- 2 Double glazing profile system G-Iso
- 3 Standard frame profile system R 91

Not illustrated:
Thermal-break profile system R-Thermo

Models					
Operator type	Operator designed for 2 door panels à ...	Drive unit for		Low-noise track rail	Sound-insulated track rail
		a) one-sided telescoping system with door panels à 100 kg	b) two-sided telescoping system with 4 panels à 75 kg		
ES 90	100 kg			●	
ES 90 E	130 kg			●	
ES 90 T		●	● (LW = 800 – 2000)*	●	
ES 90 TE		●	● (LW = 800 – 4000)*	●	
ES 100	100 kg				●
ES 100 E	150 kg				●

*LW = Clear opening width

Dimensions	ES 90	ES 90 E	ES 90 T	ES 90 TE	ES 100	ES 100 E
Operator unit: Length [mm]	1500 – 6100	1700 – 6100	1300 – 6100	1300 – 6100	1700 – 6100	1700 – 6100
Overall depth [mm]	171	202	280	310	171	202
Height [mm]	200	200	200	200	200	200
Clear opening width:						
One-sided à 1 panel [mm]	700 – 3000	800 – 3000	–	–	800 – 3000	800 – 3000
One-sided à 2 panels [mm]	–	–	800 – 2000	800 – 2000	–	–
Two-sided à 1 panel [mm]	800 – 3000	800 – 3000	–	–	800 – 3000	800 – 3000
Two-sided à 2 panels [mm]	–	–	1400 – 2000	1400 – 4000	–	–

Weights	ES 90	ES 90 E	ES 90 T	ES 90 TE	ES 100	ES 100 E
One-sided à 1 panel [kg]	200	200	–	–	200	200
One-sided à 2 panels [kg]	–	–	2 x 100	2 x 100	–	–
Two-sided à 1 panel [kg]	2 x 100	2 x 130	–	–	2 x 100	2 x 150
Two-sided à 2 panels [kg]	–	–	4 x 75	4 x 75	–	–

Times, speeds**	ES 90	ES 90 E	ES 90 T	ES 90 TE	ES 100	ES 100 E
Opening speed per panel [cm/s]	10 – 60	10 – 75	10 – 60	10 – 75	10 – 60	10 – 75
Closing speed per panel [cm/s]	10 – 55	10 – 55	10 – 55	10 – 55	10 – 55	10 – 55
Creep speed [cm/s]	3 – 9	3 – 9	3 – 9	3 – 9	3 – 9	3 – 9
Hold-open time [s]	0 – 180	0 – 180	0 – 180	0 – 180	0 – 180	0 – 180

**adjustable at basic control module

Functions of the basic module (GM)

Opening and closing force adjustment
Variation of door parameters
Self-monitoring function
Self-learning function
Program modes: Off – Automatic – Permanent open
Bus-capable
Automatic reversing cycle
External power supply for 24 V DC / 2A
Connection for external detector
Night-bank control (encoded card reader)
Pulse expansion for encoded card reader / key switch
Electro-mechanical locking
Connection for main lock
Connection for emergency stop device
RS 485 interface for hand-held terminal

Technical specifications

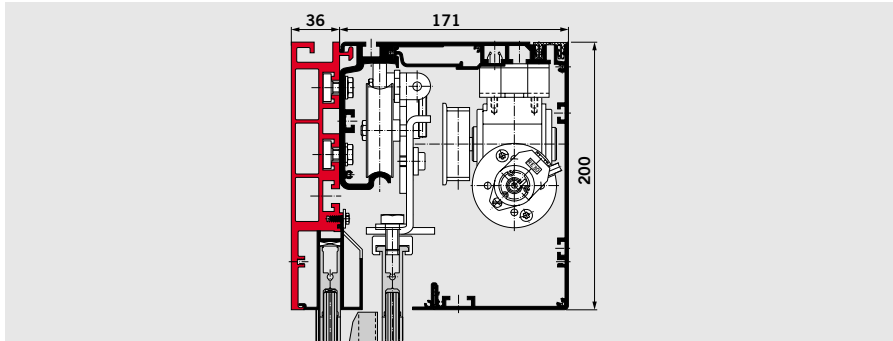
Power supply data: 230 V / 50–60 Hz
Max. power consumption: 360 W
Average consumption: 30 W/h
Class of protection: IP 20
Type-approved (TÜV)
Tested and approved in acc. with EU low-voltage directives
Quality-assured manufacture to ISO 9000

Additional functions of the EM 4 expansion module

Back-up battery pack (monitored)
Fail-safe / Fail-secure
Emergency open / Emergency close
Connections for light barriers (2 pairs), self-monitoring
Program modes: Exit only
Partial opening
Bell contact
Connection for internal detector
Floating (no-volt) contact
Lock contact
Connections for primary and secondary edge safety detectors
Airlock control
Pharmacy control

Optional extras

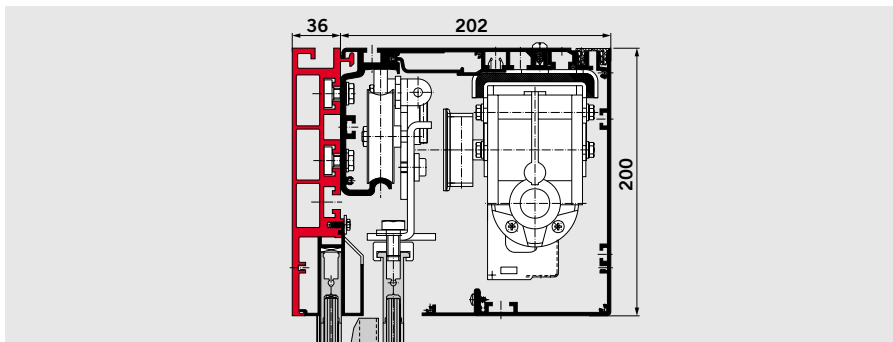
Locking system
a) Electro-mechanical lock
b) Electro-mechanical lock with manual release
c) Automatic concealed through-rod multipoint locking (with complete door sets only)
d) Floor lock
e) Hook bolt lock
Ancillary components for pharmacy control
Visual fault indicator
UPS power supply module



DORMA ES 90

Basic operator

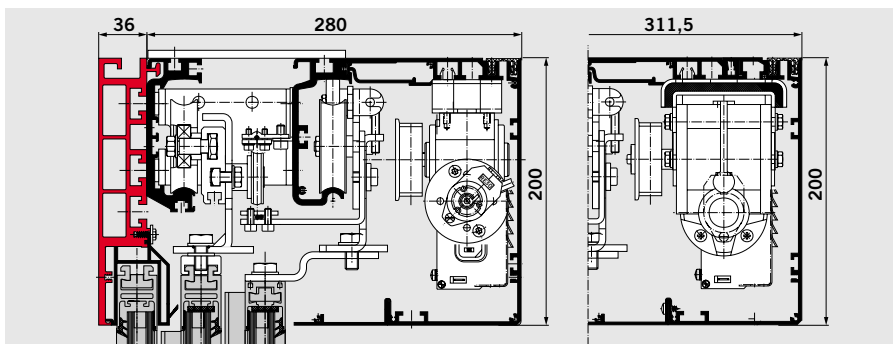
Load bearing capacity
1 x 200 / 2 x 100 kg
Opening width 700 – 3000 mm
Suitable for all common profile systems and glazing types. Standard motor.



DORMA ES 90 E

Extended operator

Load bearing capacity
1 x 200 / 2 x 130 kg
Opening width 800 – 3000 mm
Suitable for all common profile systems and glazing types. Extended profile allows installation of the more powerful motor.



DORMA ES 90 T

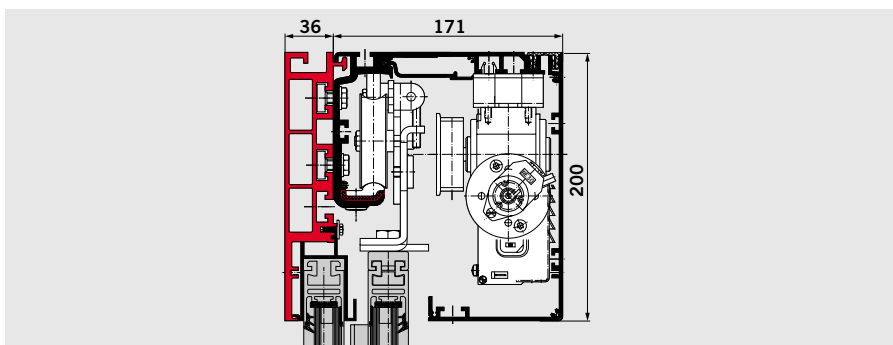
Basic telescopic operator

Load bearing capacity
2 x 100 / 4 x 75 kg
Opening width 800 – 2000 mm
Standard motor.

DORMA ES 90 TE

Extended telescopic operator

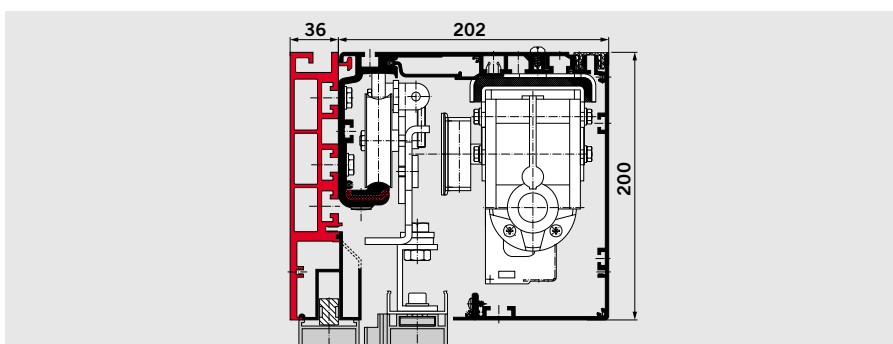
Load bearing capacity
2 x 100 / 4 x 75 kg
Opening width 800 – 4000 mm
More powerful motor.



DORMA ES 100

Basic operator with sound-insulated and replaceable track rail

Load bearing capacity
1 x 200 / 2 x 100 kg
Opening width 800 – 3000 mm
Suitable for all common profile systems and glazing types. Standard motor.

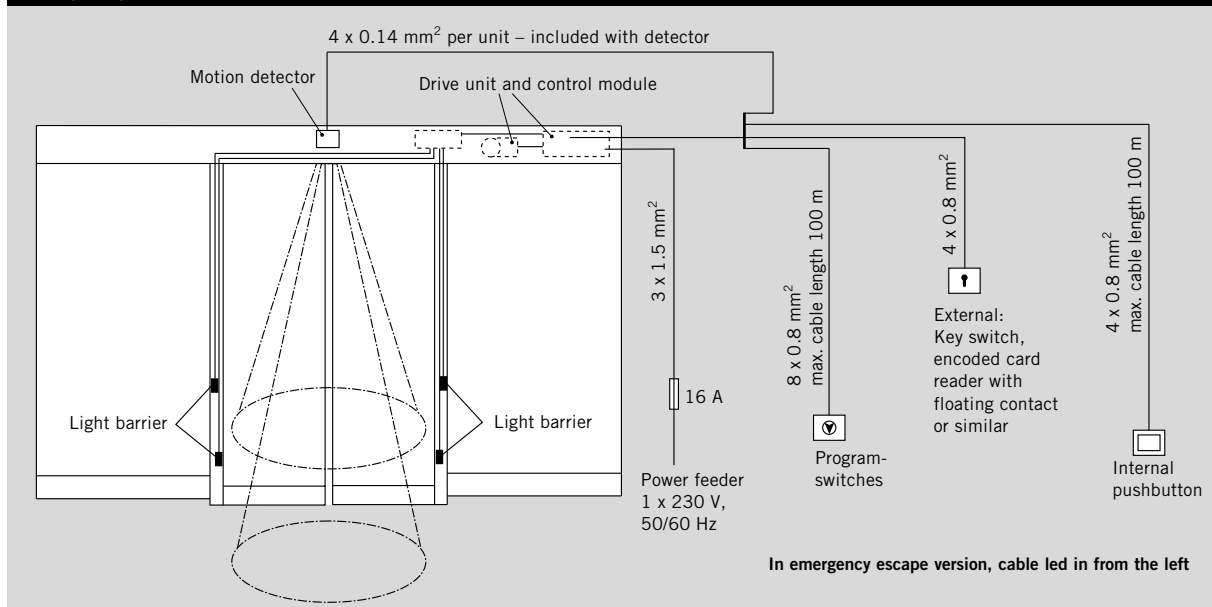


DORMA ES 100 E

Extended operator with sound-insulated and replaceable track rail

Load bearing capacity
1 x 200 / 2 x 150 kg
Opening width 800 – 3000 mm
Suitable for all common profile systems and glazing types. More powerful motor.

Wiring diagram



Specification text

Automatic sliding door operator type ES 90 / ES 100 of modular design. Microprocessor control unit. Monitored closing forces and primary and secondary closing edges. Operator functionality can be enhanced with plug-in expansion module (EM 4). Automatic door reversal on contact with an obstruction. Choice of fail-safe or fail-secure configuration. The operator can be commissioned without the need for additional instrumentation and is self-learning. Light barriers and back-up battery pack monitored. Short-circuit-proof power supply unit, 230 V 50/60 Hz.

Opening speed adjustable from 10 to 75 cm/s per panel.

- ES 90 1 x 200 kg / 2 x 100 kg 700 – 3000 mm
- ES 90 E 1 x 200 kg / 2 x 130 kg 800 – 3000 mm
- ES 100 1 x 200 kg / 2 x 100 kg 800 – 3000 mm
- ES 100 E 1 x 200 kg / 2 x 150 kg 800 – 3000 mm

ES 90 with low-noise track rail.
ES 100 with sound-insulated track rail.

Program switch settings:

Off – Automatic – Permanent open – Self-regulating partial opening (Part open) – Exit only
TÜV certificate per ZH 1/494, latest edition, and VDE 700, CE 94

Mechanical design:

Light aluminium alloy profile system, height 200 mm, toothed belt drive with adjustable carriers and track rollers mounted in ball bearings.

- Face-fix installation
- Corridor/passageway installation: Aluminium girder self-supporting up to spans of 4000 mm

Options:

- EM 4 expansion module
- Locks:
 - Electro-mechanical lock (bi-stable)
 - Electro-mechanical lock with internal manual release
 - Automatic concealed through-rod multipoint locking (with complete door sets only)
 - Floor lock
 - Hook bolt lock

Activators:

- Radar motion detector
- Infra-red detector (passive, active)
- Pushbutton

Colour:

- silver anodised
- dark brown anodised
- white RAL 9010/9016
- special RAL spray paint finish

Make:

DORMA ES 90, ES 100
DORMA ES 90 FST, ES 100 FST

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