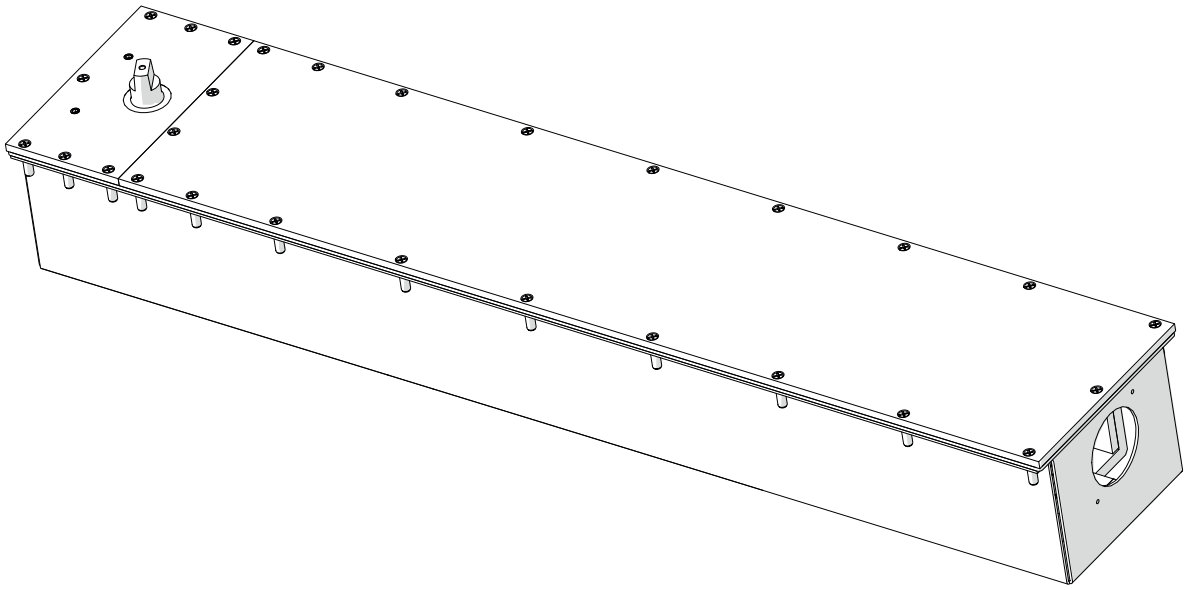

ED250

Installation in In-ground Case

Installation Instructions

DL4615-007 – 11-2022

| EN |

dormakaba

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Warranty guidelines

1 Installation guidelines affecting warranty

1.1 Opcon cement case enclosure.

Opcon cement case enclosure is listed and labeled as a NEMA 4 water resistant enclosure under UL 50, Enclosures for electrical equipment, non-environmental considerations, and CSA 22.2, Special purpose electrical enclosures industrial products.

Conformance with the following installation and service procedures must be maintained to assure a proper installation and to maintain the Opcon warranty.

1. Enclosure penetrations: The cement case must only be penetrated to install electric power service and low voltage signal wires.

   Liquidtight fittings: Opcon approved liquidtight fittings shall be used (Ref. Chapter 15) at all electrical case penetrations. The liquidtight fittings may only be placed as outlined in Chapter 15 of this manual.
   Use of liquidtight fittings is a National Electrical Code requirement and is also an Opcon specification.
   Cement case cover: Attachments to the cement case cover are not permitted.

2. Drain system.

In certain exterior conditions (downgrade elevation, openings with direct contact to precipitation, extreme humidity, or other similar conditions) a drain system or provision from the cement case is recommended.

CAUTION

Drain system penetration into case will void NEMA 4 enclosure rating.

2.1 Seals

All seals provided with the Opcon system must be installed including the following:

1. Spindle seal cement case cover Ref. Chapter 16.
2. Spindle seal at threshold, Ref. Chapter 26.
3. Perimeter gasket between cement case and cover.
4. Double door connector PVC conduit fittings and PVC conduit at cement case are sealed with a special silicone. Ref. Chapter 16. Any damage to the silicone seal in these areas must be repaired.

SPECIAL NOTE ON SEALS. ANY SEAL FOUND TO BE DAMAGED OR WORN MUST BE REPLACED IMMEDIATELY TO MAINTAIN THE UL AND CSA LISTINGS AS WELL AS OPCON SPECIFICATIONS AND WARRANTY.

3.1 Floor covers (thresholds)

Reference Chapter 26.

1. All floor covers must be manufactured by Opcon or manufactured to Opcon specifications.
2. Floor covers must be:

- Manufactured to accept all seals.
- Removable for future service.
- Attached to the surrounding floor without penetrating the cement case or cement case cover.

3. All floor covers must have a perimeter seal of silicone or a similar water proofing sealant applied to keep water from encroaching between the cement case cover and the floor cover.

4.1 Technicians

1. dormakaba USA Inc. and Opcon must certify installation and service technicians.
2. Technicians must also be certified by American Association of Door Manufacturers (AAADM).
3. Installation or servicing the Opcon system or automatic equipment using non-certified technicians will void this warranty.

5.1 Pressure washing.

1. Pressure washing is **never** permitted at or near the Opcon installation.

Table of contents

1 General information

1.1.1 Installation Instructions.
This manual provides installation instructions for ED250 in ground cement case used in single door and pair door installations.

1.1.2 Manual storage.
This document must be kept in a secure place, and accessible for reference as required.
If the door system should be transferred to another facility, insure that this document is transferred as well.

1.1.3 dormakaba.com website.
Manuals are available for review, download, and printing on the dormakaba.com/us website.

1.1.4 Dimensions
Unless otherwise specified, all dimensions are given in both inches (") and [mm].

1.1.5 Building codes and standards.
ED250 in ground installation: observe applicable national and local building codes.

1.1.6 Symbols used in these instructions.

WARNING

This symbol warns of hazards which could result in personal injury or threat to health.

CAUTION

This symbol warns of a potentially unsafe procedure or situation.

NOTICE

Draws attention to important information presented in this document.

TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

2 Product description

2.1 ED250 IG maximum door weights and exterior door installation

2.1.1 Maximum door weights.

Table 2.1.1 ED250 in-ground full energy door panel

Exterior and interior applications – Prevailing conditions at opening must be considered		
Maximum door width	Pounds	kg
48" [1219]	320	[145]

Table 2.1.2 ED250 in-ground low energy door panel

Interior applications. Prevailing conditions at opening must be considered.		
Maximum door width	Pounds	kg
48" [1219]	600	[317]
Exterior applications. Prevailing conditions at opening must be considered.		
Maximum door width	Pounds	kg
48" [1219]	320	[272]

2.1.2 ED250 in-ground exterior door installation.

NOTICE

Exterior door use.
To insure proper suitability for exterior door use, the following topics must be addressed in the context of the door application setting.

- For site-specific use factors such as high wind conditions and/or building pressure consult factory.
- Door width, height, weight, and usage patterns.
- Observable prevailing conditions at the opening under which the operator is expected to perform. In some instances, this may require increased force settings to counteract these conditions.
- Door mounted presence sensors.
  When attempting to overcome these forces, it is strongly suggested that door mounted presence sensors be employed to enhance pedestrian safety through the opening.

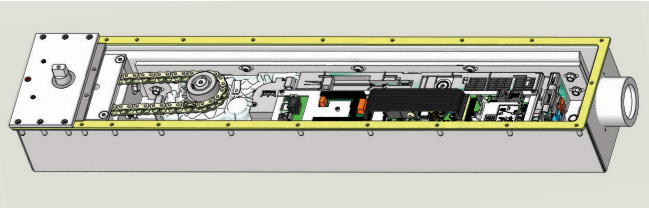
2.2 Product description

2.2.1 Intended use.

The ED250 is an electromechanical operator used exclusively for opening and closing interior or exterior swing doors.

The ED250 operator is packaged in a cement case for in-ground floor installations.
For double swing doors, two cement cases are supplied.

Fig. 2.2.1 In-ground case with ED250 operator



2.2.2 ED250-IG operator operation.

The ED250 operator can be configured for either low energy (ANSI/BHMA A156.19) or full energy (ANSI/BHMA A156.10) operation.

- Full energy operation limited by door weight, door width and prevailing conditions at the door opening (Ref. Para. 2.1).

2.2.3 Arm configurations.

Fig. 2.2.2 Center hung

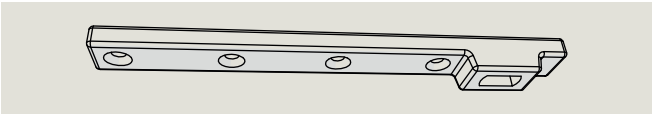


Fig. 2.2.3 Offset pivot

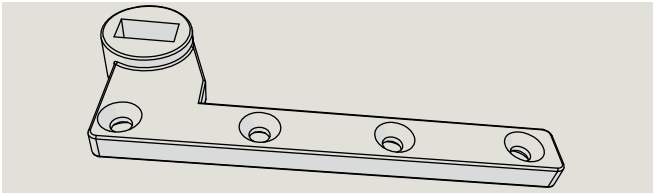
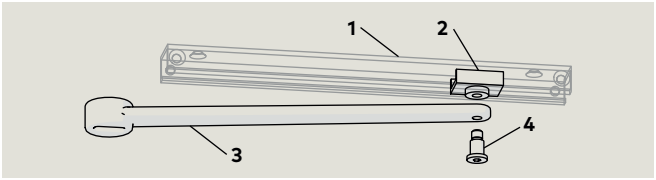


Fig. 2.2.4 Arm and track assembly (track in door)



1 Track
2 Slide
3 Arm
4 M8 shoulder screw

2.2.4 Smoke or fire-rated door.

TIPS AND RECOMMENDATIONS

Insure operator is qualified for use at the respective smoke or fire-rated door.

2.2.5 Cement case enclosure.

The cement case enclosure is listed and labeled to:

- UL50, NEMA 4 water resistant enclosure..
- CSA 22.2

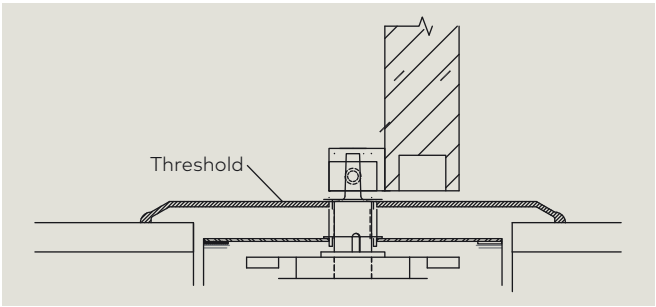
2.2.6 Hardware packages.

1. Refer to Chapter 5 for details of hardware contained in each in ground package.

2.2.7 Floor threshold.

1. Threshold (Fig. 2.2.5) to cover cement case is not supplied with the ED250 in-ground package. Refer to Chapter 26 for threshold installation instructions..

Fig. 2.2.5 Floor threshold



3 Safety information

3.1 Safety instructions.

This document contains important instructions for installation of the ED250 in-ground operator. Review these instructions thoroughly prior to installation, and follow them carefully during installation, commissioning, troubleshooting and maintenance.

3.2 Door signage requirements.

Proper signs and labels shall be applied and maintained on the door controlled by the ED250 in ground swing door operator as referenced in:

- ANSI/BHMA A156.10: Standard for power operated doors.
- ANSI/BHMA A156.19: Standard for power assist and low energy power operated doors.
- Reference Chapter 13, Door signage.

3.3 Safety warnings.

WARNING

Damage to equipment or incorrect equipment operation may result from an incorrect installation.

WARNING

Work on electrical equipment and 115 Vac wiring installation must be performed only by qualified personnel!

WARNING

Electric shock hazard!
By use of control elements, settings, or procedures not documented in this manual!

WARNING

Metallic doors must be grounded per national and local codes!

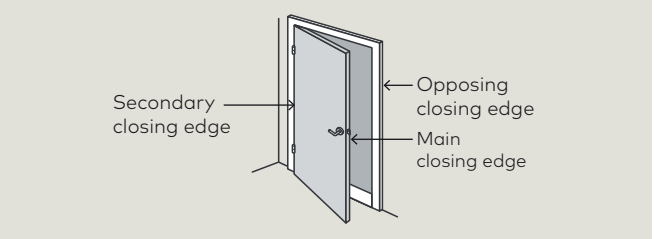
WARNING

Hand pinch point and crushing hazards at door closing edges!

WARNING

Crushing hazards at door closing edges!

Fig. 3.1 Door closing edges



3.4 Residual hazards.

WARNING

After installation, hazards such as minor crushing, impact with limited force, and risk to unsupervised children may exist depending on structural design of door area, type of door, and any safeguards that have been implemented.

4 ED250 in-ground door configurations

TIPS AND RECOMMENDATIONS

Door frames and doors are shown transparent to provide hinge views.

TIPS AND RECOMMENDATIONS

Door thresholds are not shown to provide in ground cement case and arm views.

4.1 ED250 in-ground single swing door with offset pivot arm

Fig. 4.1.1 RH door with offset pivot arm

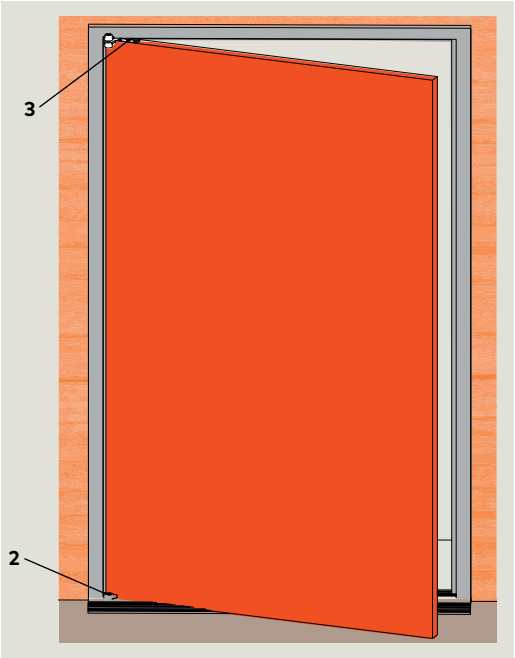
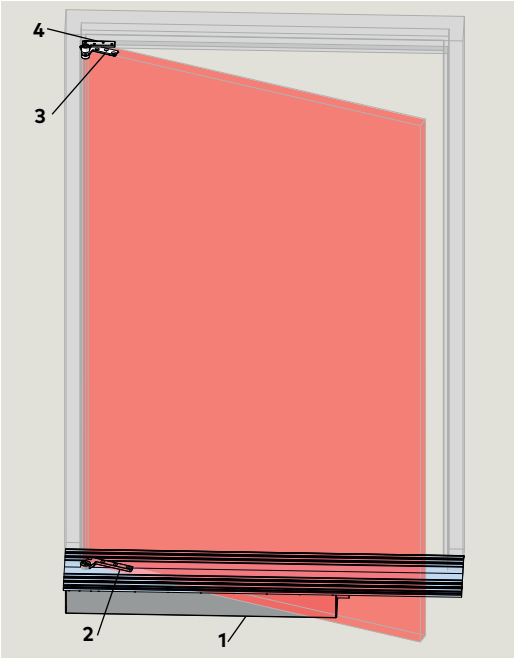


Fig. 4.1.1.1 Offset pivot arm and top pivot



1 ED250 in-ground cement case
2 Offset pivot arm
3 Top door pivot (by others)
4 Door frame pivot (By others)

Fig. 4.1.2 LH door with offset pivot arm

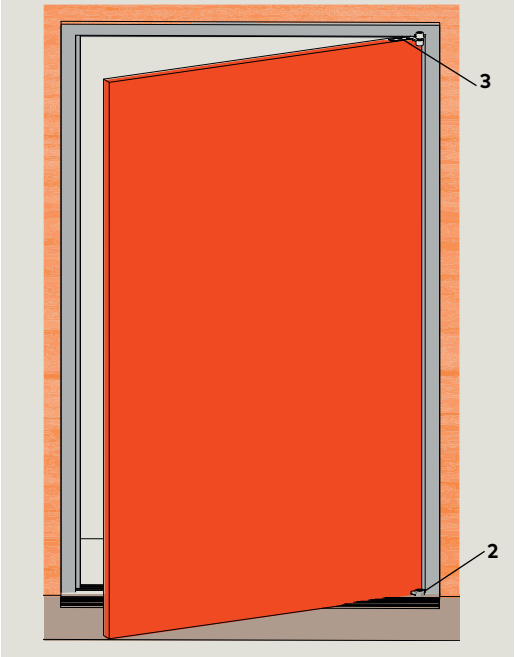
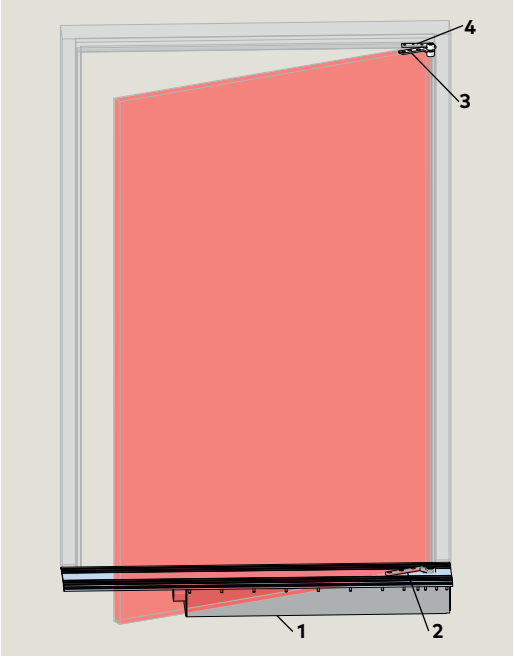


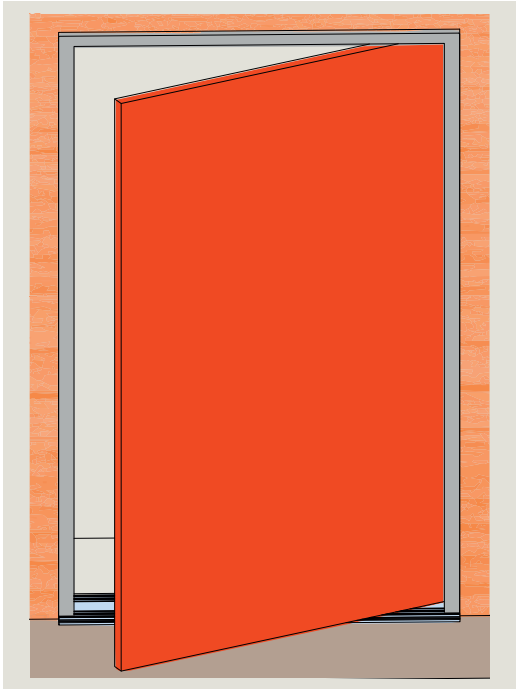
Fig. 4.1.2.1 Offset pivot arm and top pivot



1 ED250 in-ground cement case
2 Offset pivot arm
3 Top door pivot (by others)
4 Door frame pivot (By others)

4.2 ED250 in-ground single swing door with center hung arm

Fig. 4.2.1 LH door with center hung arm



1 ED250 in-ground cement case
2 Center hung arm
3 Top pivot - door (by others)
4 Top pivot - frame (by others)

Fig. 4.2.1.1 Center hung arm and top pivot

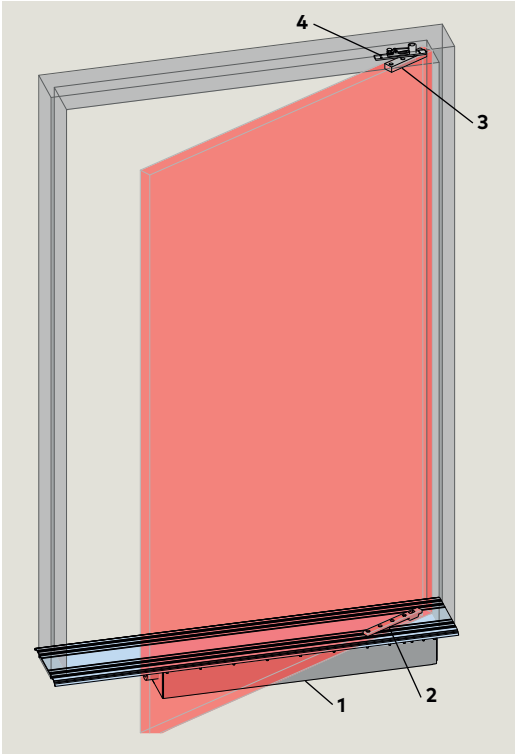
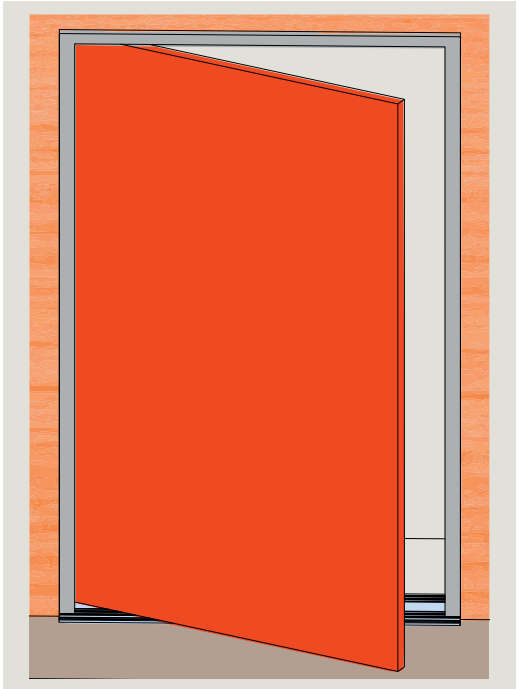
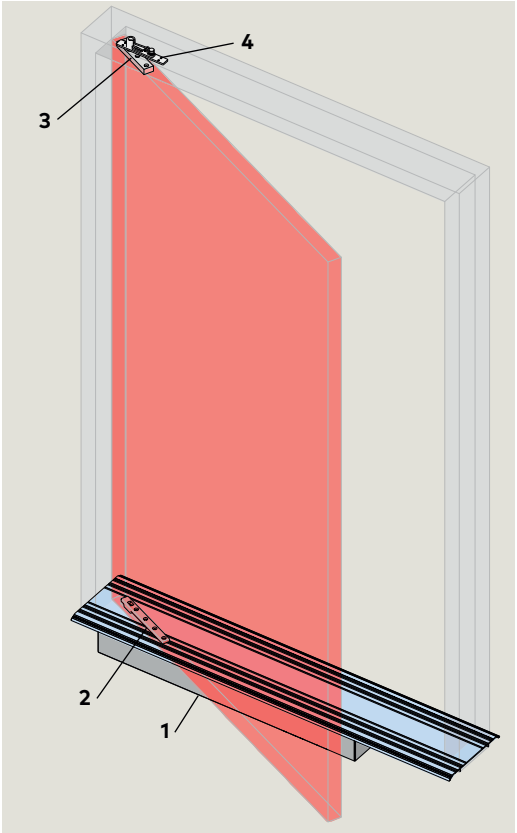


Fig. 4.2.2 RH door with center hung arm



1 ED250 in-ground cement case
2 Center hung arm
3 Top pivot - door (by others)
4 Top pivot - frame (by others)

Fig. 4.2.2.1 Center hung arm and top pivot



4.3 ED250 in-ground single swing door with arm and track

Fig. 4.3.1 LH door with arm and track

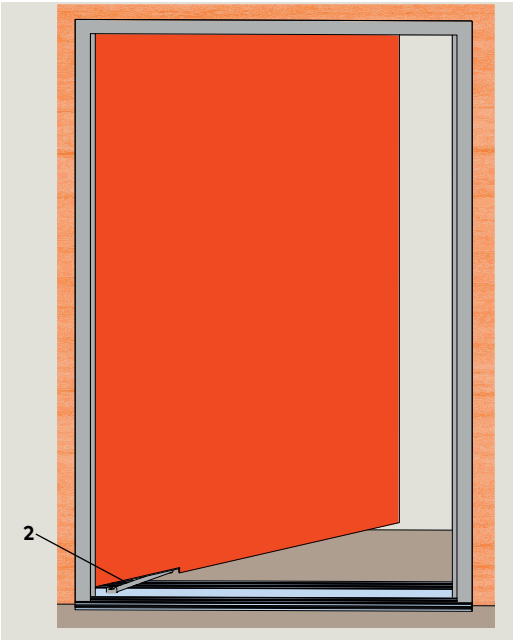
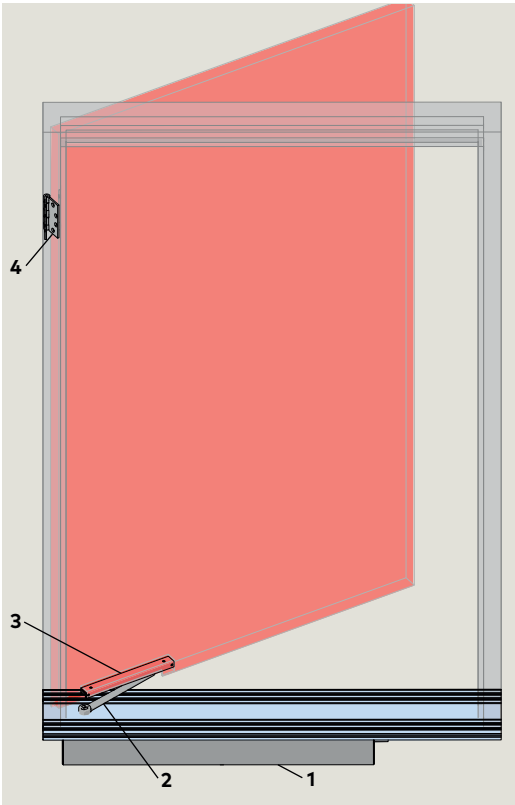


Fig. 4.3.1.1 Arm with track, butt hinge



1 ED250 in-ground cement case
2 Arm
3 Track**4**
4 Butt hinge (by others)

Fig. 4.3.2 RH door with arm and track

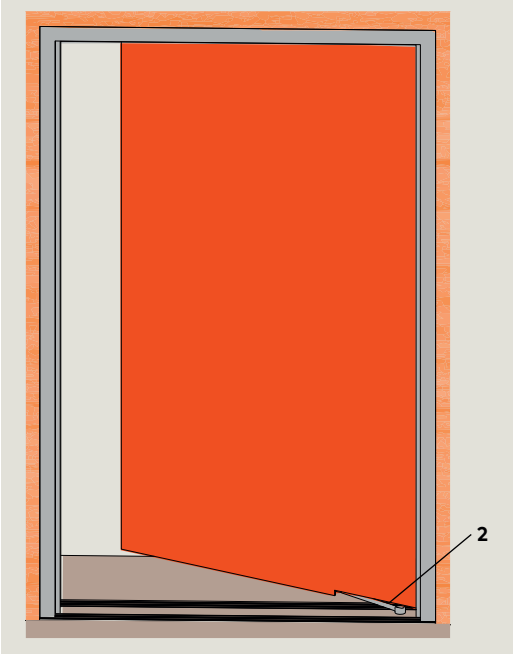
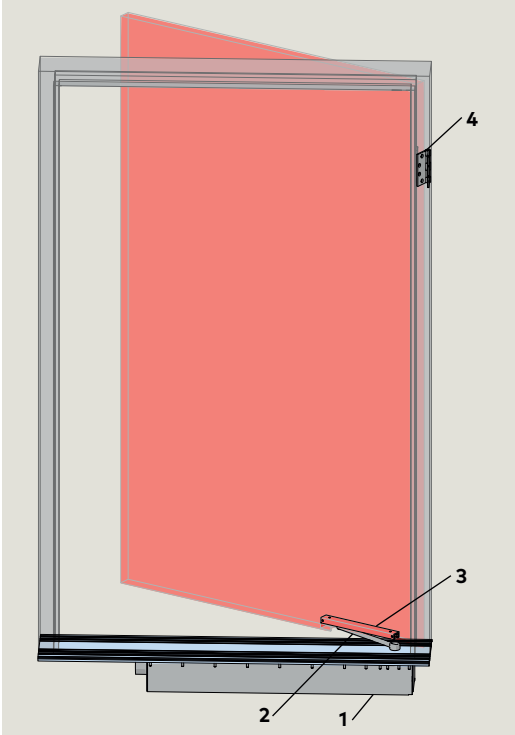


Fig. 4.3.2.1 Arm with track, butt hinge



1 ED250 in-ground cement case
2 Arm
3 Track**4**
4 Butt hinge (by others)

4.4 ED250 in-ground double swing doors with offset pivot arms

2 Offset pivot arm
3 Top door pivot (by others)

Fig. 4.4.1 Double doors with offset pivot arms

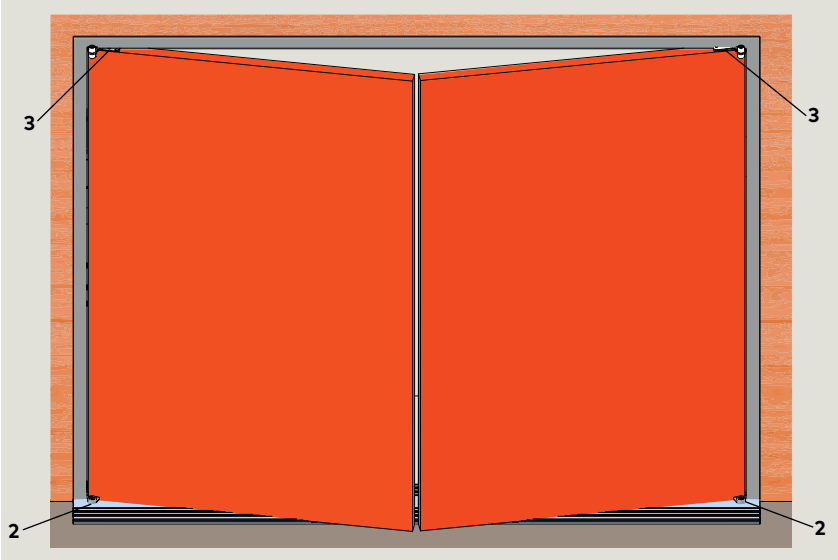
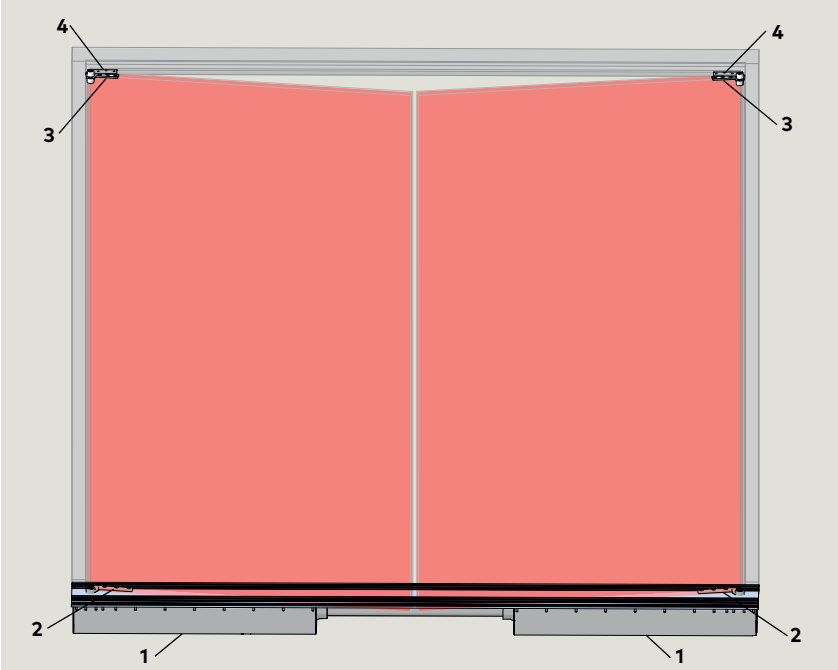


Fig. 4.4.1.1 Offset pivot arms and top door pivots

1 ED250 in-ground cement case
2 Offset pivot arm
3 Top door pivot (by others)
4 Door frame pivot (By others)



4.5 ED250 in-ground double swing doors with center hung arms

Fig. 4.5.1 Double doors with center hung arms

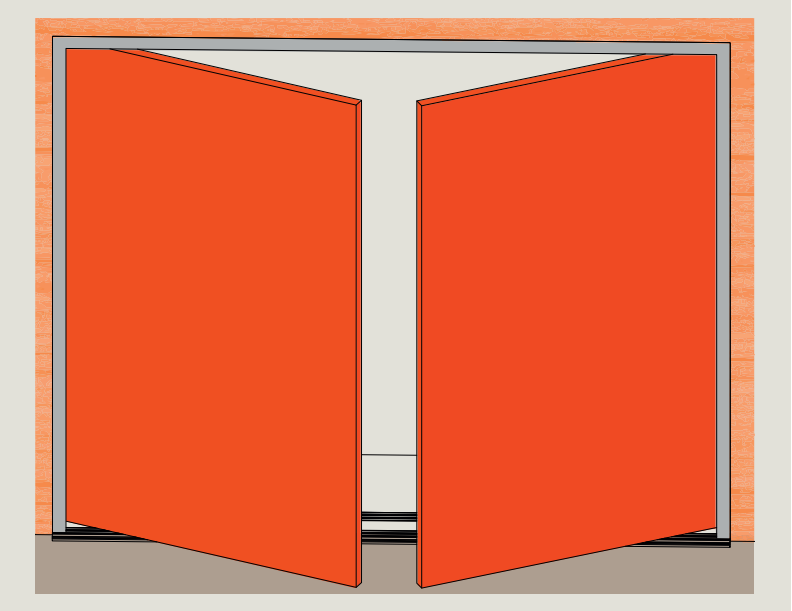
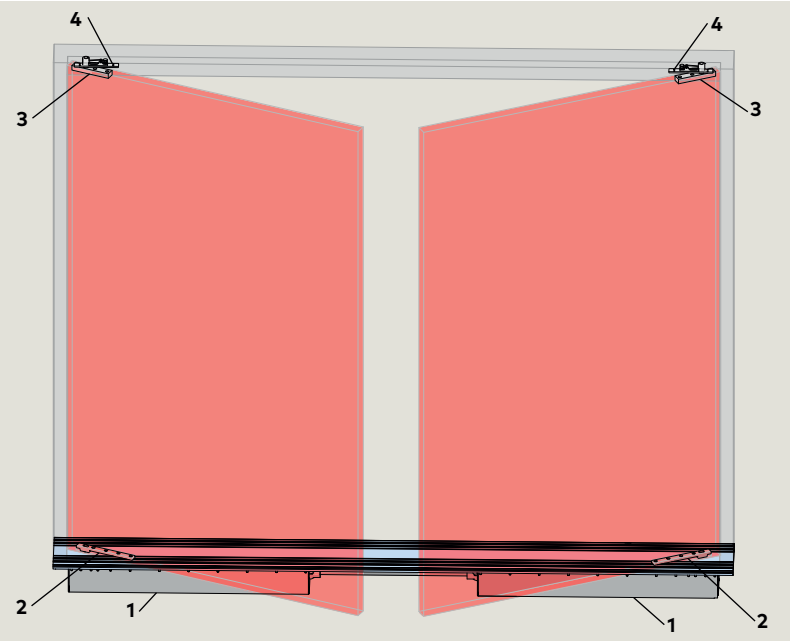


Fig. 4.5.1.1 Center hung arms and top door pivots



1. ED250 in-ground cement case
2. Center hung arm
3. Top door pivot (by others)
4. Door frame pivot (By others)

4.6 ED250 in-ground double swing doors with arm and track

Fig. 4.6.1 Double doors with arm and track

4 Butt hinge (by others)

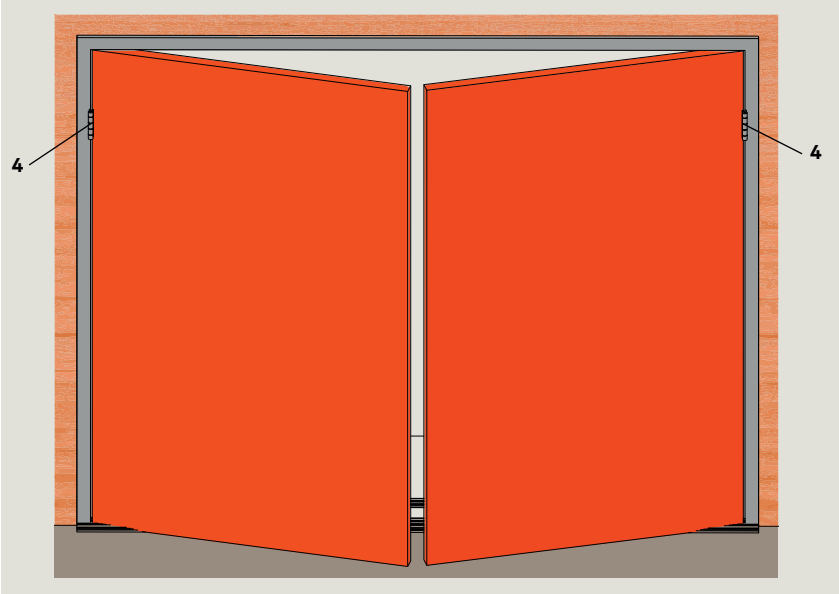
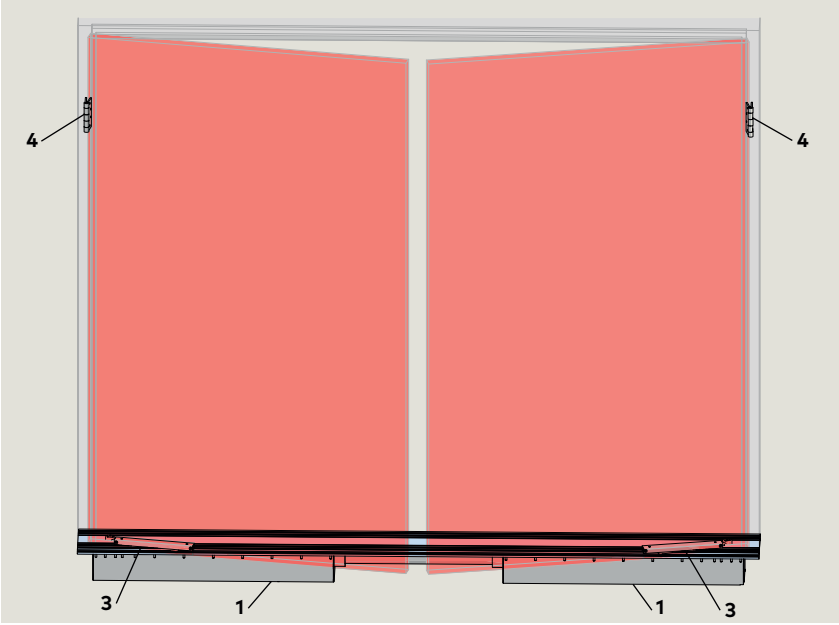


Fig. 4.6.1.1 Arm with track, butt hinges

1 ED250 in-ground cement case
3 Track**4**
4 Butt hinge (by others)



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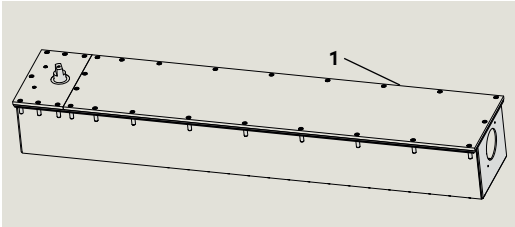
5 ED250 in-ground packages

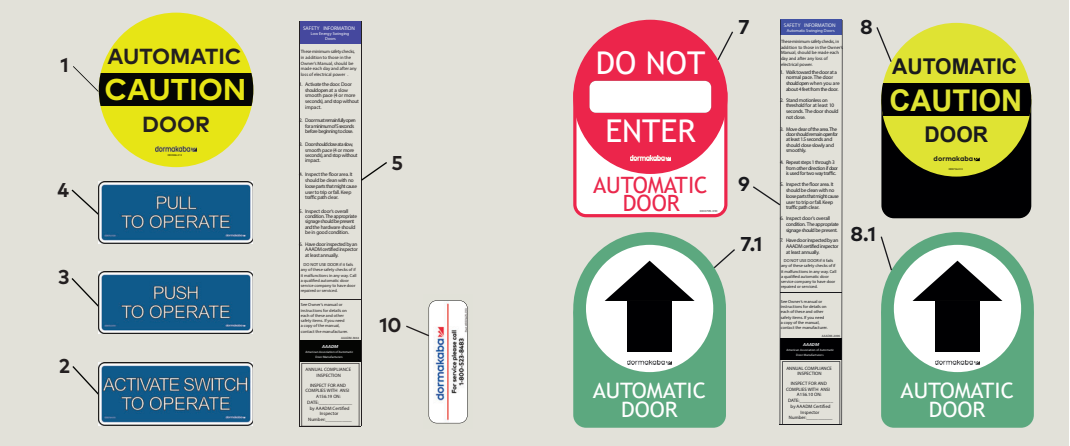
5.1 Center hung single door

Fig. 5.1.1 ED250 in-ground cement case assembly



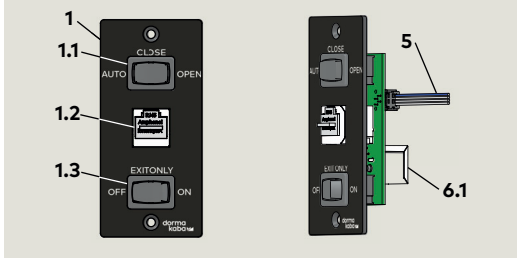
1 ED250 in-ground cement case

Fig. 5.1.2 Kit, ED operator labels DK3137-110



1 DD0586-010
2 DD0758-010
3 DD0762-010
4 DD0762-020
6 Safety Information label, low energy
7 Side 2, DD0739-020
7.1 Side 1, DD0739-010
8 Side 1, DD0756-010
8.1 Side 2, DD0756-020
9 Safety Information label, full energy
10 Label, Service call DD3425-010

Fig. 5.1.3 Mode switch panel



1 Mode switch panel DX4604-020
1.1 Mode switch
1.2 Comm. port for dormakaba handheld
1.3 Exit Only switch,
2 PVC reducer coupling for 2 3/8" case hole
5 Cable, 10'
6 RJ45 communication cable DX4662
-001, 3' [914]
-002, 10' [3050]
-003, 20' [6096]
6.1 RJ45 port
8 Key switch panel, RJ45, DX4604-21C
9 Key switch panel DX4604-11C
1 Center hung arm
2 PVC reducer coupling for case 2 3/8" hole, 1 1/2" PVC pipe

Fig. 5.1.4 Optional key switch panels

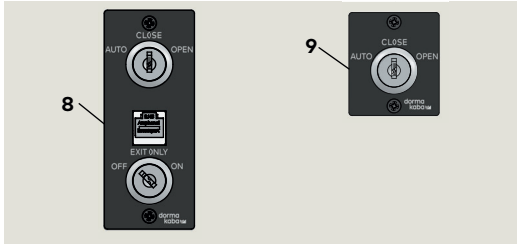
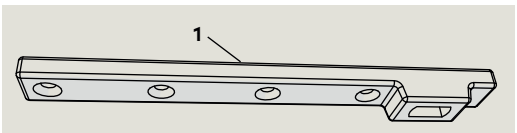


Fig. 5.1.5 Center hung arm



Mounting screws supplied with arm.

Fig. 5.1.6 Grounding kit, ED250 PCB bracket assembly, DK3137-010

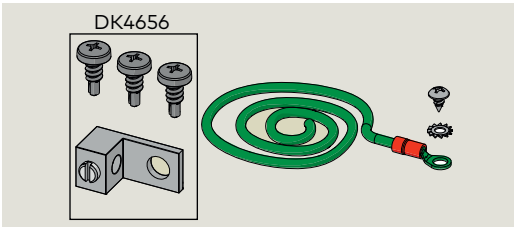
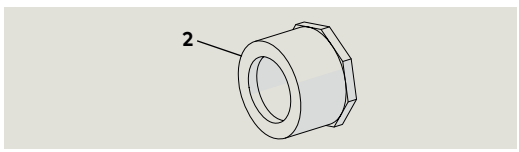


Fig. 5.1.7 RJ45 communication cable

Fig. 5.1.8 PVC reducer coupling



5.2 Center hung double door

1 ED250 in-ground cement case

1 DD0586-010
2 DD0758-010
3 DD0762-010
4 DD0762-020
6 Safety Information label, low energy
7 Side 2, DD0739-020
7.1 Side 1, DD0739-010
8 Side 1, DD0756-010
8.1 Side 2, DD0756-020
9 Safety Information label, full energy
10 Label, Service call DD3425-010

1 Mode switch panel DX4604
1.1 Mode switch
1.2 Comm. port for dormakaba handheld
1.3 Exit only switch
5 Cable, 10'
6 RJ45 communication cable DX4662
-001, 3' [914]
-002, 10' [3050]
-003, 20' [6096]

1 Center hung arm Double doors:
2 1 1/2" PVC pipe, 2 feet long
3 PVC reducer coupling for 2 3/8" case hole
2 Communication (sync) cable 80" [2020] DX3485-030
3 115 Vac power connect cable 11' [3400], DX3484-030
8 Key switch panel DX4604-21C
9 Key switch panel DX4604-11C

Fig. 5.2.1 (2) ED250 in-ground cement case assemblies

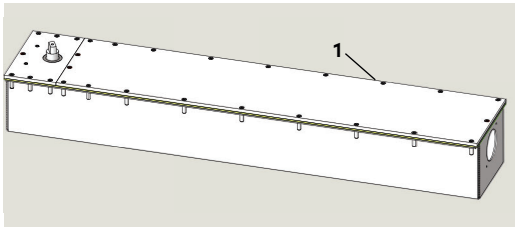


Fig. 5.2.2 Kit, ED operator labels DK3137-130

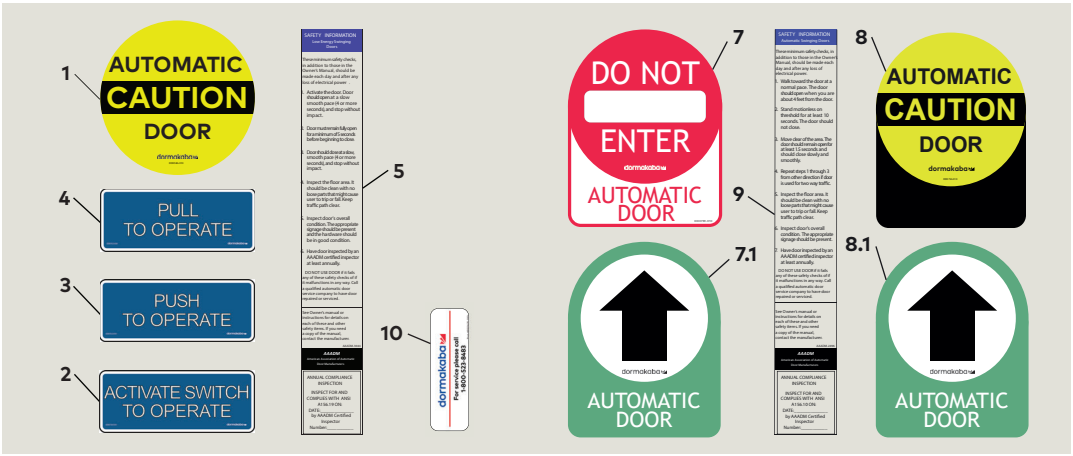


Fig. 5.2.3 Mode switch, RJ45 panels

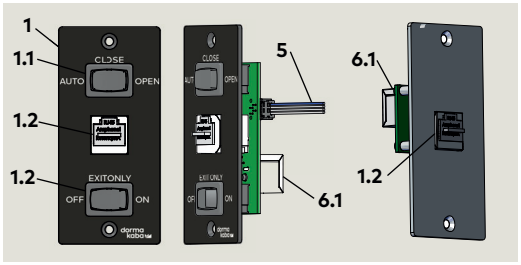
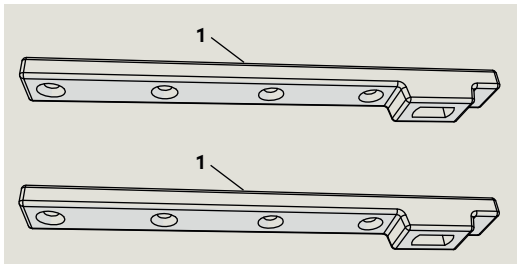


Fig. 5.2.4 Center hung arms



Mounting screws supplied with arms.

Fig. 5.2.5 Optional key switch panels

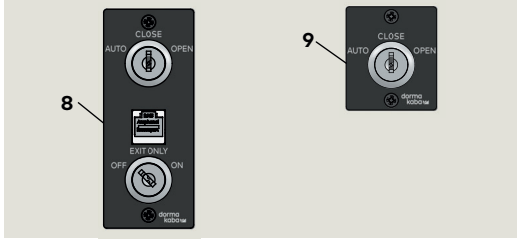


Fig. 5.2.6 (2) Grounding kit, ED250 PCB bracket assembly, DK3137-010

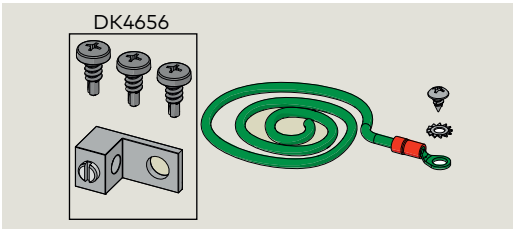


Fig. 5.2.7 RJ45 communication cable

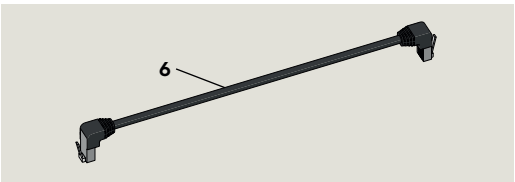


Fig. 5.2.8 In ground pair conduit install kit

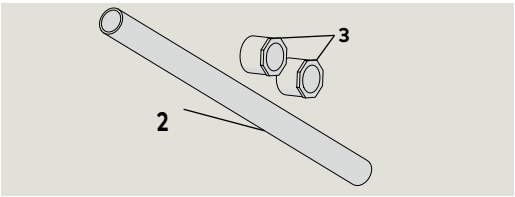


Fig. 5.2.9 Communication (sync) cable

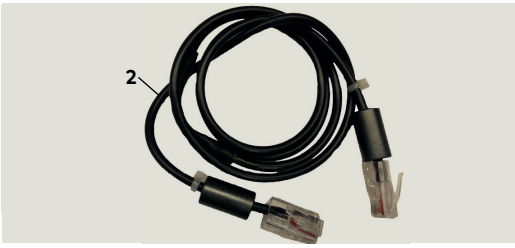
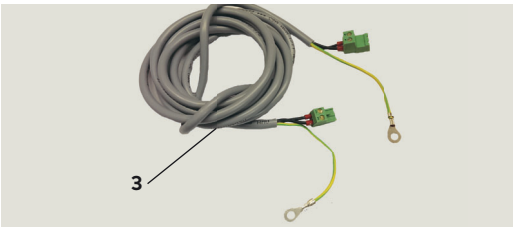


Fig. 5.2.10 115 Vac power connect cable



5.3 Offset pivot single door

Fig. 5.3.1 ED250 in-ground cement case assembly

1 ED250 in-ground cement case

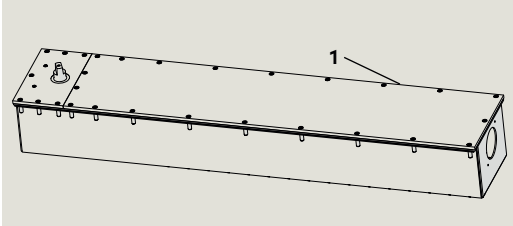


Fig. 5.3.2 Kit, ED operator labels DK3137-110

1 DD0586-010
2 DD0758-010
3 DD0762-010
4 DD0762-020
6 Safety Information label, low energy
7 Side 2, DD0739-020
7.1 Side 1, DD0739-010
8 Side 1, DD0756-010
8.1 Side 2, DD0756-020
9 Safety Information label, full energy
10 Label, Service call DD3425-010

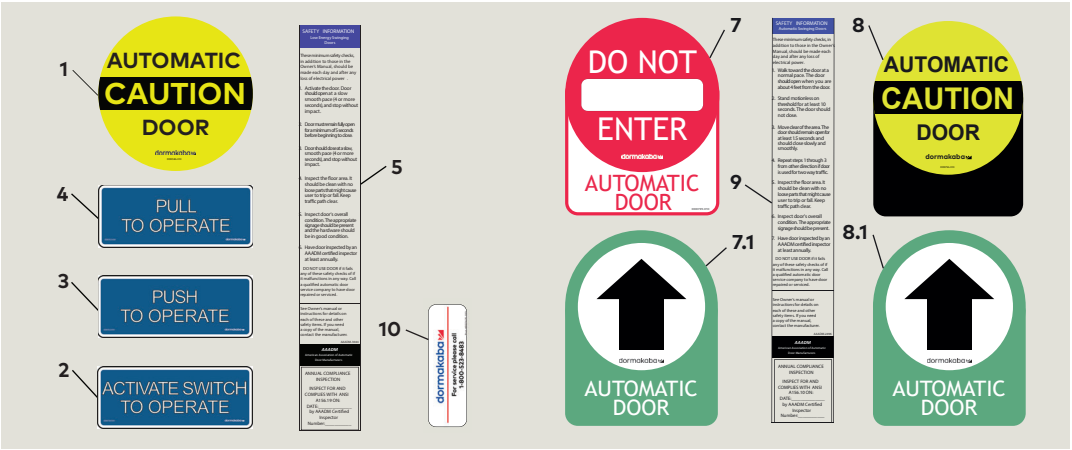


Fig. 5.3.3 Mode switch panel

1 Mode switch panel DX4604-020
1.1 Mode switch
1.2 Comm. port for dormakaba handheld
1.3 Exit Only switch,
5 Cable, 10'
6 RJ45 communication cable DX4662
6.1 RJ45 port
8 Key switch panel, RJ45, DX4604-21C
9 Key switch panel DX4604-11C

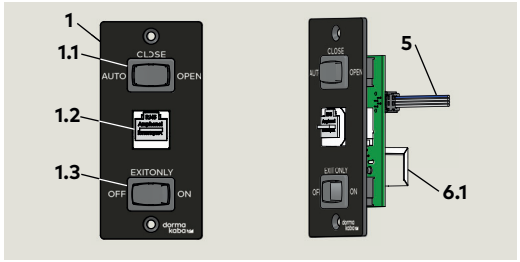


Fig. 5.3.4 Optional key switch panels

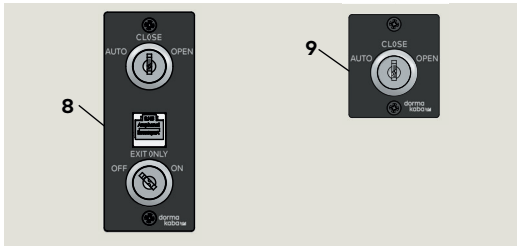
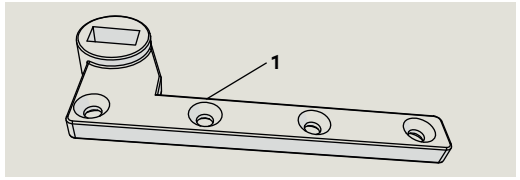


Fig. 5.3.5 Offset pivot arm

1 Offset pivot arm
2 PVC reducer coupling 2 3/8" hole, 1 1/2" PVC pipe



Mounting screws supplied with arm.

Fig. 5.3.6 Grounding kit, ED250 PCB bracket assembly, DK3137-010

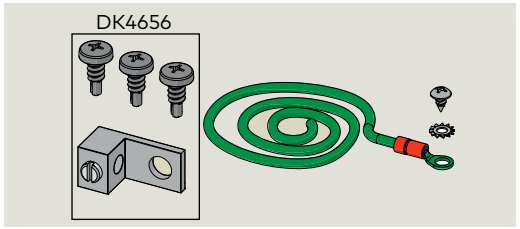


Fig. 5.3.7 RJ45 communication cable

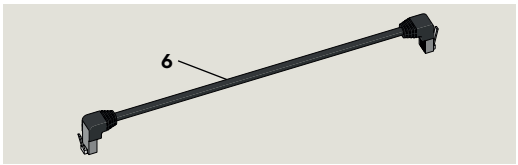
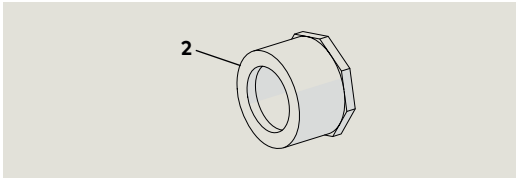
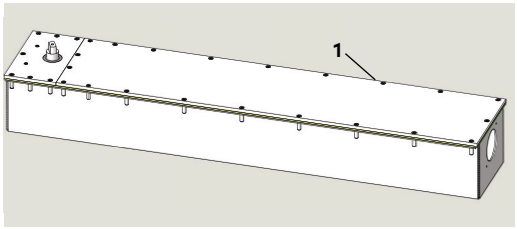


Fig. 5.3.8 PVC reducer coupling



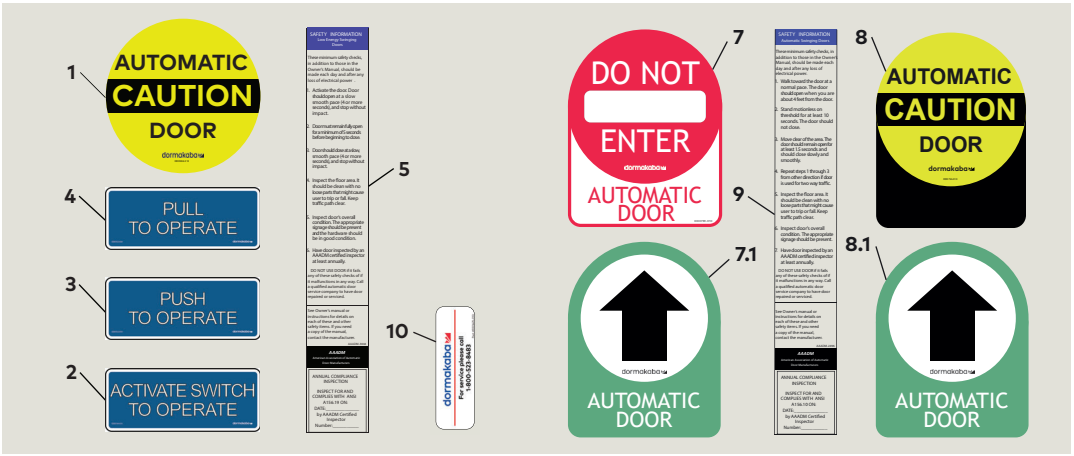
5.4 Offset pivot double door

Fig. 5.4.1 (2) ED250 in-ground cement case assemblies



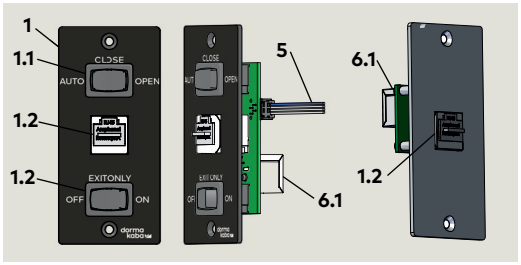
1 ED250 in-ground cement case

Fig. 5.4.2 Kit, ED operator labels DK3137-130



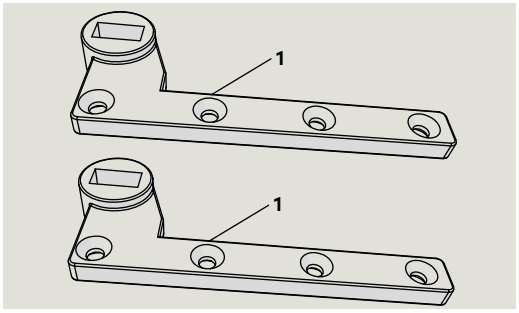
1 DD0586-010
2 DD0758-010
3 DD0762-010
4 DD0762-020
6 Safety Information label, low energy
7 Side 2, DD0739-020
7.1 Side 1, DD0739-010
8 Side 1, DD0756-010
8.1 Side 2, DD0756-020
9 Safety Information label, full energy
10 Label, Service call DD3425-010

Fig. 5.4.3 Mode switch, RJ45 panels



1 Mode switch panel DX4604
1.1 Mode switch
1.2 Comm. port for dormakaba handheld
1.3 Exit Only switch
5 Cable, 10'
6 RJ45 communication cable DX4662
-001, 3' [914]
-002, 10' [3050]
-003, 20' [6096]

Fig. 5.4.4 Offset pivot arms



1 Offset pivot arm Double doors:
2 1 1/2" PVC pipe, 2 feet long
3 PVC reducer coupling for 2 3/8" case hole
2 Communication (sync) cable 80" [2020] DX3485-030
3 115 Vac power cable 11' [3400], DX3484-030
7 RJ45 plate assembly DX4604-31C
8 Key switch panel DX4604-21C
9 Key switch panel DX4604-11C

Fig. 5.4.5 Optional key switch panels

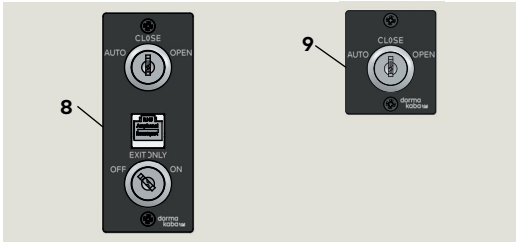


Fig. 5.4.6 (2) Grounding kit, ED250 PCB bracket assembly, DK3137-010

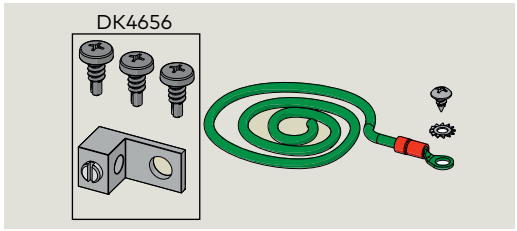


Fig. 5.4.7 RJ45 communication cable

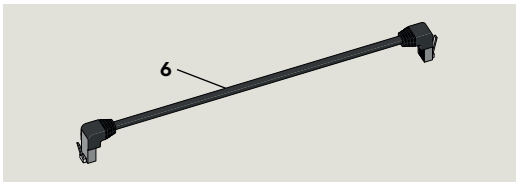


Fig. 5.4.8 In ground pair conduit install kit

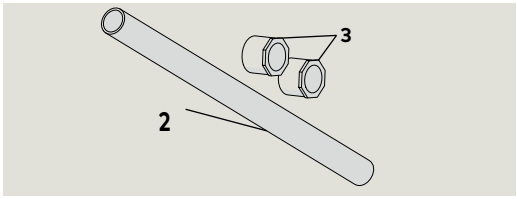


Fig. 5.4.9 Communication (sync) cable

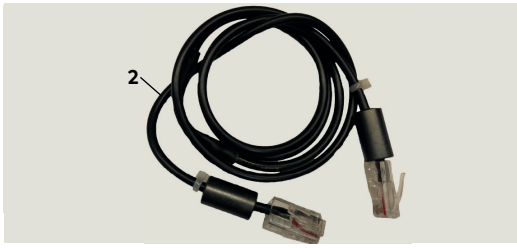
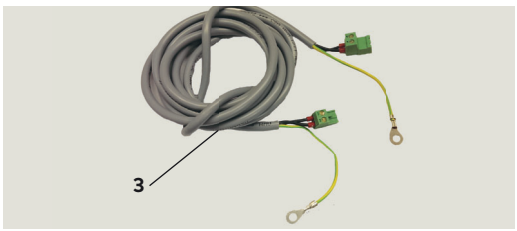
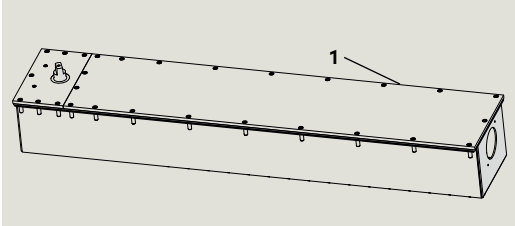


Fig. 5.4.10 115 Vac power cable



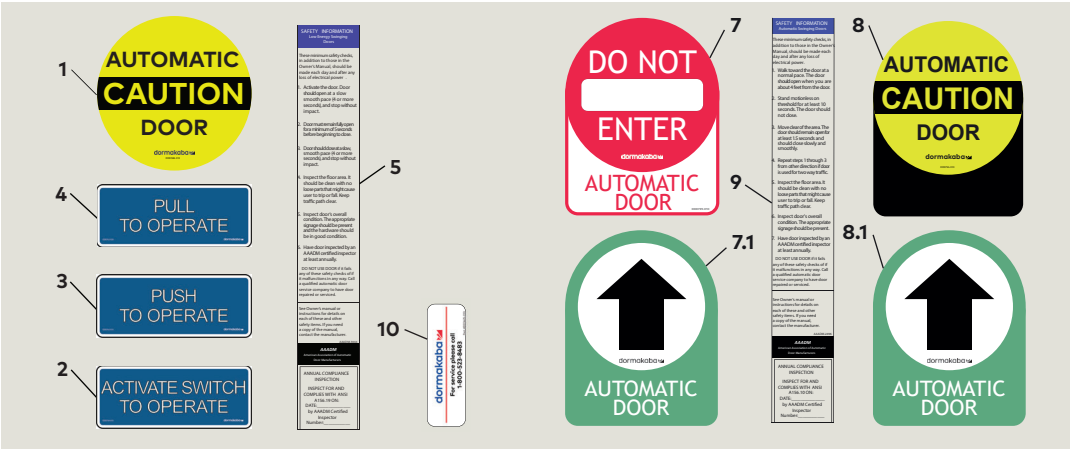
5.5 Arm and track single door

Fig. 5.5.1 ED250 in-ground cement case assembly



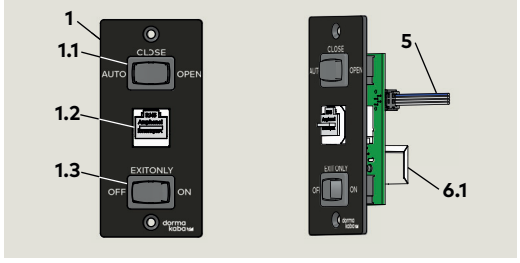
1 ED250 in-ground cement case

Fig. 5.5.2 Kit, ED operator labels DK3137-110



1 DD0586-010
2 DD0758-010
3 DD0762-010
4 DD0762-020
6 Safety Information label, low energy
7 Side 2, DD0739-020
7.1 Side 1, DD0739-010
8 Side 1, DD0756-010
8.1 Side 2, DD0756-020
9 Safety Information label, full energy
10 Label, Service call DD3425-010

Fig. 5.5.3 Mode switch panel



1 Mode switch panel DX4604-020
1.1 Mode switch
1.2 Comm. port for dormakaba handheld
1.3 Exit Only switch,
2 PVC reducer coupling for 2 3/8" case hole
5 Cable, 10'
6 RJ45 communication cable DX4662
6.1 RJ45 port
8 Key switch panel, RJ45, DX4604-21C
9 Key switch panel DX4604-11C

Fig. 5.5.4 Optional key switch panels

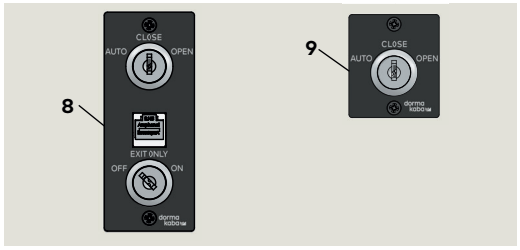
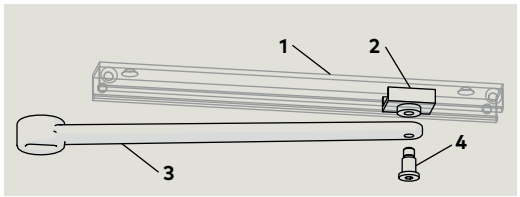


Fig. 5.5.5 Arm and track



1 Track
2 Slide
3 Arm
4 M8 shoulder screw

Mounting screws supplied with track and arm.

Fig. 5.5.6 Grounding kit, ED250 PCB bracket assembly, DK3137-010

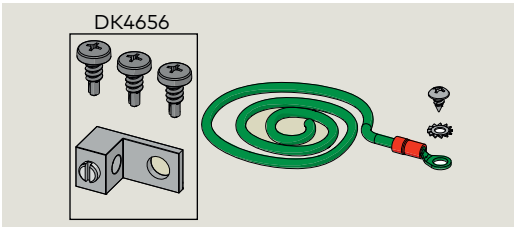


Fig. 5.5.7 RJ45 communication cable

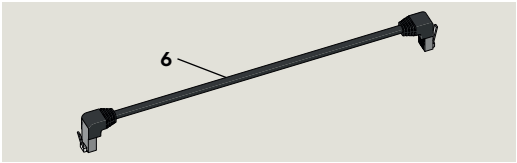
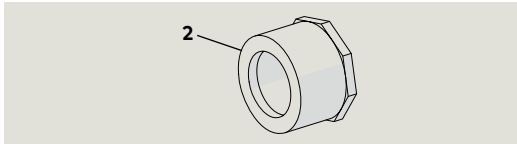


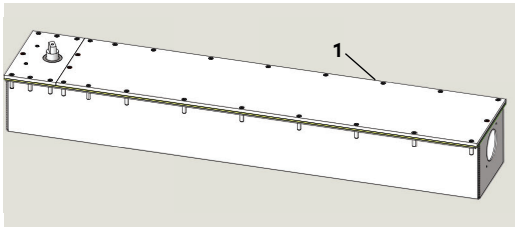
Fig. 5.5.8 PVC reducer coupling



5.6 Arm and track double door

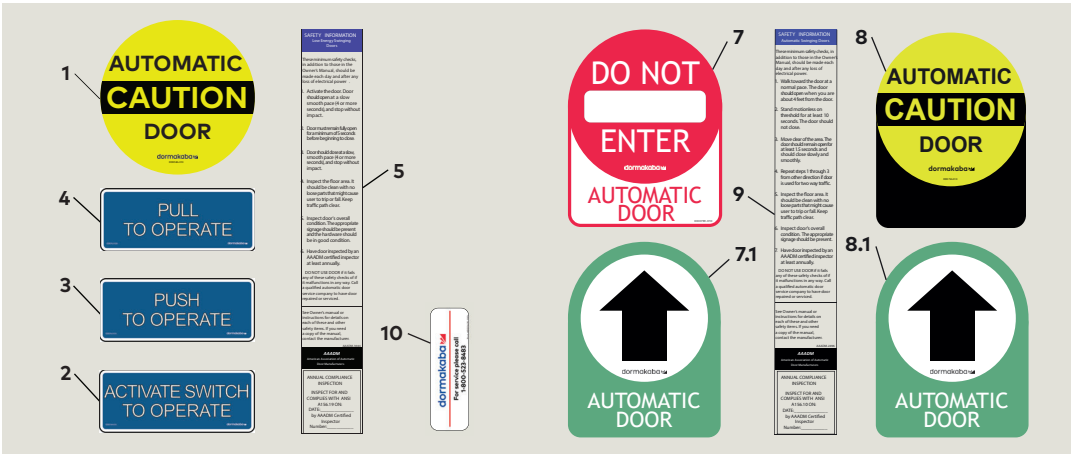
1 ED250 in-ground cement case

Fig. 5.6.1 (2) ED250 in-ground cement case assemblies



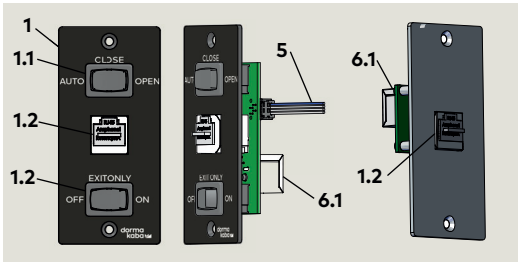
1 DD0586-010
2 DD0758-010
3 DD0762-010
4 DD0762-020
6 Safety Information label, low energy
7 Side 2, DD0739-020
7.1 Side 1, DD0739-010
8 Side 1, DD0756-010
8.1 Side 2, DD0756-020
9 Safety Information label, full energy
10 Label, Service call DD3425-010

Fig. 5.6.2 Kit, ED operator labels DK3137-130



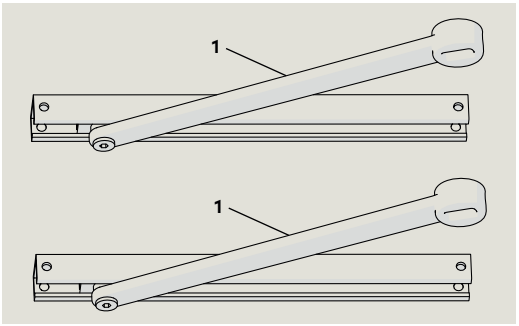
1 Mode switch panel DX4604
1.1 Mode switch
1.2 Comm. port for dormakaba handheld
1.3 Exit Only switch
5 Cable, 10'
6 RJ45 communication cable DX4662
-001, 3' [914]
-002, 10' [3050]
-003, 20' [6096]

Fig. 5.6.3 Mode switch, RJ45 panels



1 Offset pivot arm Double doors:
2 1 1/2" PVC pipe, 2 feet long
3 PVC reducer coupling for 2 3/8" case hole

Fig. 5.6.4 Arm and track



2 Communication (sync) cable 80" [2020] DX3485-030
3 115 Vac power cable 11' [3400], DX3484-030
8 Key switch panel DX4604-21C
9 Key switch panel DX4604-11C

Fig. 5.6.5 Optional key switch panels

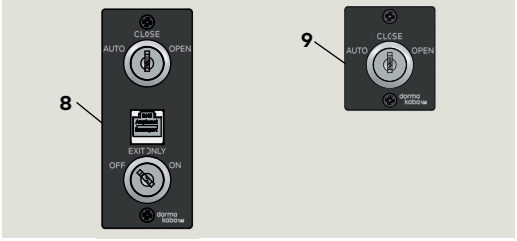


Fig. 5.6.6 (2) Grounding kit, ED250 PCB bracket assembly, DK3137-010

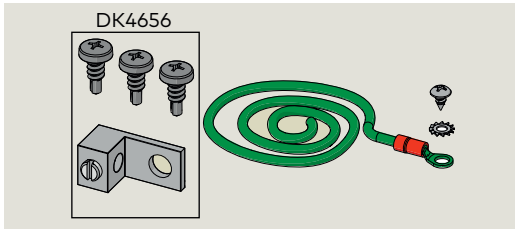


Fig. 5.6.7 RJ45 communication cable

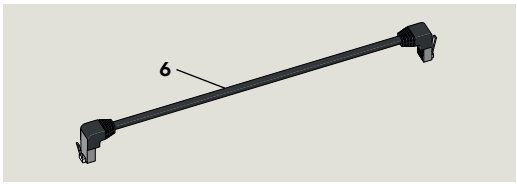


Fig. 5.6.8 In ground pair conduit install kit

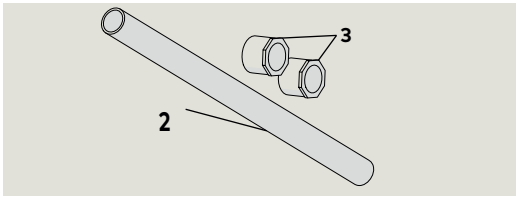


Fig. 5.6.9 Communication (sync) cable

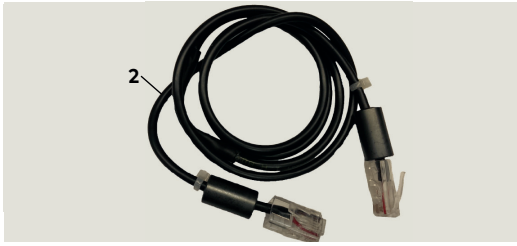
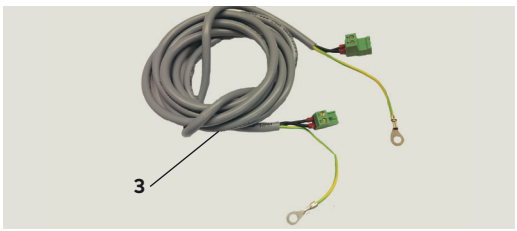


Fig. 5.6.10 115 Vac power cable



6 ED250 in-ground cement case assembly

6.1 ED250 in-ground cement case overall assembly

Fig. 6.1.1 ED250 in-ground case dimensions

1 Cement case
2 Cover
3 Gasket

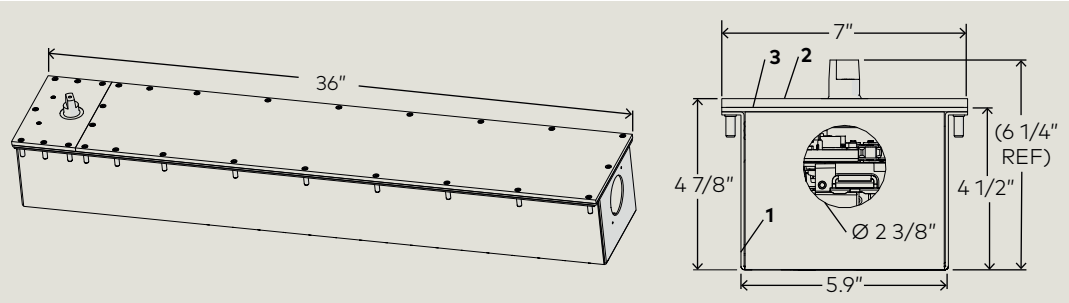
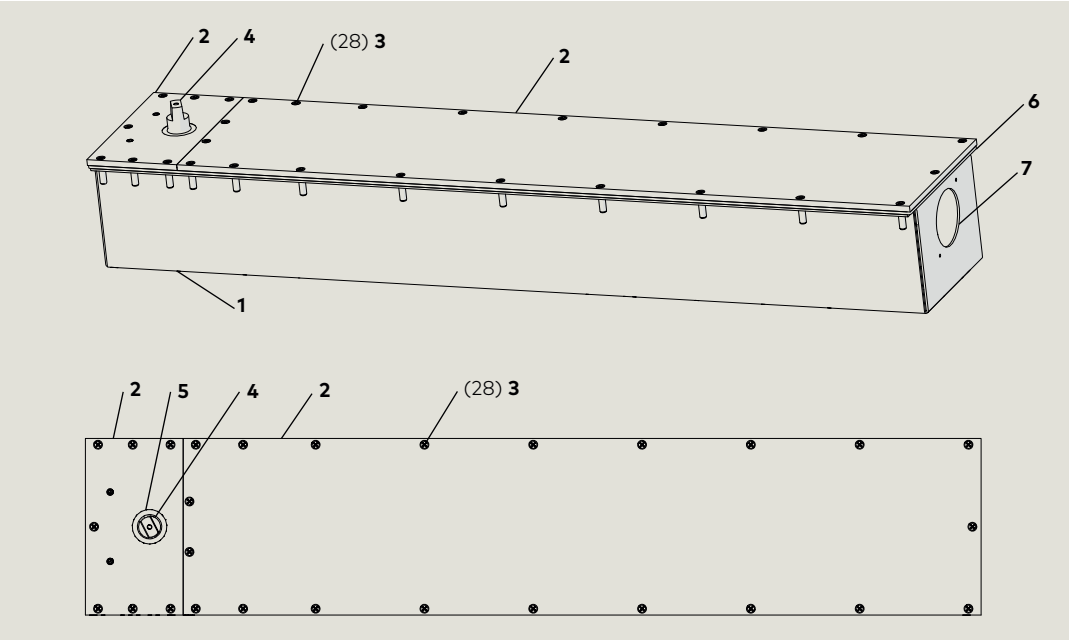


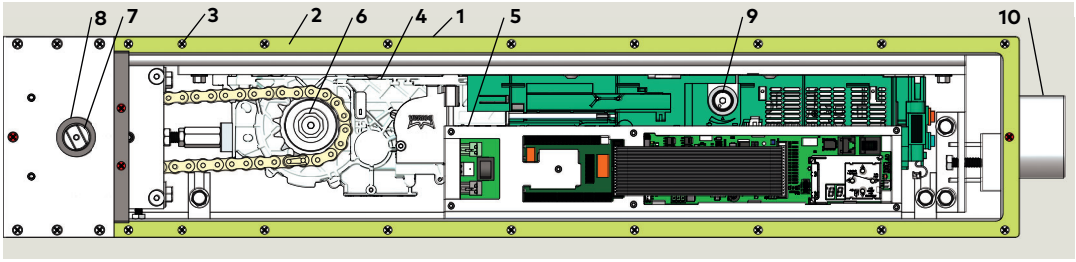
Fig. 6.1.2 ED250 in-ground case cover and fasteners

1 In-ground case
2 Covers
3 8-32 x 3/4" PFHMS (Philips flat head machine screw)
4 Center bearing shaft, ED250-IG
5 Shaft seal
6 Gasket, 1/8" thick
7 2 3/8" hole for PVC reducer coupling



6.2 ED250 in-ground cement case internal assembly

Fig. 6.2.1 ED250 in-ground case component view



1 ED250 in-ground case
2 Gasket, 1/8" thick
3 8-32 x 3/4" FHMSPH (flat head machine screw, Phillips)
4 ED250 operator
5 PCB bracket assembly
6 Operator drive axle
7 Center bearing shaft
8 Shaft seal
9 Spring tension adjustment
10 PVC reducer fitting

Fig. 6.2.2 ED250 operator, IG

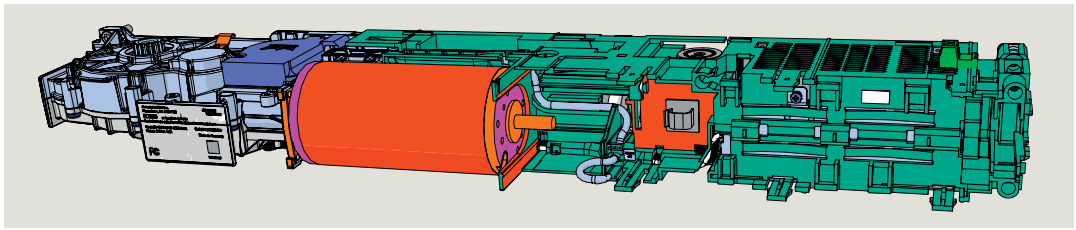
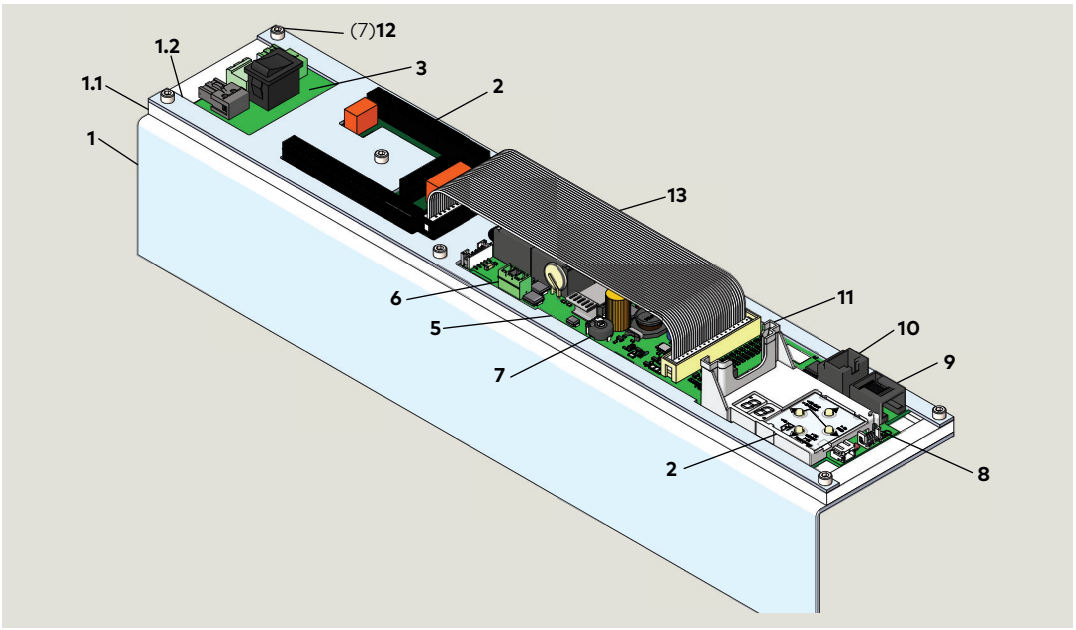


Fig. 6.2.3 ED250 PCB bracket assembly



1 PCB bracket
1.1 PCB plate
1.2 PCB plate cover
2 Accessory connection terminal board
3 Power off/on switch and 115 Vac connection board
3.1 115 Vac terminal block and connection board
4 Keypad and 2 digit display
5 Circuit board
6 Braking circuit plug receptacle
7 Power fail closing speed potentiometer
8 Mode switch connector
9 Double door operator to operator communication cable port
10 dormakaba handheld communication port
11 Upgrade card slot
11.1 Upgrade card socket
12 1/4 x 1/2" x 1/2" SHCS
13 Ribbon cable

Fig. 6.2.4 Operator communication connectors, upgrade card slot

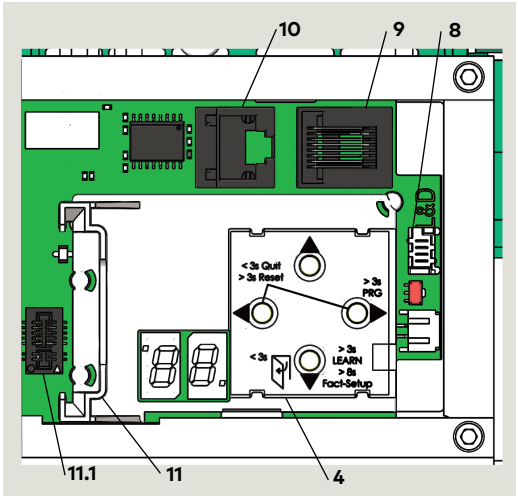
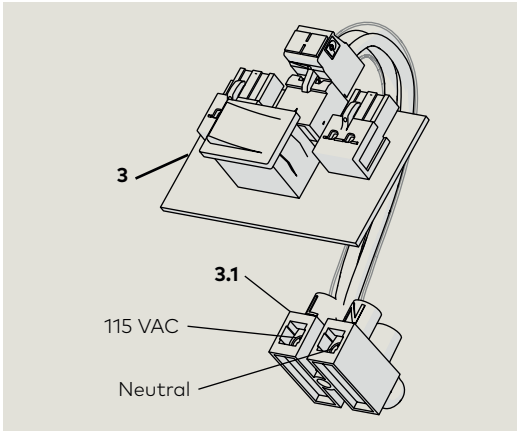


Fig. 6.2.5 115 Vac terminal block and wire harness assembly



7 Technical data

7.1 ED250 Technical data

7.1.1 Required operating conditions.

Ambient temperature	5 to 122 °F
Suitable for dry rooms only	Relative air humidity: 93% maximum, non-condensing
Power supply	115 Vac ±10%, 50/60 Hz 6.6 A maximum
Branch circuit protection (provided by others)	15 A maximum, dedicated branch circuit
Protection class	NEMA 1
Power wiring: black, white, bare copper (ground)	12 AWG
Operating noise	Maximum 50 db(A)

7.1.2 General specifications.

In ground cement case (W x H x D)	36" x 4 7/8" x 7" 36" is minimum case length.
Internal power supply available for external accessories	24 Vdc ± 5%, 1.5 A
Maximum door opening angle	95 to 110° depending on installation type

7.1.3 Inputs

Wire size Connector plug screw size		14 AWG 1/16"	
Activation inputs	**X4***	Interior, exterior	N. O. contact
Safety sensors	**X5**	Swing, approach sides	
Night-bank (intercom system)	**X10** 57, 57a	8-24 Vdc/ VAC +5%	
Night-bank (key switch)	**X1** 35, 3	**d2** parameter	Configure for N.O. or N.C. contact
Deactivation of drive function	**X6** 4, 4a	**d1** parameter	Configure for N.O. or N.C. contact

***X4**, terminal board numbers, reference Chapter 11. Parameters, reference Chapter 20.

7.1.4 Outputs

Maximum wire size Connector plug screw size		16 AWG 1/16"	
Door status	**X7** 97,98,99	**Sr** parameter Door closed Door open Door closed, locked	Com, N.O., N.C. contacts

7.1.5 Integrated functions.

Hold open time:		
Automatic opening	**dd** parameter	0 to 30 s
NIght / bank	**dn** parameter	0 to 30 s
Manual opening	**do** parameter	0 to 30 s
Door blocking behavior	**hd** parameter	Automatic, manual door modes
Electric strike delayed opening for locking mechanism	**Ud** parameter	0 to 4 s
Locking device feedback **X3** 43, 3	Motor lock	
Wind load control, maximum	**Fo, Fc** parameters	33.7 lb f 150 N
Power fail closing speed	Chapter 19	Adjustable with potentiometer
LED status indicators Service manual	Green Red Yellow	24 VDC power Error codes Service interval
Program and Exit Only switches	Chapter 10	Auto, Close, Open Exit only; Off, On
User interface	Chapter 10	4 button keypad, 2 digit display
Slot for dormakaba upgrade cards	Chapter 26	Extension of range of functions
Interface updat	Appendix C	Firmware update
TMP, temperature management program Service manual	Overload protection	
IDC, initial drive control	Driving phase optimization	
Cycle counter	**CC** parameter	0 to 1,000,000
Power assist function	**hA, hF, hS** parameters	Drive support for manual opening of door
Push & go function	**PG** parameter	Auto opening of door at 4° open

7.2 Operating specifications

7.2.1 ED250

Maximum power consumption	240 watt	
Automatic opening torque	Minimum 20 N m 14.8 lbf · ft	Maximum FE: 150 N m 110.6 lbf ft LE: 67 Nm 49.4 lbf ft
Automatic closing torque	Minimum 20 N m 14.8 lbf · ft	Maximum FE: 150 N m 110.6 lbf ft LE: 67 N m 49.4 lbf ft
Manual closing torque	Minimum 6 N m 19.2 lbf ft	Maximum 70 N m 52 lbf ft
Maximum door weight	Reference Chapter 2.	
Door width. Note 1	36" [914] minimum to 48" [1219].	
Door width for fire protection. Note 1	36" [914] minimum to 48" [1219]	
Maximum opening speed, °/s Note 2	FE: 60 LE: 27	
Maximum closing speed, °/s Note 2	FE: 60 LE: 27	

Note 1
Minimum door width based on minimum in-ground case length of 36".

Note 2
Speeds automatically limited depending on door weight, set during learn cycle.

8 Operational mode overview

8.1 ED250 door closer modes

8.1.1 Automatic mode.
Door closer mode parameter **hd**=0.
Designed for automatic access following pulse generation by a knowing act device.

8.1.2 Manual mode.
Door closer mode parameter **hd**=1.
Designed for doors primarily accessed manually.

8.1.3 Power assist.

- Available only in door closer mode (**hd**=1), manual opening. Drive support is automatically adjusted to operator size.
- Parameter **hA** sets door activation angle for power assist function. Once angle reached, drive support provides easier manual opening of the door.
- Parameter **hF,** power assist function. Parameter values greater than 0 provides additional opening force.
- Parameter **hS**, power assist function support for door in closed position.

TIPS AND RECOMMENDATIONS

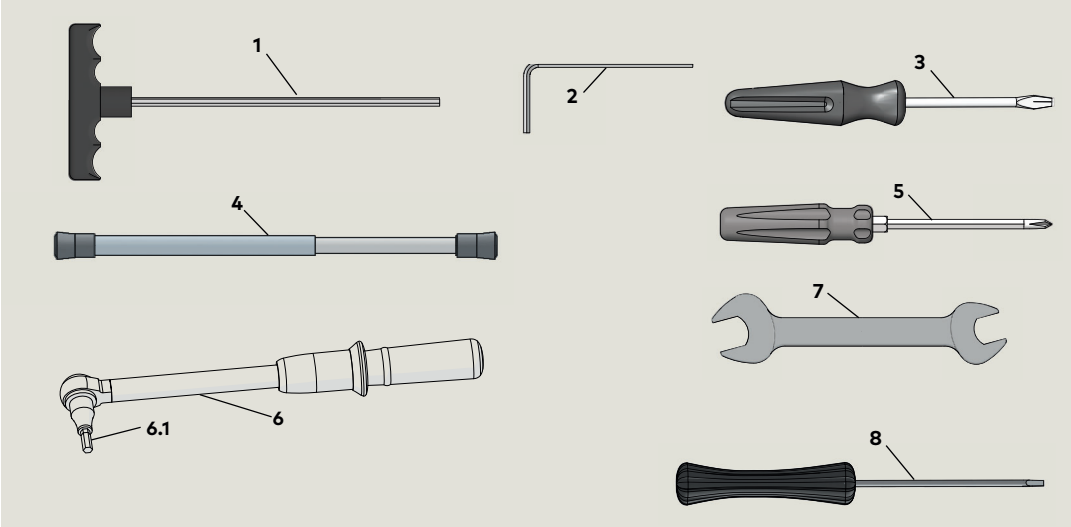
Parameter descriptions can be found in Chapter 20, Parameters and in Appendix A – Parameter detail.

9 Recommended tools and torque chart

9.1 Recommended tools

1 T-handle hex key, 5 mm
2 Hex keys, 2.5 mm, 3 mm, 5 mm, 5/32"
3 Screwdriver, flat blade
4 Door pressure gauge, 0 to 35 ft - lbf
5 Screwdriver, Phillips, #2, #3
6 Torque wrench, 3 to 50 ft lb min.
6.1 Metric hex key sockets
7 Open end wrench, 13 mm
8 Screwdriver, flat blade, M2 (1/16 to 3/32")

Fig. 9.1.1 Recommended tools



9.2 Standard tightening torque

9.2.1 Standard tightening torque.

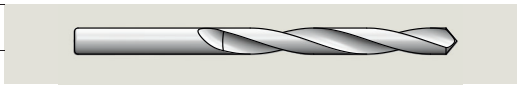
Fastener size	ft lb
M5	3.7
M6	7
M8	17
M10	34
M12	58

9.3 Drill bits

9.3.1 Drill bit sizes for fasteners.

Fastener	Drill bit size	
#10 wood screw	Hardwood 9/64"	Softwood 1/8"
#12 wood screw	Hardwood 5/32"	Softwood 9/64"
#14 wood screw	Hardwood 11/64"	Softwood 5/32"
1/4 -20 metal self tapping screw	7/32"	
10-24 barrel nut	5/32"	

Fig. 9.3.1 Drill bit



10 User interface

10.1 Overview

1 2 digit display
2 4 button keypad
3 PCB assembly

Fig. 10.1.1 ED250 in-ground cement case

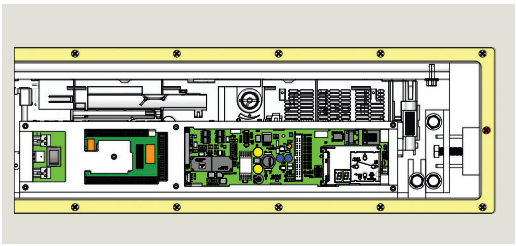
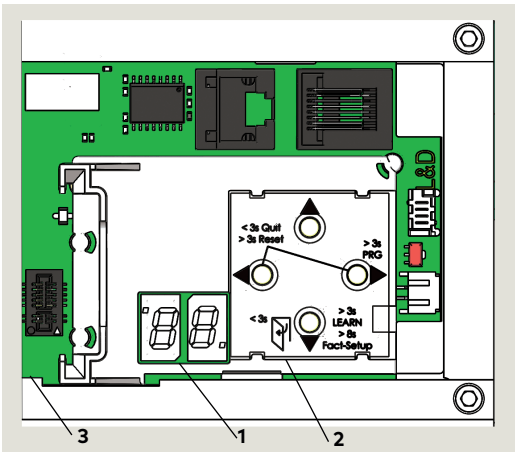


Fig. 10.1.2 Operator keypad and display



10.1.1 Operator user interfaces.

4 button keypad and 2 digit display:

- 4 button keypad to select, input and adjust door parameter values.
- 2 digit display; parameter values, error and information codes.

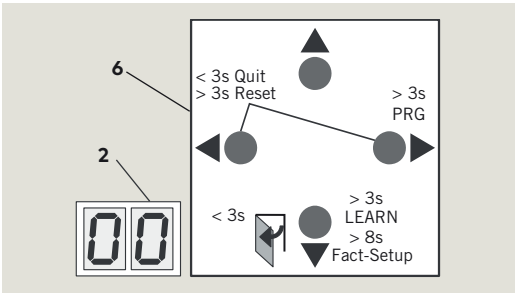
10.2 4 button keypad and display

2 2 digit display
6 Button legend

10.2.1 4 button keypad.

4 button legend can be orientated so buttons have same function and position regardless of operator orientation. Button legend can be removed and rotated.

Fig. 10.2.1 Keypad and display



10.2.2 4 button keypad functions.

▶	Right button	1. Access parameter menu, press button > 3 seconds. 2. Edit selected parameter. 3. Save changed value.
◀	Left button	1. Cancel parameter edit process. 2. Exit parameter menu, press button < 3 s.
◀▶	Both buttons together	1. Acknowledge errors, press both buttons < 3 s. 2. Reset, press both buttons > 3 s.
▲	Up button	1. Scroll through parameters and error messages. 2. Increase parameter value.
▼	Down button	1. Scroll through parameters and error messages. 2. Reduce parameter value. 3. Opening pulse, press button < 3 s. 4. Learning cycle, press button > 3 s. 5. Reset with factory setting, press button > 8 s (program switch CLOSE). 6. Identify operator orientation for display.

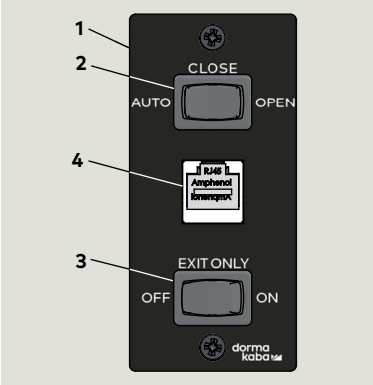
TIPS AND RECOMMENDATIONS

Keypad arrow symbols
<, "less than" symbol
>, "greater than" symbol

<3s: momentarily press button.
>3s: Press button greater than 3 seconds.

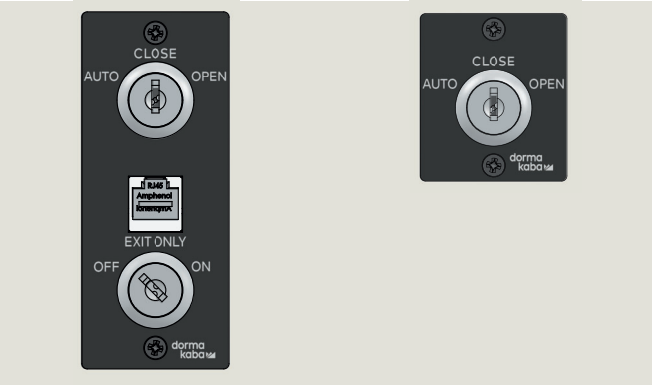
10.3 Mode switch panel

Fig. 10.3.1 Mode switch panel



1 Mode switch panel
2 Mode switch, three position
3 Exit Only switch, two position
4 Comm port for service

Fig. 10.3.7 Optional key switch panels



10.3.1 Mode switch positions.

Fig. 10.3.2 Auto

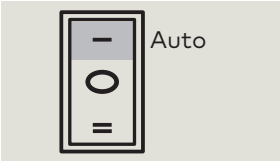


Fig. 10.3.3 Close

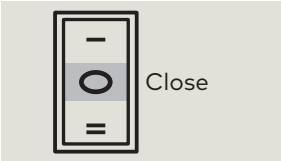
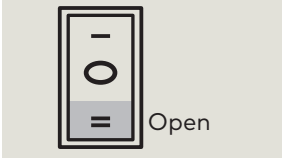


Fig. 10.3.4 Open



10.3.2 Exit Only switch positions.

Fig. 10.3.5 On

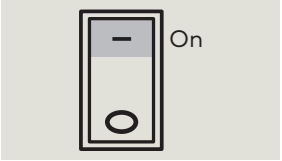
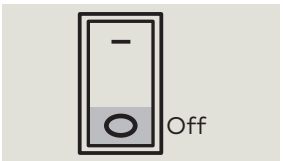


Fig. 10.3.6 Off



10.3.3 Mode switch position descriptions.

Auto

1. Door opens automatically when one of the activators is actuated or triggered.
   Door closes on expiration of adjustable hold open time with no activators or actuators triggered.
2. With knowing act device actuation (Para. 10.3.5), door will remain at full open position for not less than 5 seconds.
3. With push/pull actuation of door (Para. 12.2).
   Door will remain at full open position for not less than 3 seconds.

Close

1. Door will remain closed, or if door is open door will close.

Open

1. Door opens automatically and remains open.

10.3.4 Exit Only switch position descriptions.

On

1. Exterior activation sensor or knowing act device disabled when door fully closed.
- Only interior activation sensor or knowing act device will enable door opening.

Off

1. Both interior and exterior activation sensors or knowing act devices will enable door opening.

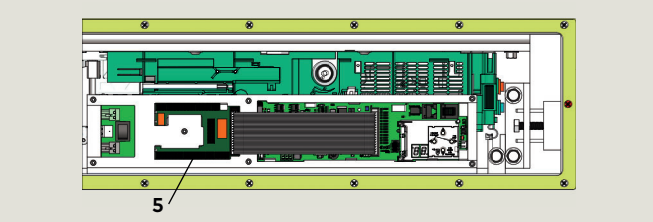
10.3.5 Knowing act: ANSI/BHMA standard A159.19 definition.

Consciously initiating the powered opening of a low energy door using acceptable methods including:

- Push plates.
- Fixed non-contact switches.
- Action of manually opening (pushing or pulling) a door.
- Controlled access devices such as keypads, card readers, and key switches.

10.4 Operator status LEDs

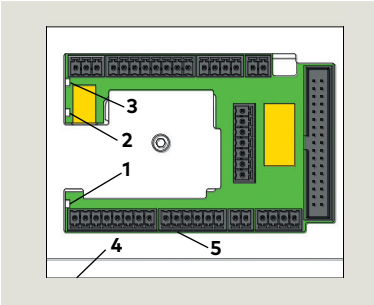
Fig. 10.4.1 ED250 in ground case assembly



5 Accessory terminal board

Fig. 10.4.2 Operator status LEDs

1 Red LED
2 Yellow LED
3 Green LED
4 PCB assembly
5 Accessory terminal board



10.4.1 Operator status LEDs.

In ground case cover must be opened to view LEDs.

1. Red LED
   Blinking codes are used to indicate "In__" information (system status or operating conditions) or certain error codes "E__".
2. Yellow LED
   Maintenance interval indicator. When illuminated, an indication the operator system has to be serviced.
3. Green LED

- On, internal 24 Vdc power is On.
- Off, internal 24 Vdc power is Off.

TIPS AND RECOMMENDATIONS

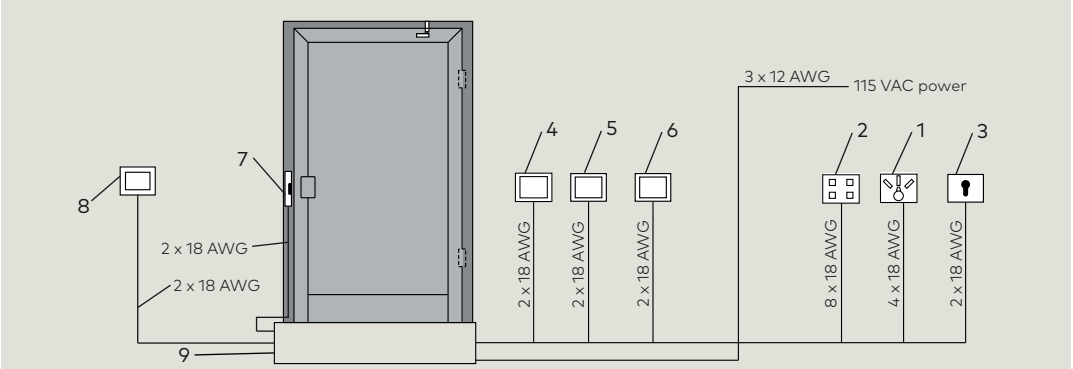
Details on LED status codes and maintenance intervals can be found in Appendix B – Troubleshooting.

11 System accessories

11.1 System accessory electrical connections, in-ground cement case

1 External Mode switch, mechanical
2 External Mode switch, electronic
3 Key switch
4 Pushbutton, night / bank
5 Pushbutton, interior
6 Pushbutton, exterior
7 Door locking device
8 Manual release switch
9 ED250 in-ground cement case

Fig. 11.1.1 Electrical connections, single door



11.2 System accessories

11.2.1 Overview

ED250 operators are normally used with system accessories available from dormakaba USA, Inc. or other manufacturers.

11.2.2 Accessory electrical installation.

Electrical interfaces from system accessories used with ED250 in ground operator must be planned for. This includes routing of wiring from accessories to in-ground cement case.

11.2.3 System accessories, other manufacturers.

dormakabakaba USA, Inc. cannot guarantee compatibility for other manufacturer's accessories. If any of these accessories are used despite this caution, the operator's full range of functions may be unavailable or the devices may not work properly.

WARNING

Damage to ED250 operator or to connected device is also possible!

11.2.4 Power for accessories.

24 Vdc, 1.5 A (36 watts) is available from the operator for external devices and accessories. This supply has overcurrent protection. If additional power is required an external power supply must be used.

11.2.5 Miscellaneous accessories.

1. Door status display, red, green.

11.2.6 Activators

Typical activators:
1. Pushbuttons, key switches
2. Radio systems
3. Smoke detectors
4. Access control systems
5. Telephone systems
6. Intercoms

TIPS AND RECOMMENDATIONS

Refer to Paragraph 7, Technical data for electrical interface requirements.

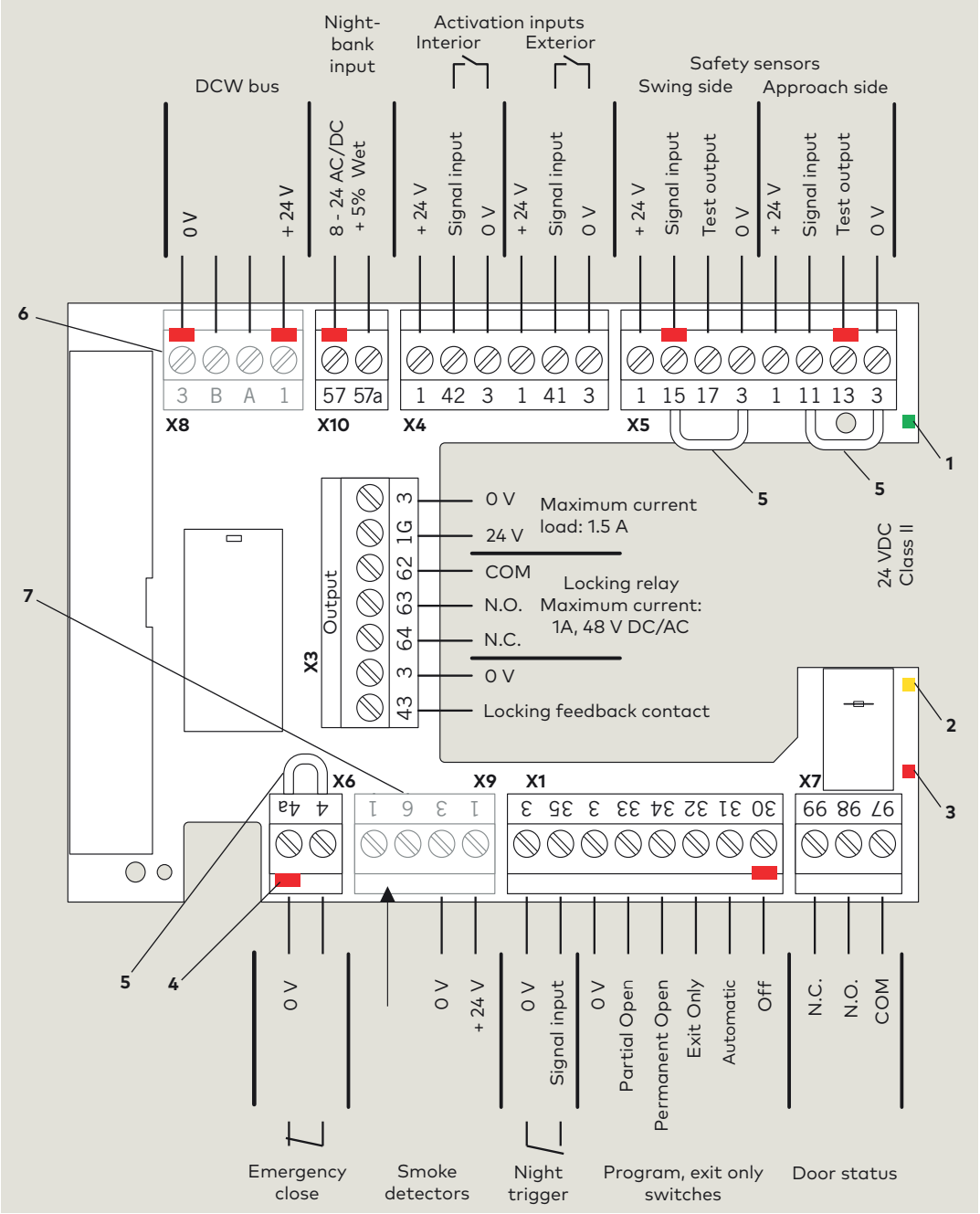
11.2.7 Locking devices.

Typical locking devices:
1. Electric strike plates.
2. Electromagnetic locks.
3. Electric locks.

To insure that operator and locking device work safely when connected together, locking device must comply with following:
1. Operating voltage, power supply from operator, 24 Vdc, ±5 %.
2. Operating voltage, external power supply, 48 V DC/ AC maximum.
3. Locking device relay contact, maximum load, 1 A.
4. Electric strike plate duty factor, 30% minimum.
5. Motor lock duty factor, 100%.

11.3 ED250 terminal board interfaces

Fig. 11.3.1 Terminal board electrical connections



1 Green LED (Para. 10.4)
2 Yellow LED (Para. 10.4)
3 Red LED (Para. 10.4)
4 Key (red insert) location in socket. Assigned plug has tab in same location broken off.
5 Jumpers, factory installed at following terminals:
- 4 and 4a
- 15 and 3*
- 11 and 3*

* Remove jumpers if safety sensors installed.

6 DCW upgrade card plug included in card scope of delivery.
7 Fire protection upgrade card plug included in card scope of delivery.

TIPS AND RECOMMENDATIONS

- It is recommended that system accessory wiring connections to terminal board be made after ED250 operator is commissioned.

12 ED100/ED250 door signage

12.1 Full energy operator (ANSI/BHMA A156.10)

12.1.1 Overview

Signage and warnings are specified in ANSI /BHMA A156.10, American National Standard for Power Operated Pedestrian Doors, paragraph 11.

12.1.2 Door, one way traffic.

1. Arrow and AUTOMATIC DOOR, one side of decal (Fig. 13.1.1).
- Shall be visible from approach side of a swinging door, mounted on door at a height of 50" ± 12" from floor to centerline of sign.

2. DO NOT ENTER and AUTOMATIC DOOR, one side of decal (or separate decal for solid doors - DD0739-020).
- Shall be visible from non-approach side of door that swings towards pedestrians attempting to travel in wrong direction.

12.1.3 Door, two way traffic.

1. Arrow and AUTOMATIC DOOR, one side of decal.
- Shall be visible from approach side of a swinging door, mounted on door at a height of 50" ± 12" from floor to centerline of sign.

2. CAUTION AUTOMATIC DOOR, one side of decal.
- Swinging doors serving both egress and ingress shall have a "CAUTION AUTOMATIC DOOR" sign visible from swing side of door.
- Sign shall be mounted on door at a height of 50 ± 12" from floor to centerline of sign.

12.1.4 Knowing act door.

1. ACTIVATE SWITCH TO OPERATE decal.
- Knowing act doors shall have signage stating "ACTIVATE SWITCH TO OPERATE" on side of door having knowing act switch or other knowing act device.

Fig. 12.1.1 One decal, approach, non-approach

Fig. 12.1.2 One decal, non-swing side, swing side

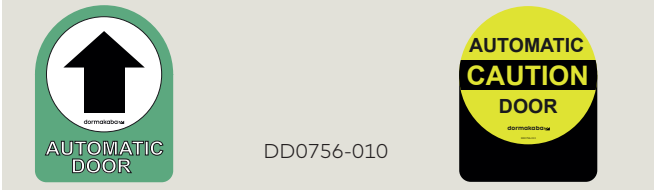


Fig. 12.1.3 ACTIVATE SWITCH TO OPERATE decal

12.2 Low energy operator (ANSI/BHMA 156.19)

12.2.1 Overview

Signage and warnings are specified in ANSI /BHMA A156.19, American National Standard for power assist and low energy power operated doors.

12.2.2 All low energy doors.

1. AUTOMATIC CAUTION DOOR decal.

- All low energy doors shall be marked with signage visible from both side of door with the words "AUTOMATIC CAUTION DOOR".
- Signs shall be mounted 50" ± 12" from floor to centerline of sign.

12.2.3 Knowing act switch used to initiate door operation.

1. ACTIVATE SWITCH TO OPERATE decal.

- When a knowing act device is used to initiate operation of door operator, door shall be provided with sign on each side of door where switch is operated with message "ACTIVATE SWITCH TO OPERATE".

12.2.4 Push/Pull used to initiate door operation.

1. PUSH TO OPERATE, PULL TO OPERATE decals.

- When push/pull is used to initiate operation of door operator, doors shall be provided with the message "PUSH TO OPERATE" on push side of door and "PULL TO OPERATE" on pull side of door.

Fig. 12.2.1 AUTOMATIC CAUTION DOOR decal

DD0586-010

Fig. 12.2.2 ACTIVATE SWITCH TO OPERATE decal

DD0758-010

1 Activate Switch to Operate DD0758-010

Fig. 12.2.3 PUSH TO OPERATE, PULL TO OPERATE decals

DD0762-010

DD0762-020

2 Push to Operate DD0762-010

3 Pull to Operate DD0762-020

12.3 Door signage, low energy swing doors (ANSI/BHMA 156.19)

12.3.1 Single door

Fig. 12.3.1 Activate Switch To Operate

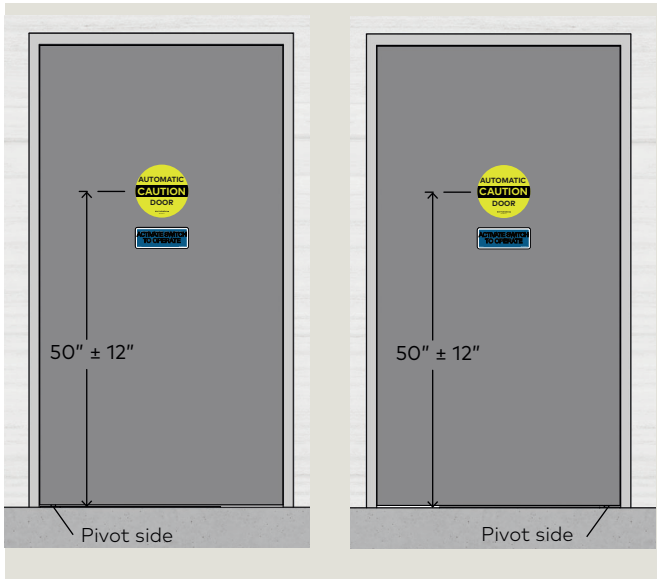
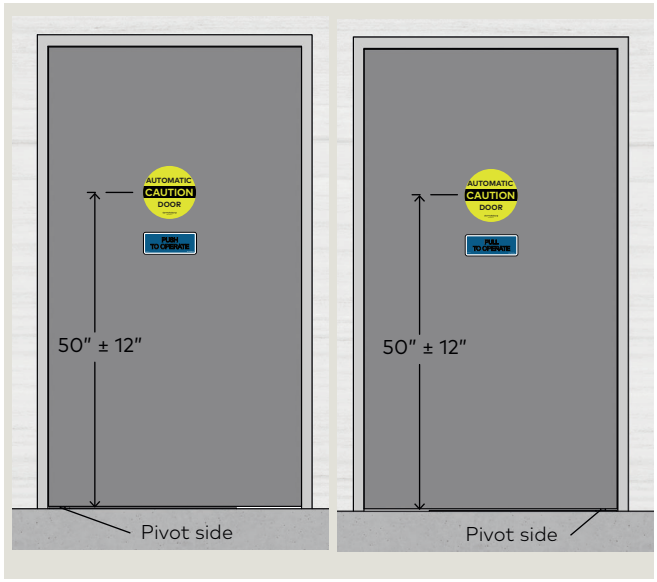


Fig. 12.3.2 Push/Pull

Push To Operate Pull To Operate



12.3.2 Double doors

Fig. 12.3.3 Activate Switch to Operate

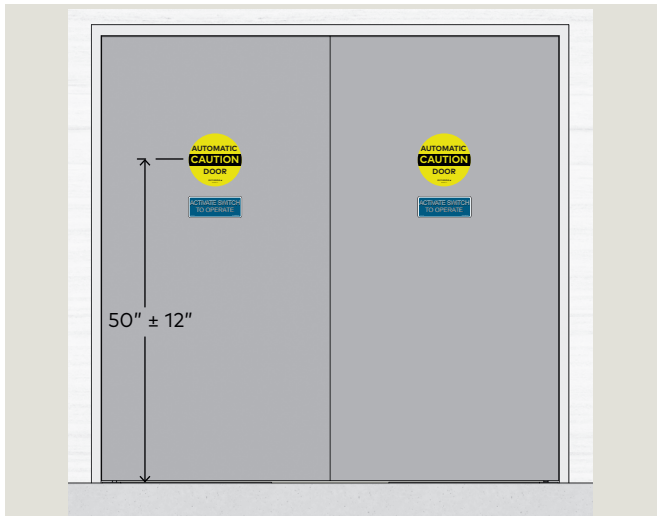


Fig. 12.3.4 Opposite side, no device

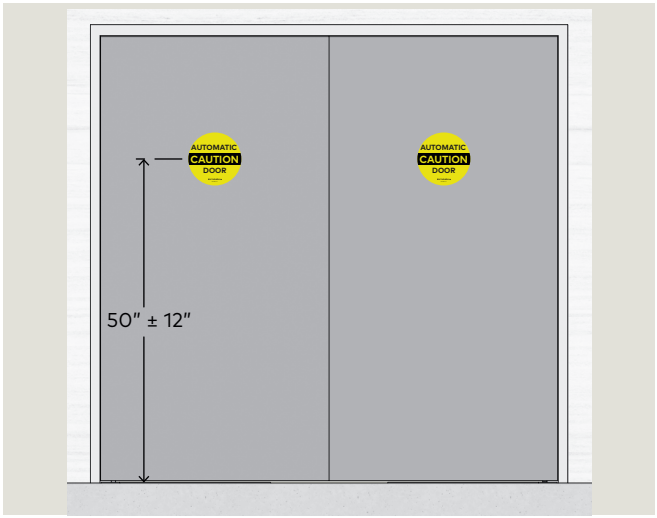


Fig. 12.3.5 Push/Pull, Pull side

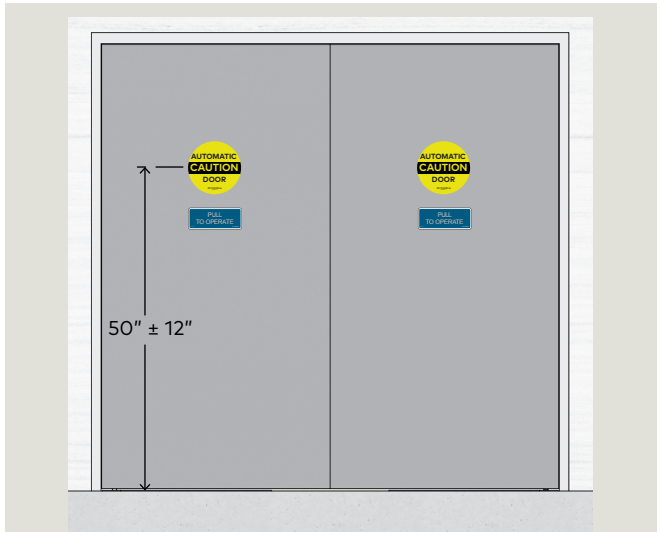
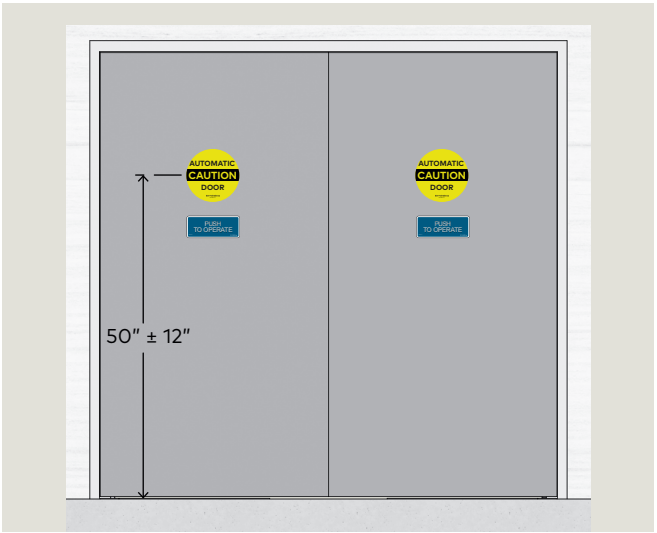


Fig. 12.3.6 Push/Pull, Push side



12.4 Door signage, full energy single swing doors (ANSI/BHMA A156.10)

Fig. 12.4.1 One way traffic

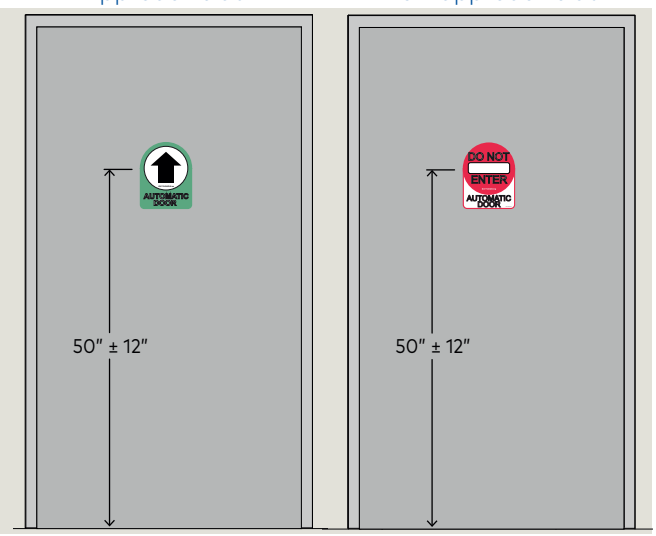
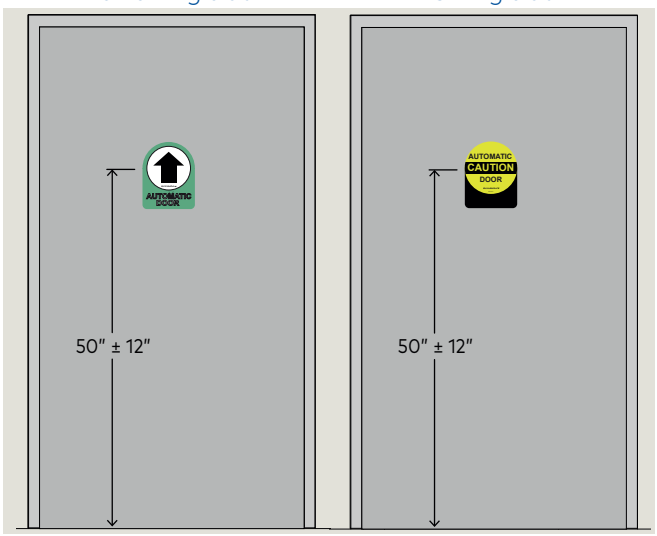


Fig. 12.4.2 Two way traffic



12.5 Door signage, full energy double swing doors (ANSI/BHMA A156.10)

Fig. 12.5.1 One way traffic, approach side

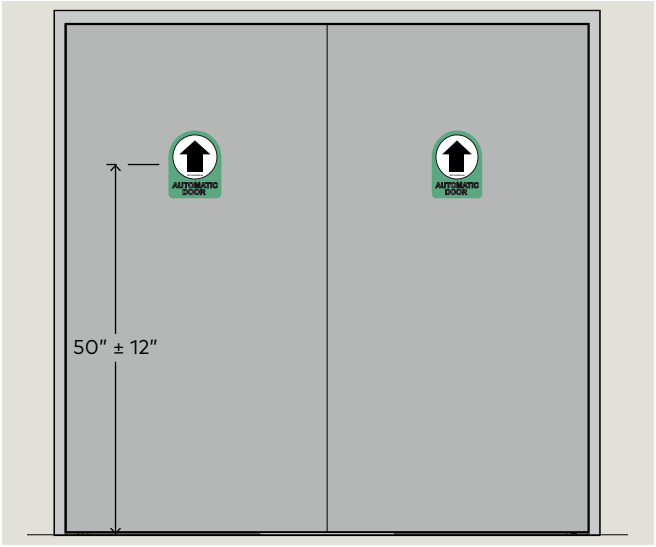


Fig. 12.5.2 One way traffic, non approach side

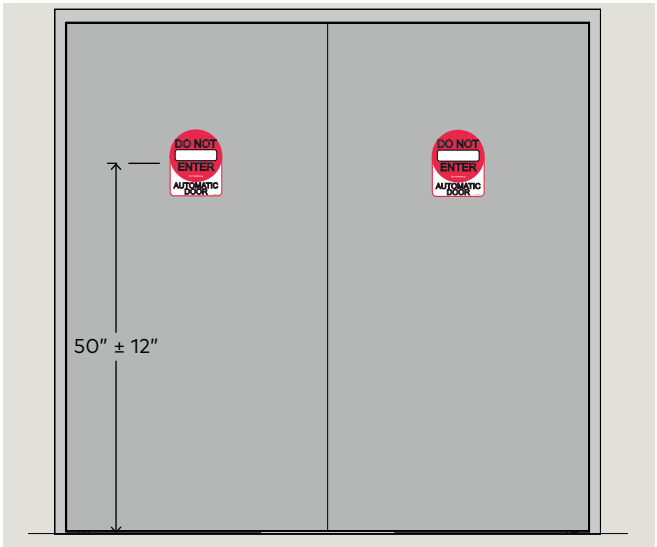


Fig. 12.5.3 Two way traffic, non swing side

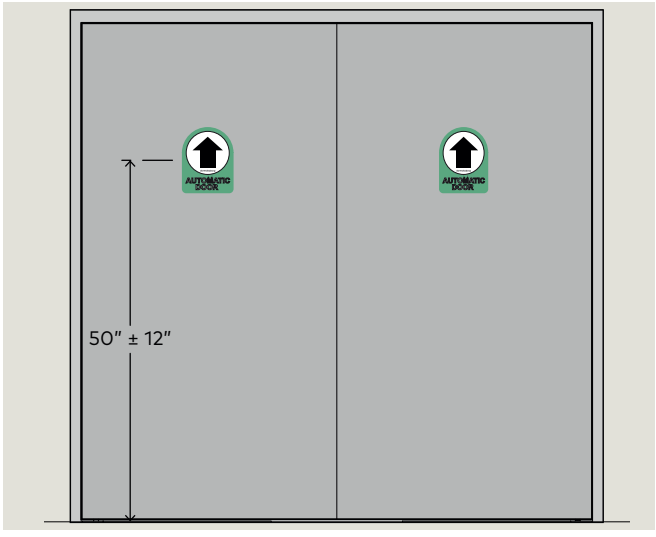
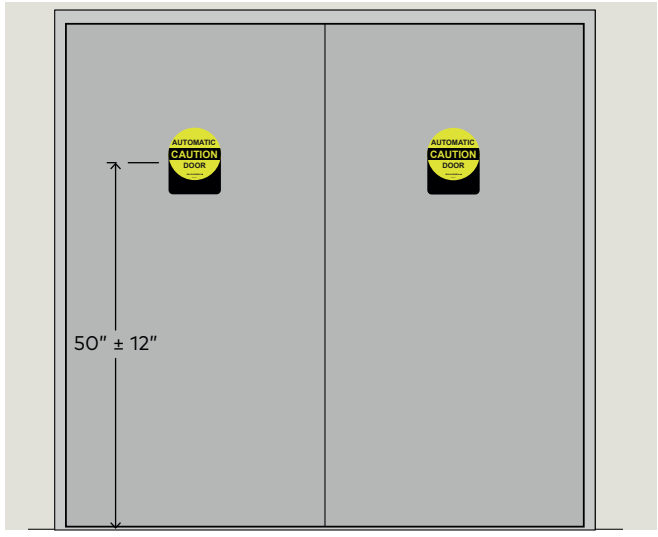


Fig. 12.5.4 Two way traffic, swing side



12.6 Safety information label, full energy swing doors (ANSI BHMA A156.10)

12.6.1 Full energy automatic swing door safety information label.
This AAADM label (Fig. 12.6.1) outlines safety checks that should be performed daily on a swing door controlled by an ED250 OHC operator configured for full energy operation (ANSI/BHMA 156.10).

12.6.2 Safety information label location.
Place label in a protected, visible location on door frame, near program switch panel if possible.

12.6.3 Annual compliance section of label.
This section of label is only completed on automatic swing doors that comply with ANSI/BHMA A156.10 standard and pass inspection by an AAADM certified dormakaba USA Inc. technician.

12.6.4 Additional annual compliance inspection labels.
Place additional labels (Fig. 12.6.2) over annual compliance inspection section of safety information label.

Fig. 12.61 Full energy safety information label

SAFETY INFORMATION
Automatic Swinging Doors

These minimum safety checks, in addition to those in the Owner's Manual, should be made each day and after any loss of electrical power.

1. Walk toward the door at a normal pace. The door should open when you are about 4 feet from the door.
2. Stand motionless on threshold for at least 10 seconds. The door should not close.
3. Move clear of the area. The door should remain open for at least 1.5 seconds and should close slowly and smoothly.
4. Repeat steps 1 through 3 from other direction if door is used for two way traffic.
5. Inspect the floor area. It should be clean with no loose parts that might cause user to trip or fall. Keep traffic path clear.
6. Inspect door's overall condition. The appropriate signage should be present.
7. Have door inspected by an AAADM certified inspector at least annually.

DO NOT USE DOOR if it fails any of these safety checks of if it malfunctions in any way. Call a qualified automatic door service company to have door repaired or serviced.

See Owner's manual or instructions for details on each of these and other safety items. If you need a copy of the manual, contact the manufacturer.

AAADM-2496

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American Association of Automatic Door Manufacturers

ANNUAL COMPLIANCE INSPECTION

INSPECT FOR AND COMPLIES WITH ANSI A156.10 ON:
DATE:_____
by AAADM Certified Inspector
Number:_____

Fig. 12.6.2 Annual compliance label, full energy

ANNUAL COMPLIANCE INSPECTION

INSPECT FOR AND COMPLIES WITH ANSI A156.10 ON:
DATE: _____
by AAADM Certified Inspector
Number: _____

12.7 Safety information label, low energy swing doors (ANSI BHMA A156.19)

12.7.1 Low energy swing door safety information label. This AAADM label (Fig. 12.7.1) outlines safety checks that should be performed daily on a swing door controlled by an ED250 OHC operator configured for low energy operation (ANSI/BHMA A156.19).

12.7.2 Safety information label location.

Place label in a protected, visible location on door frame, near operator power switch if possible.

12.7.3 Annual compliance section of label. This section of label is only completed on low energy swing doors that comply with ANSI/BHMA A156.19 standard and pass inspection by a AAADM certified dormakaba USA Inc. technician.

12.7.4 Additional annual compliance inspection labels. Place additional labels (Fig. 12.7.2) over annual compliance inspection section of safety information label.

Fig. 12.7.1 Low energy safety information label

SAFETY INFORMATION
Low Energy Swinging Doors

These minimum safety checks, in addition to those in the Owner's Manual, should be made each day and after any loss of electrical power.

1. Activate the door. Door should open at a slow smooth pace (4 or more seconds), and stop without impact.
2. Door must remain fully open for a minimum of 5 seconds before beginning to close.
3. Door should close at a slow, smooth pace (4 or more seconds), and stop without impact.
4. Inspect the floor area. It should be clean with no loose parts that might cause user to trip or fall. Keep traffic path clear.
5. Inspect door's overall condition. The appropriate signage should be present and the hardware should be in good condition.
6. Have door inspected by an AAADM certified inspector at least annually.

DO NOT USE DOOR if it fails any of these safety checks of if it malfunctions in any way. Call a qualified automatic door service company to have door repaired or serviced.

See Owner's manual or instructions for details on each of these and other safety items. If you need a copy of the manual, contact the manufacturer.

AAADM-3044

AAADM
American Association of Automatic Door Manufacturers

ANNUAL COMPLIANCE INSPECTION

INSPECT FOR AND COMPLIES WITH ANSI A156.19 ON:
DATE:_____
by AAADM Certified Inspector
Number:_____

Fig. 12.7.2 Annual compliance inspection label

ANNUAL COMPLIANCE INSPECTION

INSPECT FOR AND COMPLIES WITH ANSI A156.19 ON:
DATE: _____
by AAADM Certified Inspector
Number: _____

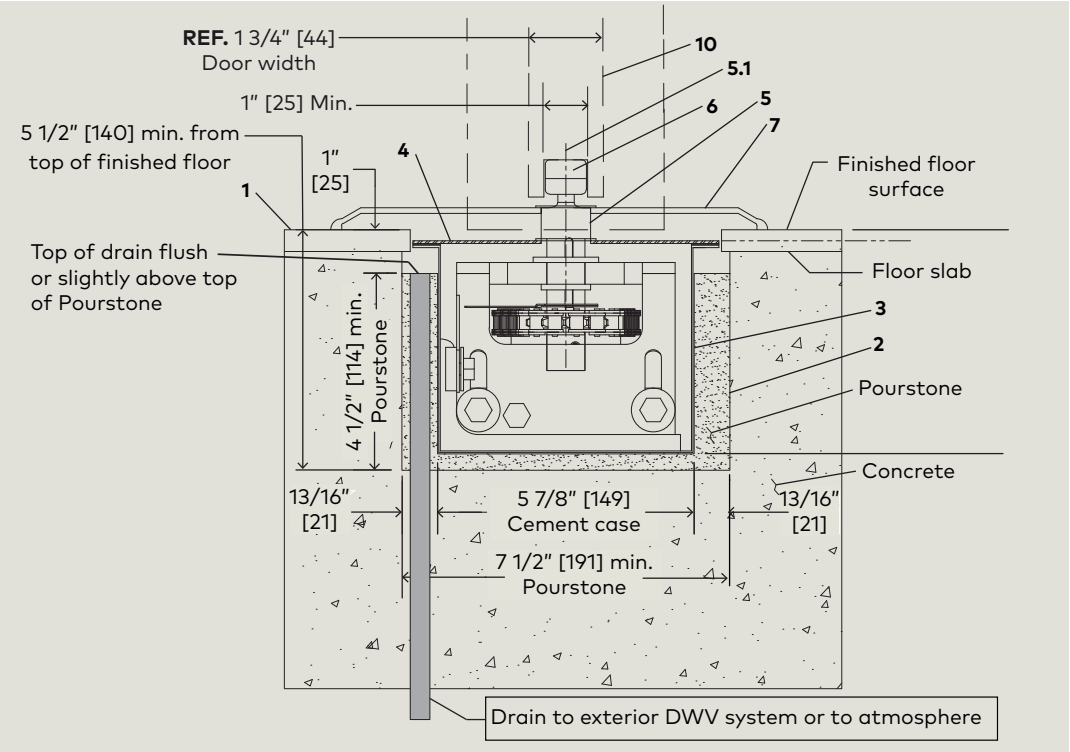
13 ED250 in ground installation templates

13.1 Center hung door

Notes

1. Refer to manufacturer's template for door leaf and bottom arm preparation.
2. Depth of excavation is 5 1/2" minimum below finished floor.
3. Spindle center must be plumb with top pivot.

Fig. 13.1.1 Center hung door side view



1 Finished floor surface
2 Blockout
3 Cement case
4 Cement case cover
5 Spindle
5.1 Spindle centerline
6 Center pivot arm
7 Threshold: Recommended minimum 1/2" [13] x 10" [254] (by others)
10 Door (aluminum door shown)

Fig. 13.1.2 Single door center hung

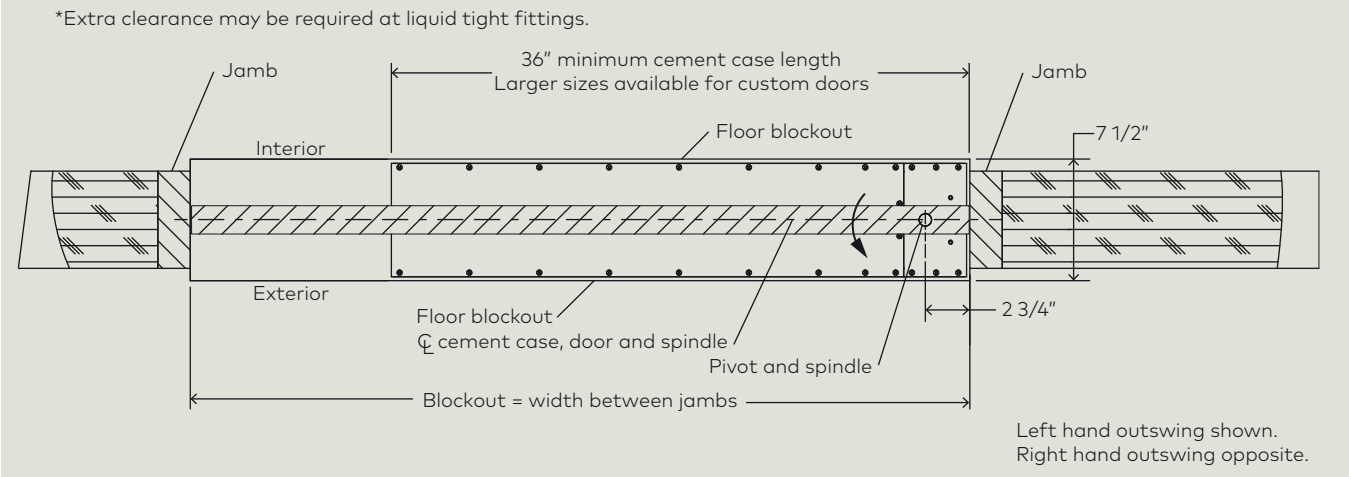


Fig. 13.1.3 Single door center hung front view

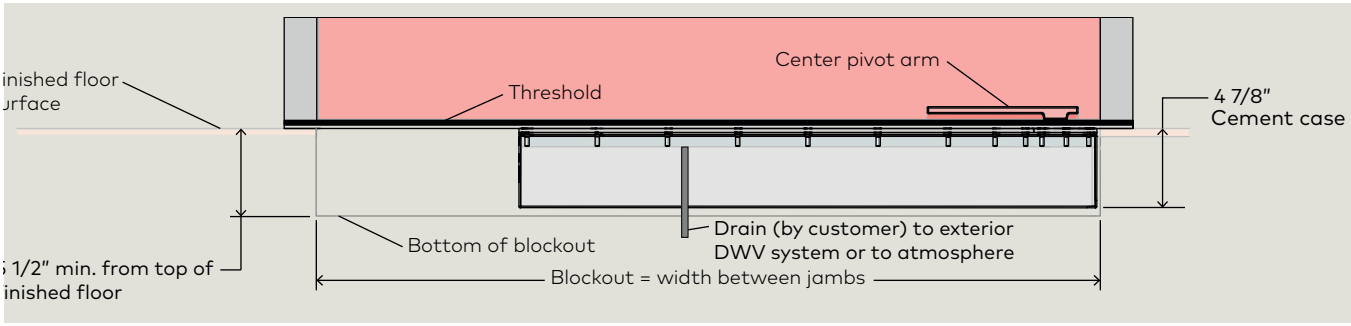


Fig. 13.1.4 Double door center hung

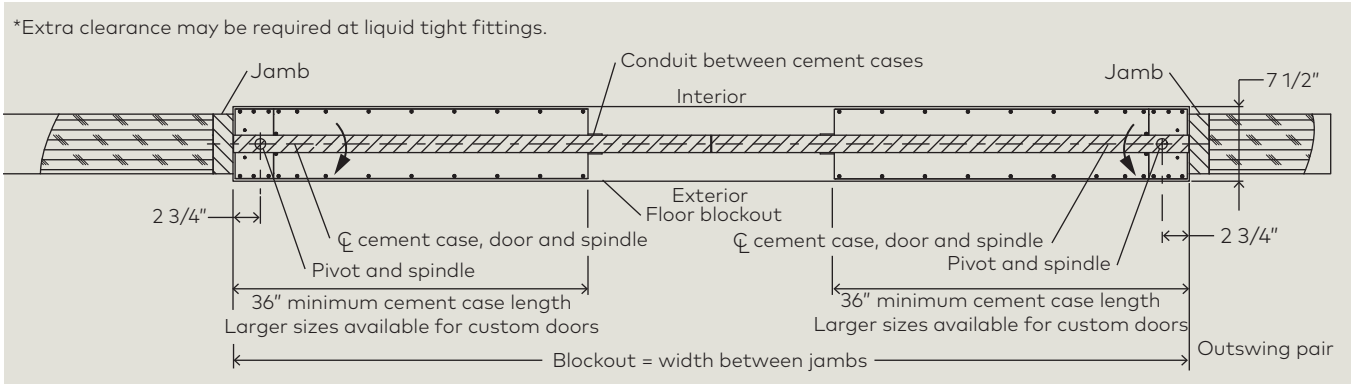
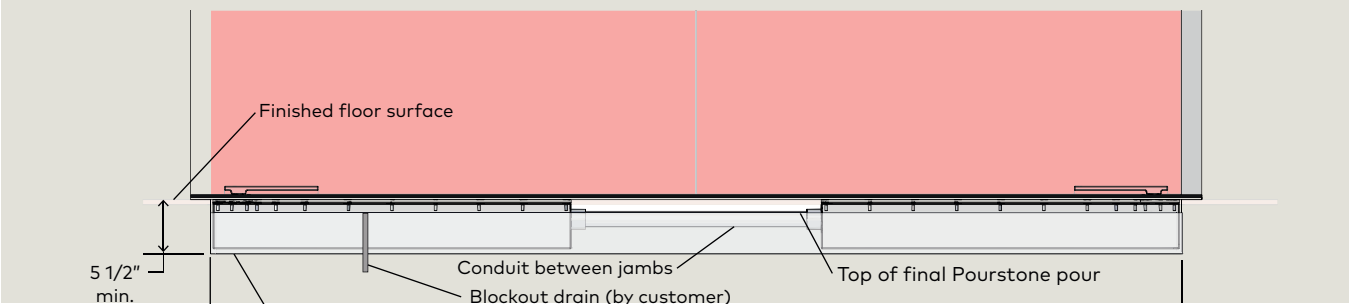


Fig. 13.1.5 Double door center hung front view

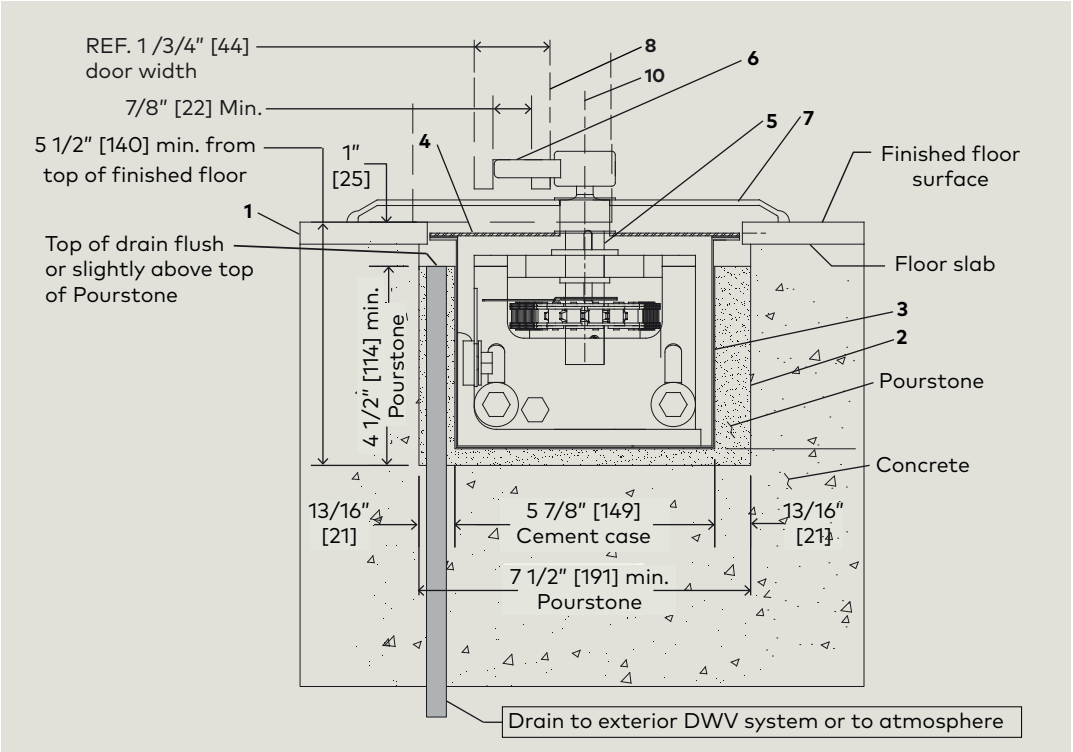


13.2 3/4" offset pivot door

Notes

1. 3/4" offset pivot using standard bottom arms only.
2. Depth of excavation is 5 1/2" minimum below finished floor.
3. Spindle center must be plumb with top pivot.

Fig. 13.2.1 Offset pivot door side view



1 Finished floor surface
2 Blockout
3 Cement case
4 Cement case cover
5 Spindle
6 Offset pivot arm
7 Jamb
8 Door
9 Threshold (by others)
10 Spindle centerline

Fig. 13.2.2 Single 3/4" offset pivot door overhead view

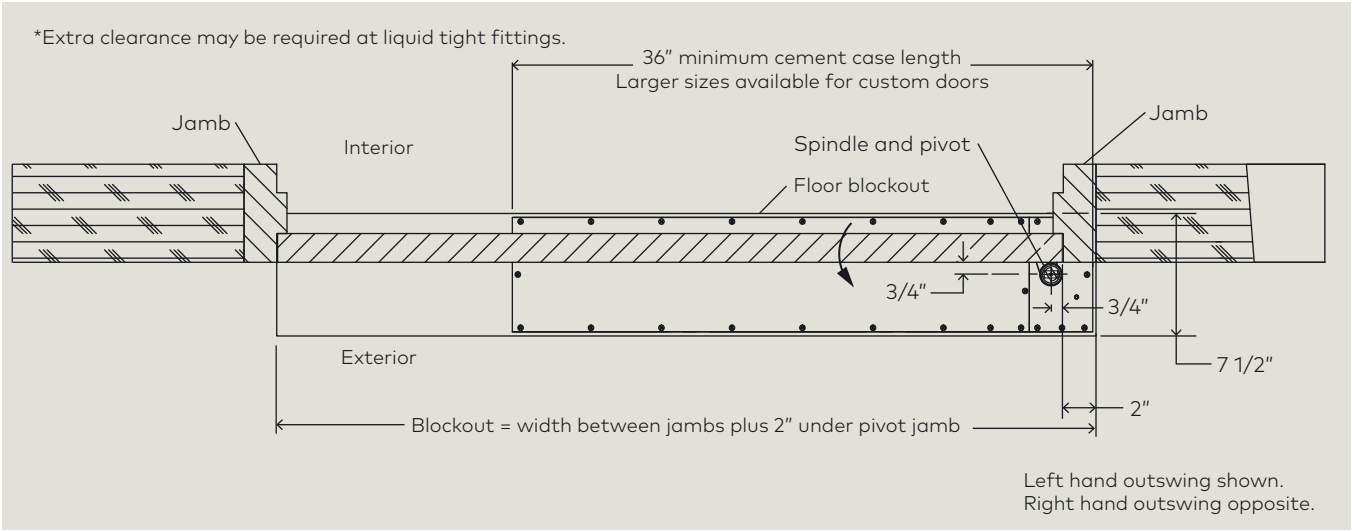


Fig. 13.2.3 Single 3/4" offset pivot door front view

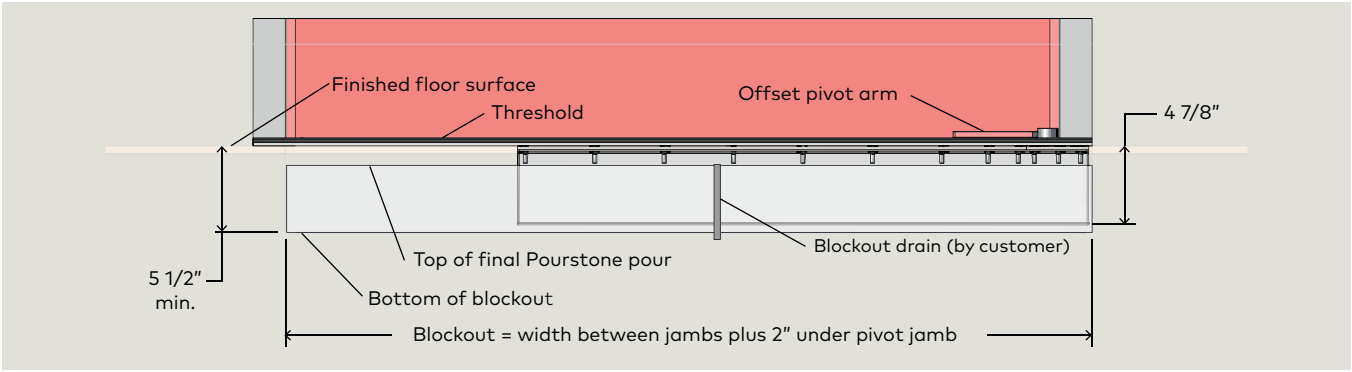


Fig. 13.2.4 Double door 3/4" offset pivot

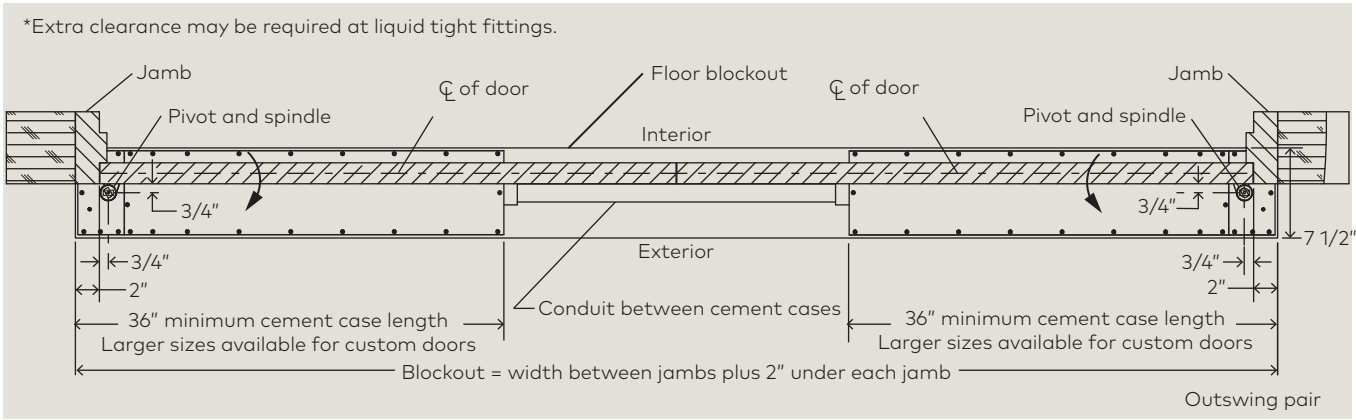
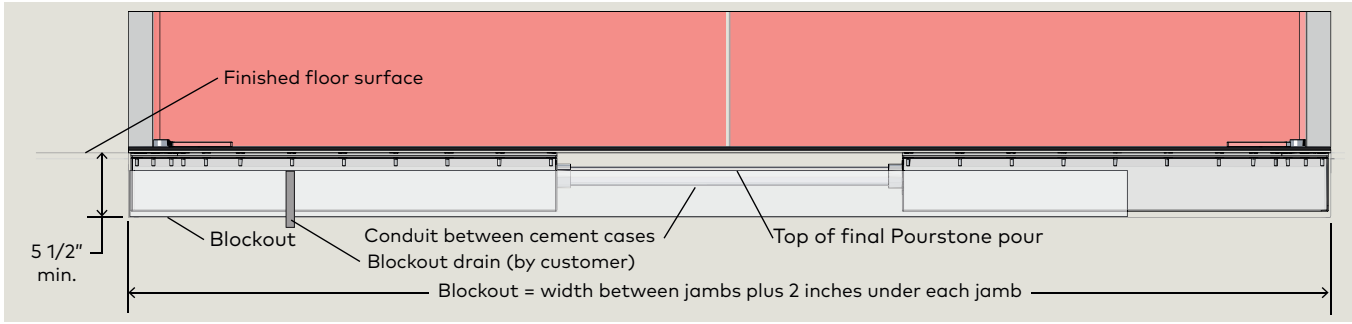


Fig. 13.2.5 Double door 3/4" offset pivot front view



13.3 Bottom arm and track

Notes

1. Butt hung (hinged) and 3/4" offset pivot doors using dormakaba bottom arm and slide track.
2. Dimensions are for 1 3/4" door thickness.
3. Hold 1 1/4" dimension from face of any door to centerline of spindle. Spindle may not be at centerline of jamb.
4. Jamb widths vary. Placement dimensions are from face of jamb to centerline of spindle.
5. Depth of excavation is 5 1/2" minimum below finished floor.
6. Spindle center must be plumb with arm pivot.

Fig. 13.3.1 Arm and track installation

1 Finished floor surface
2 Blockout
3 Cement case
4 Cement case cover (access required)
5 Spindle
5.1 Spindle centerline
6 Center pivot arm
7 Threshold (by others)
8 Jamb
9 Track
10 Door

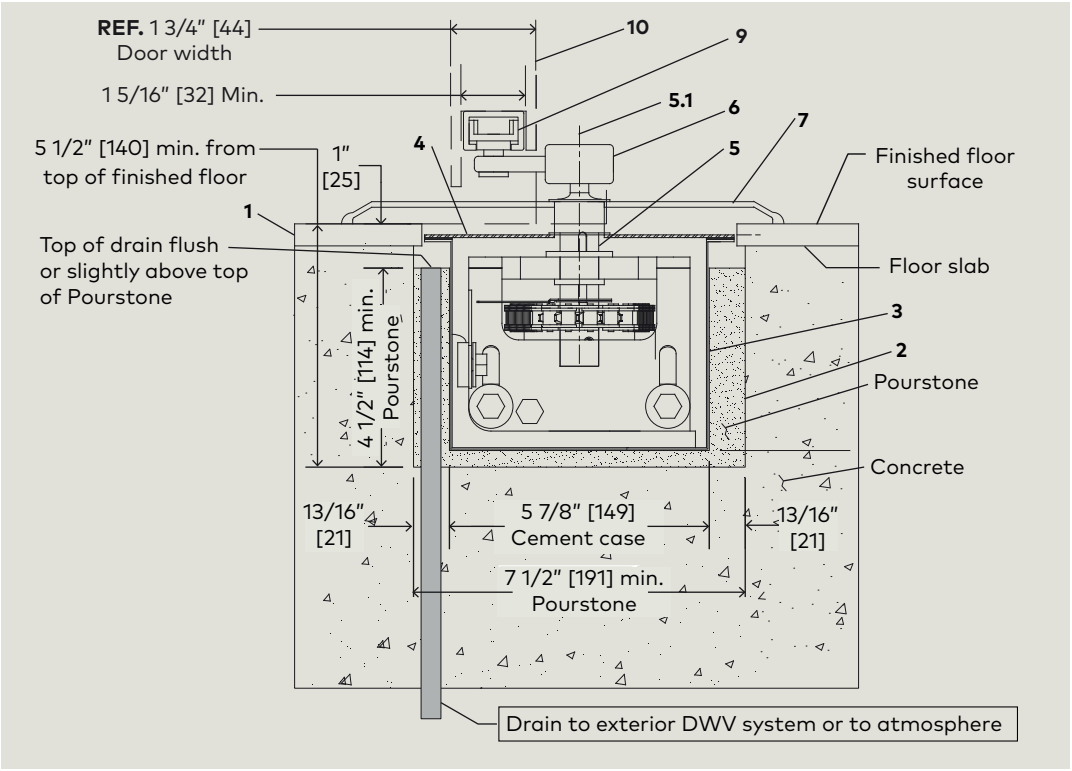


Fig. 13.3.2 Arm and track single door

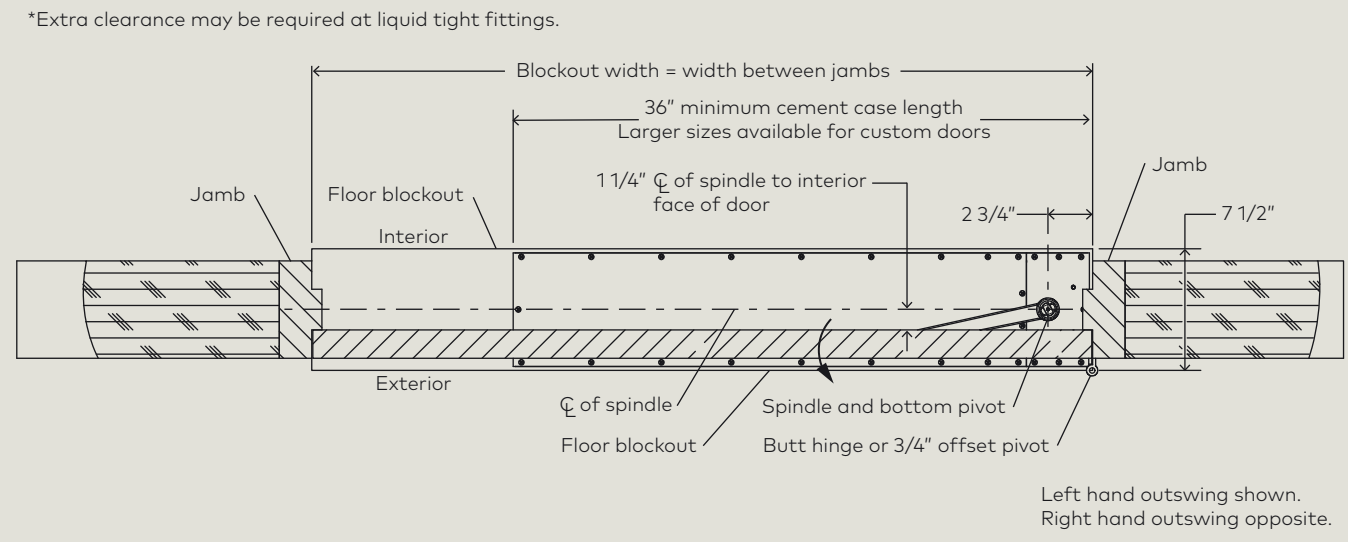


Fig. 13.3.3 Arm and track single door front view

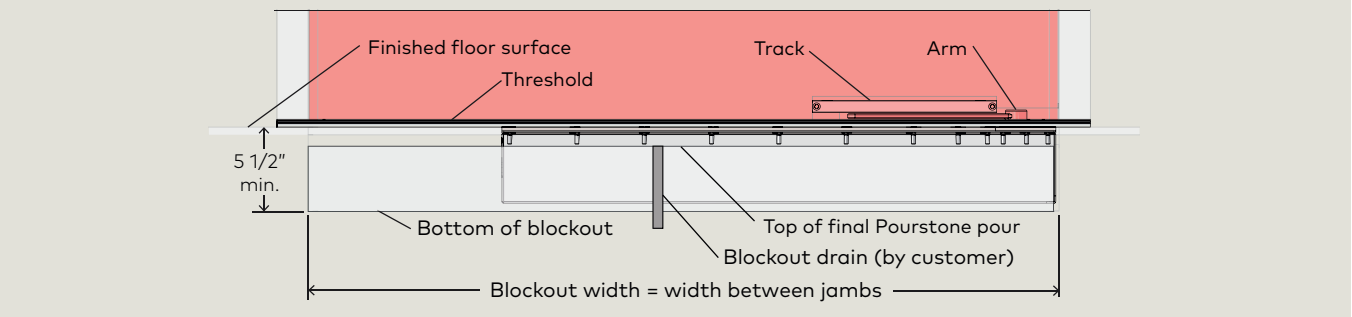


Fig. 13.3.4 Arm and track double door

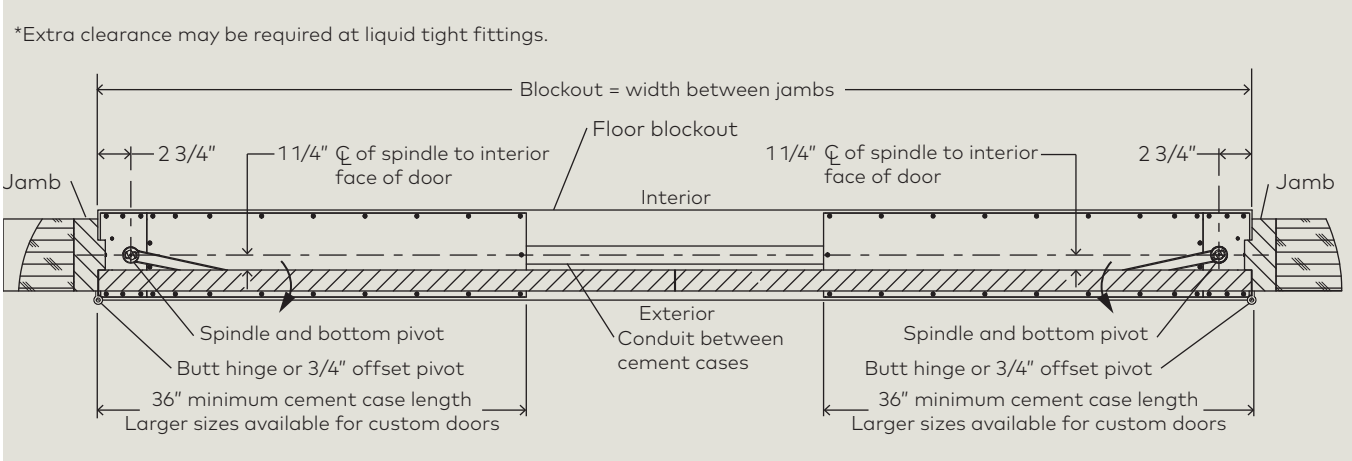
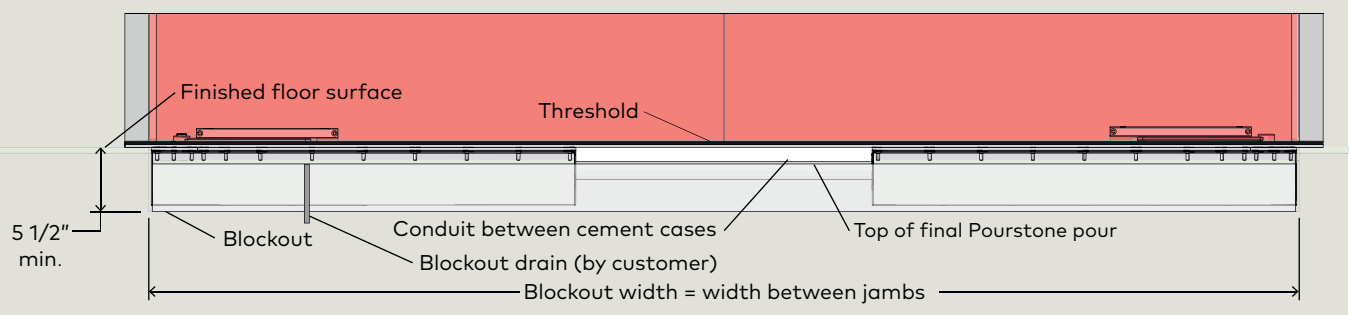


Fig. 13.3.5 Arm and track double door front view



14 Door frame and door preparation

14.1 Install offset hung pivot in top of door frame

Fig. 14.1.1 Offset pivot, LH door

1 LH offset pivot bracket.

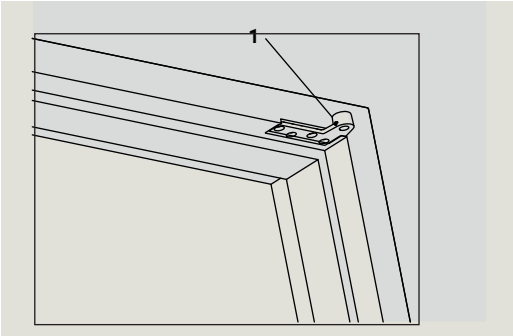
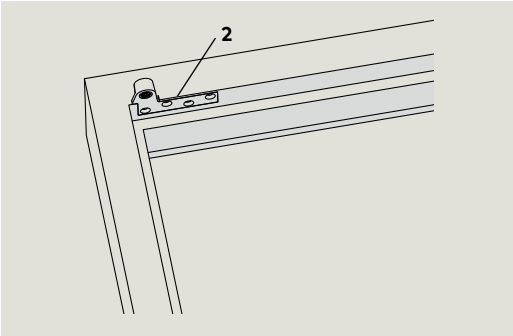


Fig. 14.1.2 Offset pivot, RH door

2 RH offset pivot bracket.



TIPS AND RECOMMENDATIONS

Refer to Chapter 13 installation templates.

14.1.1 Install offset pivot in door frame.

1. Install offset pivot in top of door frame per installation instruction supplied with pivot arm.

14.2 Install center hung pivot in top of door frame

Fig. 14.2.1 Center hung pivot, LH door

1 LH center hung pivot

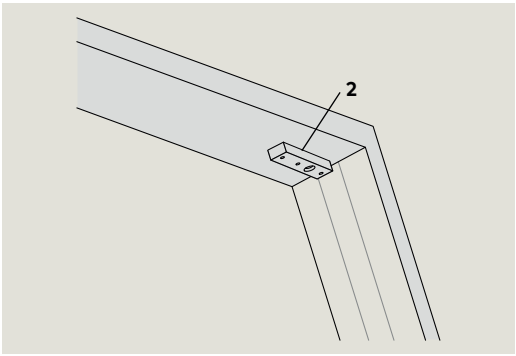
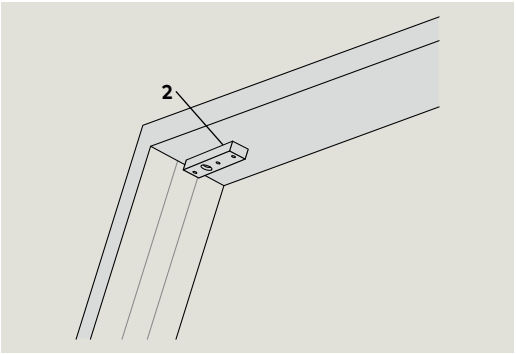


Fig. 14.2.2 Center hung pivot, RH door

2 RH center hung pivot



TIPS AND RECOMMENDATIONS

Refer to Chapter 13 installation templates.

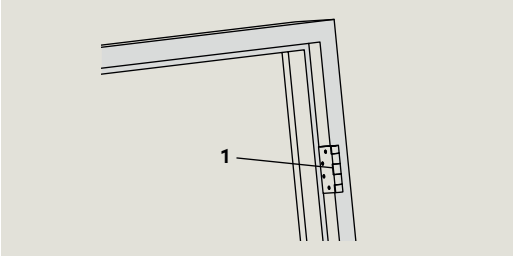
14.2.1 Install center hung pivot in door frame.

1. Install center hung pivot in top of door frame per instructions supplied with pivot.

14.3 Install butt hinge in side of door frame, slide track door

1 Upper butt hinge.

Fig. 14.3.1 Butt hinge, slide track door



TIPS AND RECOMMENDATIONS

Refer to Chapter 13 installation templates.

14.3.1 Install butt hinge.

1. Install butt hinge in door frame per installation instruction supplied with hinge.

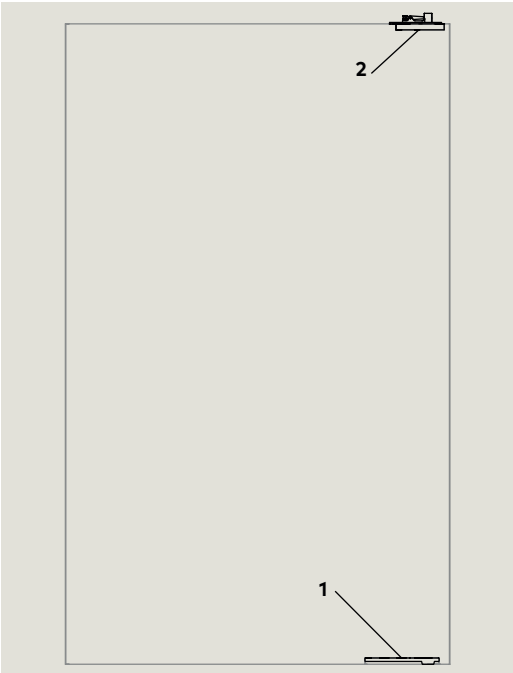
TIPS AND RECOMMENDATIONS

Center pivot arm may be used in place of butt hinge.

14.4 Install door swing hardware

1 Bottom center hung pivot arm
2 Top of door center hung hardware

Fig. 14.4.1 Center hung door



TIPS AND RECOMMENDATIONS

Refer to Chapter 13 installation templates.

14.4.1 Install door swing hardware.

1. Install door swing hardware for applicable door swing configuration. Refer to installation instructions supplied with hardware.

3 Bottom offset pivot arm (LH shown)
4 Top of door offset pivot arm hardware (LH shown)
5 Slide track and arm (RH shown)

Fig. 14.4.2 Offset pivot door

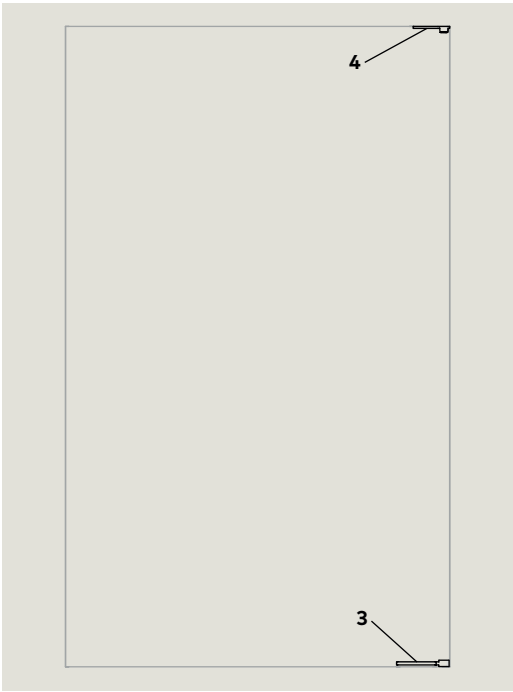
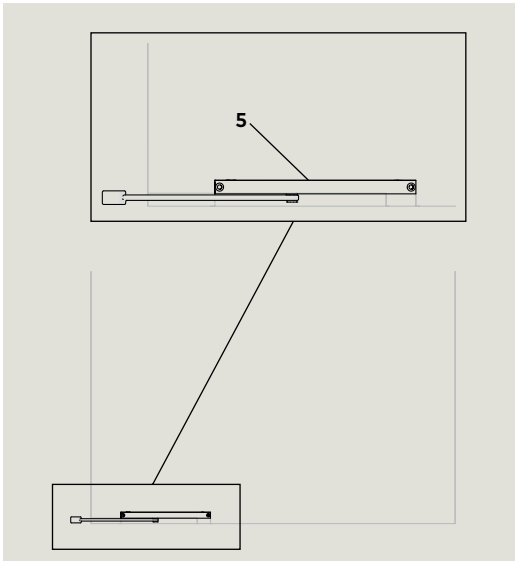


Fig. 14.4.3 Slide track in door

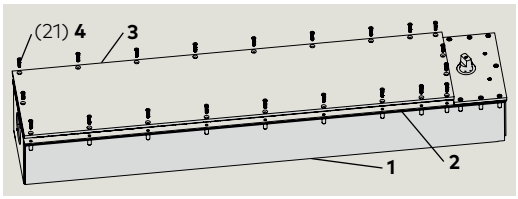


15 Prepare cement case for installation

15.1 Remove cement case cover

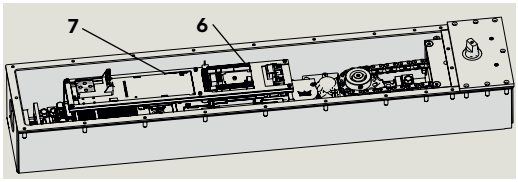
1 ED250 cement case
2 1/8" thick gasket
3 Cover
4 8-32 x 3/4" Phillips flat head machine screws (PFHMS)

Fig. 15.1.1 ED250 cement case



6 ED250 accessory terminal board
7 PCB bracket assembly

Fig. 15.1.2 ED250 cement case cover removed



15.1.1 Loosen cover screws.

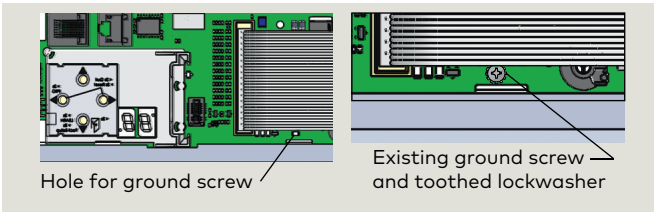
1. Using No. 2 Phillips, loosen and remove twenty one 8-32 x 3/4" PFHMS securing cover to cement case and set aside.

15.1.2 Remove cement case cover.

1. Remove cement case cover and set aside.

15.2 Install ED250 printed circuit board (PCB) bracket ground wire

Fig. 15.2.1 ED250 Printed circuit board ground screw



1 Grounding wire DX0839-010
2 #6 x 1/4" RH self threading screw DF4661-01Z
3 #6 external tooth lockwasher DF4669-01Z
4 Ground lug
5 #10 x 1/2" RH drilling screw
7 Spacer

Fig. 15.2.2 Grounding kit DK3137-010

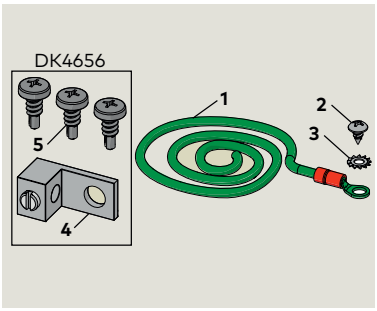
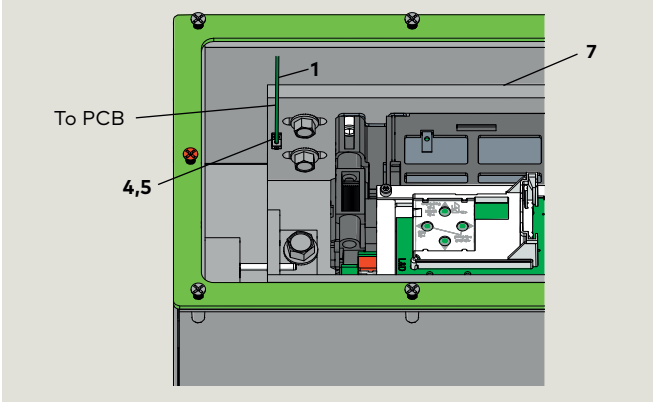


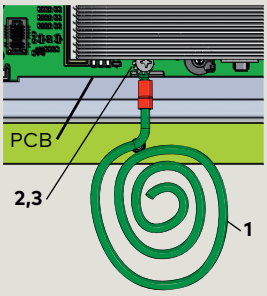
Fig. 15.2.3 ED250 case with ground lug installed



15.2.1 Secure grounding wire to PCB.

1. Printed circuit board may contain a ground screw and washer assembly (Fig. 15.2.1). Remove screw and washer.
2. Secure grounding wire to printed circuit board. Use screw and external tooth lockwasher in kit DK3137-010 (Fig. 15.2.2).

Fig. 15.2.4 PCB grounding wire installed



15.2.2 Attach grounding wire from PCB to case spacer.

1. Install ground lug (DK4656, Fig. 15.2.2)) on case spacer; location example shown in Fig. 15.2.3.

CAUTION

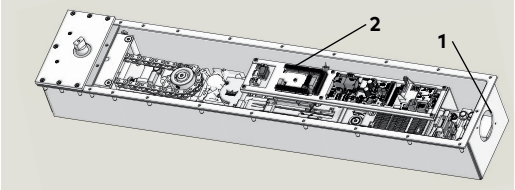
Do not affix ground lug to case.

2. Attach grounding wire from PCB to ground lug.

15.3 System accessory wiring into cement case, single door

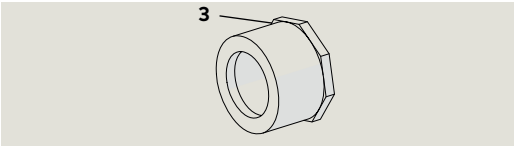
1 2 3/8" hole for PVC reducer coupling
2 Terminal board for system accessory wiring

Fig. 15.3.1 ED250 cement case accessory wiring



3 PVC reducer coupling for 1 1/2" PVC pipe

Fig. 15.3.2 PVC reducer coupling



CAUTION

PVC coupling and PVC pipe installation should be done by qualified personnel.

TIPS AND RECOMMENDATIONS

Refer to Para. 15.8 if additional conduits are required for accessory wiring into cement case.

15.3.1 System accessory wiring.

TIPS AND RECOMMENDATIONS

Reference Chapter 11 for system accessory examples.

15.3.2 Accessory wiring into cement case.

1. Accessory wiring should enter cement case through PVC reducer coupling and PVC pipe installed in 2 3/8" hole at cement case end opposite spindle drive.

15.3.3 PVC reducer coupling.

1. PVC reducer coupling is supplied for cement case 2 3/8" hole, reference Chapter 5, in-ground packages.
2. Coupling is sized for 1 1/2" PVC pipe.

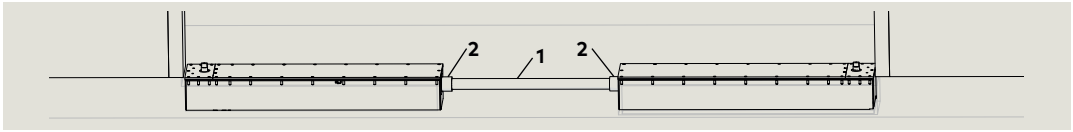
15.3.4 PVC reducer coupling and PVC pipe installation into cement case.

1. PVC coupling and PVC pipe will be installed in cement case after first anchoring cement pour (Para. 16.7). This includes sealing coupling at cement case 2 3/8" hole.

15.4 System accessory wiring into cement cases, double door

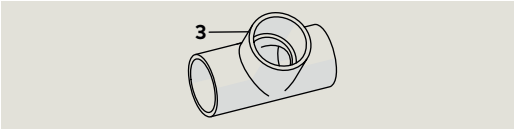
1 PVC pipe, 2 feet long
2 PVC reducer coupling

Fig. 15.4.1 Double door cement cases electrical installation kit



3 1 1/2" PVC tee connector (not supplied)

Fig. 15.4.2 PVC tee connector



15.4.1 Electrical installation kit.

1. Electrical installation kit, which includes two PVC reducer couplings and two feet of PVC pipe, is included for double door installations. Reference Chapter 5, in-ground packages.

CAUTION

PVC couplings and PVC pipe installation should be done by qualified personnel.

15.4.2 Accessory wiring access to 1 1/2" PVC pipe.

1. Use 1 1/2" PVC tee connectors (not supplied) in PVC pipe for routing accessory wiring into PVC pipe.

15.4.3 PVC reducer coupling and PVC pipe installation into cement cases.

1. PVC couplings and PVC pipe will be installed in cement cases after first anchoring cement pour (Para. 16.7). This includes sealing couplings at cement case 2 3/8" holes.

TIPS AND RECOMMENDATIONS

Refer to Para. 15.8 if additional conduits are required for accessory wiring into cement cases.

15.5 Liquidtight conduit entry locations into cement case

Fig. 15.5.1 Cement case sides, areas for conduit entry

1 Main extrusion, operator mounting
2 Angle iron
3 Spacer, operator mounting

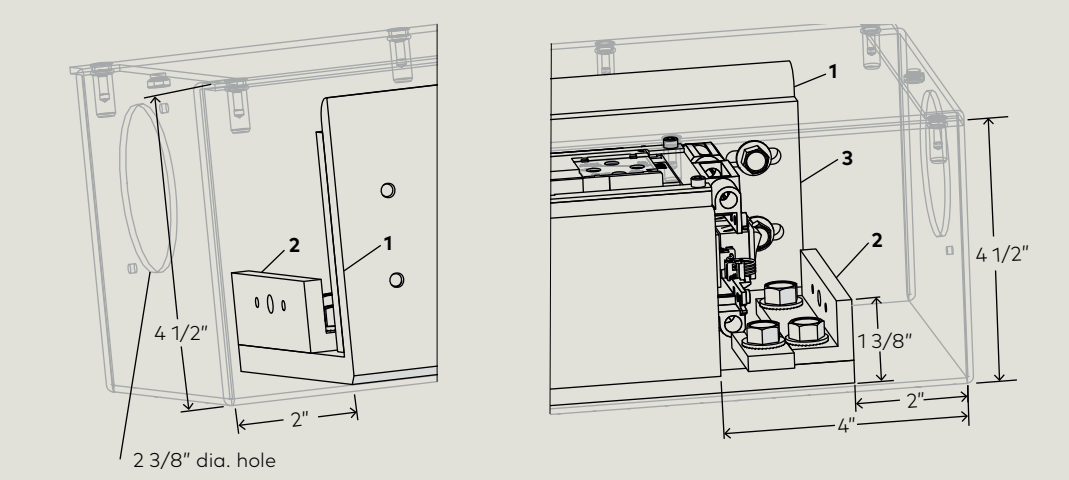
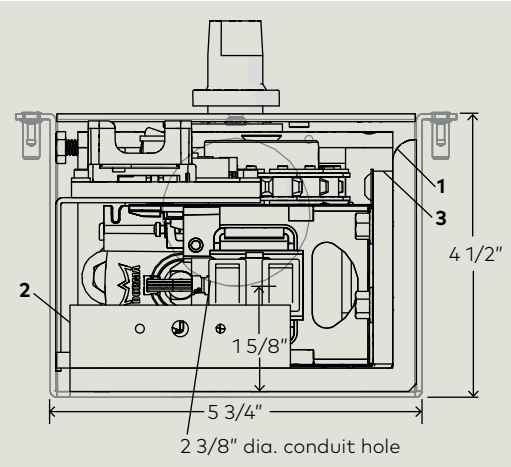


Fig. 15.5.2 Cement case end (opposite spindle side) areas for conduit entry

1 Main extrusion, operator mounting
2 Angle iron
3 Spacer, operator mounting



15.5.1 Determine conduit hole locations in cement case.

TIPS AND RECOMMENDATIONS

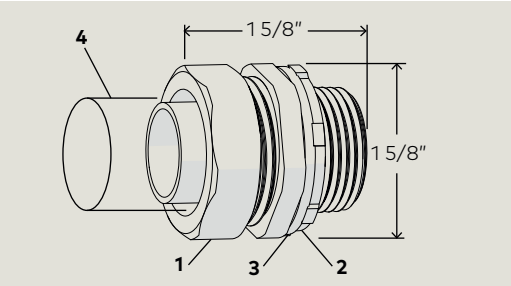
Wiring entry into cement case. Note orientation of cement case in concrete floor blockout.

1. Figures 15.5.1 and .2 show areas on the cement case end on strike side of door for conduit entry. 2 3/8" conduit hole in cement case is pre drilled.

15.6 Liquidtight conduit and conduit fitting requirements

Fig. 15.6.1 LT7 3/4" liquidtight fitting

1 Arlington LT7 3/4" liquid tight fitting
2 Lock nut
3 Sealing ring
4 3/4" liquid tight non metallic conduit, Type B



15.6.1 Liquidtight conduit and conduit fittings.

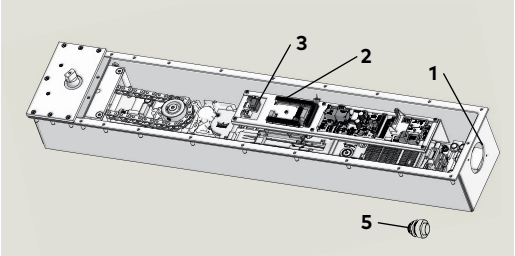
CAUTION

1. Conduit to case connections must use non-metallic liquid-tight conduit, Type B only.
2. Conduit fittings installed in cement case must be liquid-tight fittings. **Use only Arlington #LT7 3/4" liquid-tight fittings.** Other fittings have not been tested or approved.

15.7 115 Vac wiring into cement case

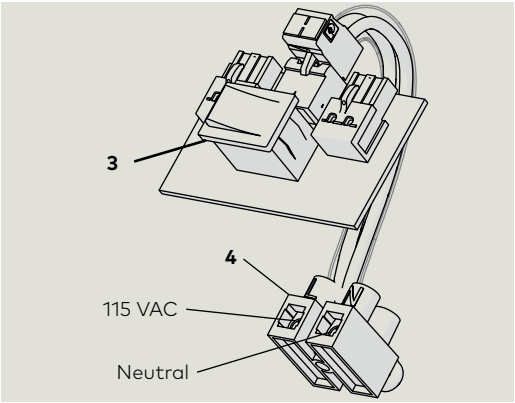
1 2 3/8" hole for accessory wiring
2 Terminal board for accessory wiring
3 Power off/on switch board
5 Liquidtight fitting for 115 Vac wiring

Fig. 15.7.1 Cement case 115 Vac entry



3 Power off/on switch board
4 115 Vac terminal block

Fig. 15.7.2 Cement case 115 Vac entry



15.7.1 115 Vac wiring into cement case.

1. 115 Vac will terminate at 115 Vac terminal block inside cement case.

CAUTION

Liquidtight conduit and fitting (not supplied) must be used to route 115 Vac wiring into cement case. Ref. Para. 15.6.

WARNING

Installation and termination of 115 Vac liquidtight conduit, fitting and wiring must be done by qualified personnel.

15.7.2 Hole in case for 115 Vac liquidtight conduit fitting.

1. Determine hole location in case for liquidtight conduit fitting.
2. Punch hole in case location using drill and knockout punch.

15.7.3 Double door system, 115 Vac power feed.

TIPS AND RECOMMENDATIONS

Double door installations:
Only one 115 Vac power feed is required for the system. Select one of the two cement cases for the liquidtight conduit fitting.

15.7.4 115 Vac liquidtight conduit and fitting installation into cement cases.

1. Liquidtight conduit and fitting will be installed in cement cases after first anchoring cement pour (Para. 16.6).

15.8 Additional accessory wiring into cement case

15.8.1 Additional accessory wiring into cement case.

1. If additional accessory wiring to cement case is required that cannot be routed in the 1 1/2" PVC pipe (Para. 15.3, 15.4), locate hole(s) for required liquidtight fittings in side or end of cement case (Para. 15.5).
2. Punch hole(s) in case locations using drill and knockout punch.

CAUTION

Liquidtight conduit and fittings (not supplied) must be used for additional accessory wiring into case not using 1 1/2" PVC pipe. Ref. Para. 15.6.

15.9 Internal cement case checks

Fig. 15.9.1 ED250 cement case, internal view

1 PCB bracket assembly

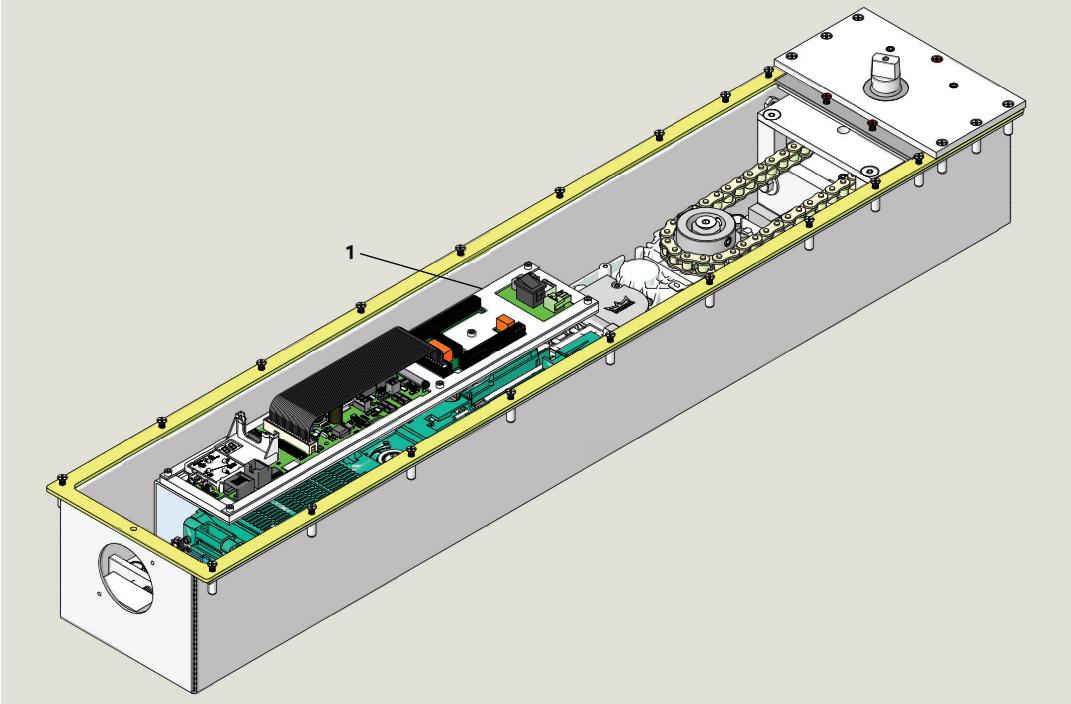
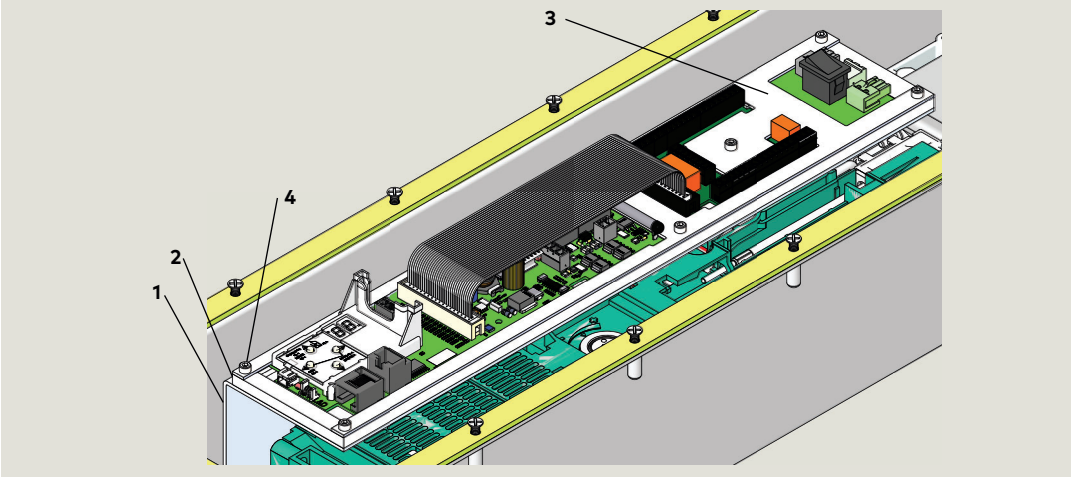


Fig. 15.9.2 PCB bracket assembly

1 PCB bracket
2 PCB plate
3 PCB plate cover
4 (7) 1/4-20 x 1/2" SHCS



15.9.1 Cement case checks.

1. PCB bracket assembly:

- Alignment of board assemblies on PCB plate and PCB bracket.

CAUTION

Board assemblies; no contact with any metal.

- Tightness of seven 1/4-20 SHCS.

2. Clean internal case of any foreign objects or debris.

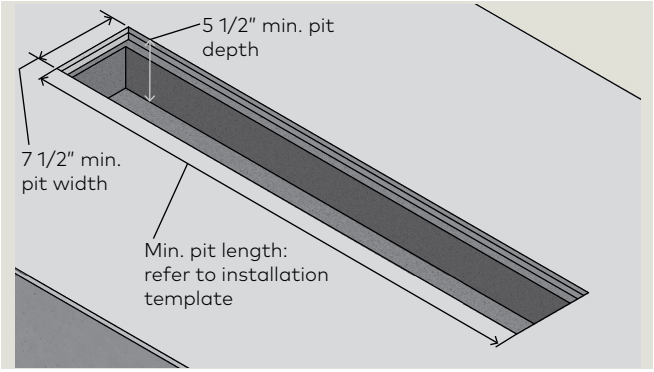
16 In-ground case installation

NOTICE

Installation site may require modification of steps referenced in Chapter 16.

16.1 Verify concrete floor blockout

Fig. 16.1.1 Minimum blockout dimensions



16.1.1 Verify blockout for ED250 in ground case.

Using applicable ED250 in-ground installation template (Chapter 13) to verify:

1. Concrete floor blockout dimensions. Reference Fig. 16.1.1 for minimum blockout dimensions.
2. Blockout location referencing door jambs.
3. Cement case orientation in blockout. Electrical wiring at end of case opposite pivot (double doors, center of blockout).

16.1.2 Blockout drain requirements.

NOTICE

Blockout drain required.
Reference Chapter 13, Installation Templates.

16.2 Install cement case, single door

Fig. 16.2.1 End view, strike side

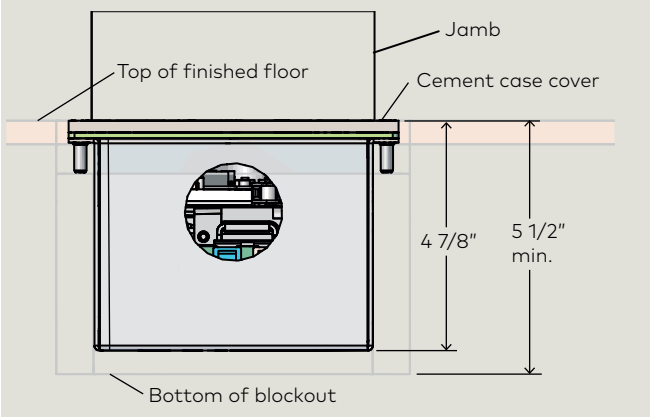
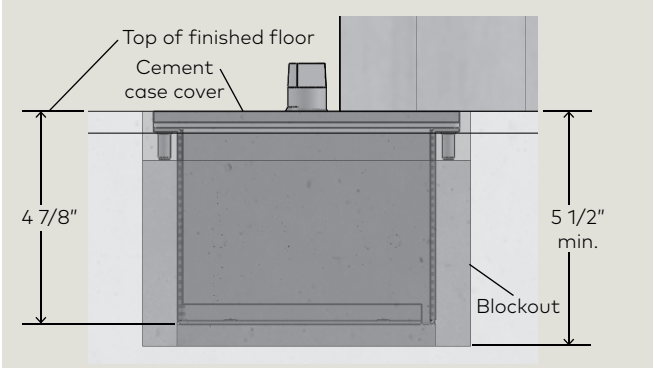


Fig. 16.2.2 End view, door pivot side (offset pivot door)



16.2.1 Set cement case into blockout.

NOTICE

Reference applicable installation template (Chapter 13) and contractor and/or architect documentation to position cement case spindle in blockout.

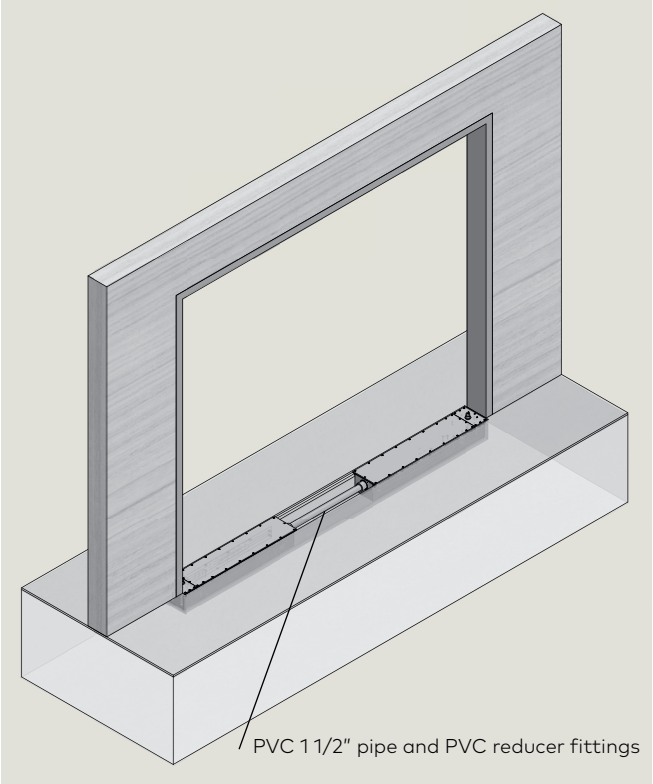
WARNING

Hand pinch point and crushing hazards!

1. Lower cement case into blockout and shim case into position.

16.3 Install cement cases, double door

Fig. 16.3.1 Cement cases installed in blockout



16.3.1 Set cement case into blockout

NOTICE

Reference applicable installation template (Chapter 13) and contractor and/or architect documentation to position cement case spindles in blockout.

16.3.2 Blockout drain requirements.

NOTICE

Blockout drain required.
Reference Chapter 13, Installation Templates.

⚠ WARNING

Hand pinch point and crushing hazards!

1. Lower each cement case into blockout and shim case into position.

TIPS AND RECOMMENDATIONS

PVC pipe and reducer fittings installed after first anchoring cement pour in blockout (Para. 16.6)

16.4 Locate center of cement case spindle

Refer to Chapter 13, installation templates.

16.4.1 Offset and center hung arms; align top door pivot with spindle.

1. Verify cement case spindle location referencing door jambs with contractor or customer drawings.
2. Using laser or plumb bob, center cement case spindle with center of top door offset pivot.

CAUTION

After centering spindle:

- Level and plumb cement case in all directions.
- Cement case must be parallel with door header.
- Secure cement case in position.

Fig. 16.4.1 LH offset pivot door, alignment of spindle with top pivot

1 Cement case spindle
2 Top door pivot in frame
3 Door header
4 Cement case
5 Blockout

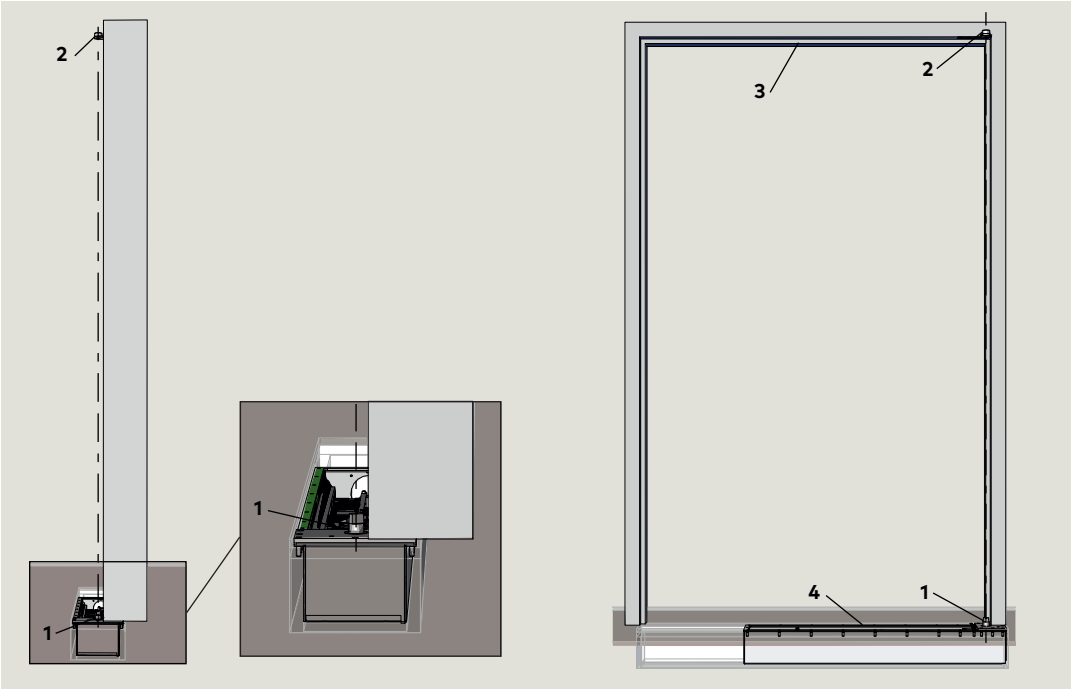
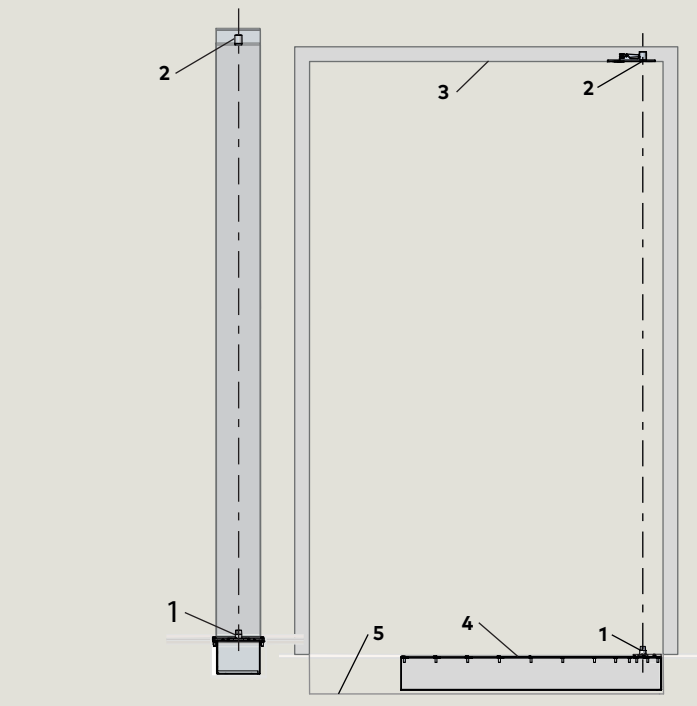


Fig. 16.4.2 LH center hung door, alignment of spindle with top pivot

1 Cement case spindle
2 Top door pivot in frame
3 Door header
4 Cement case
5 Blockout



16.4.2 Slide arm and track; locate center of cement case spindle.

1. Referencing contractor or customer drawings, establish location of interior door face.
2. Locate center of cement case spindle 1 1/4" from door face for any door thickness and 2 3/4" from face of jamb.

CAUTION

After establishing spindle location:

- Level and plumb cement case in all directions.
- Cement case must be parallel with door header.
- Secure cement case in position.

TIPS AND RECOMMENDATIONS

1. Para. 16.4.2 is for butt hinge and 3/4" offset pivot doors using dormakaba bottom arms and slide track.
2. Spindle may not be at centerline of jamb.
3. Jamb widths vary. Cement case placement dimensions are from face of jamb to centerline of spindle.

Fig. 16.4.3 LH slide arm and track, alignment of spindle with face of door

1 Cement case spindle
2 Bottom arm
3 Slide track
4 Jamb

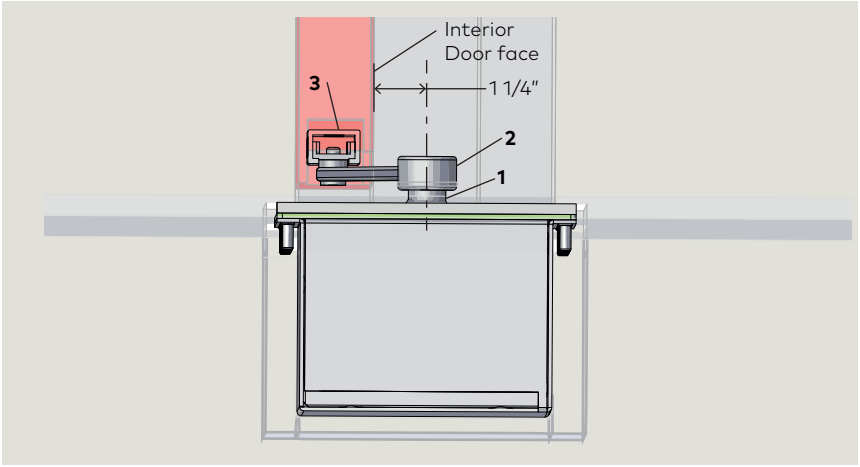


Fig. 16.4.4 LH slide arm and track, alignment of spindle with door face front view

1 Cement case spindle
2 Bottom arm
3 Slide track
4 Jamb

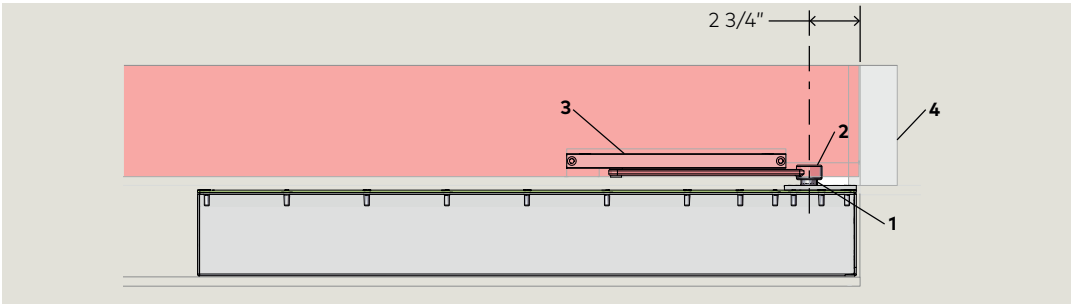
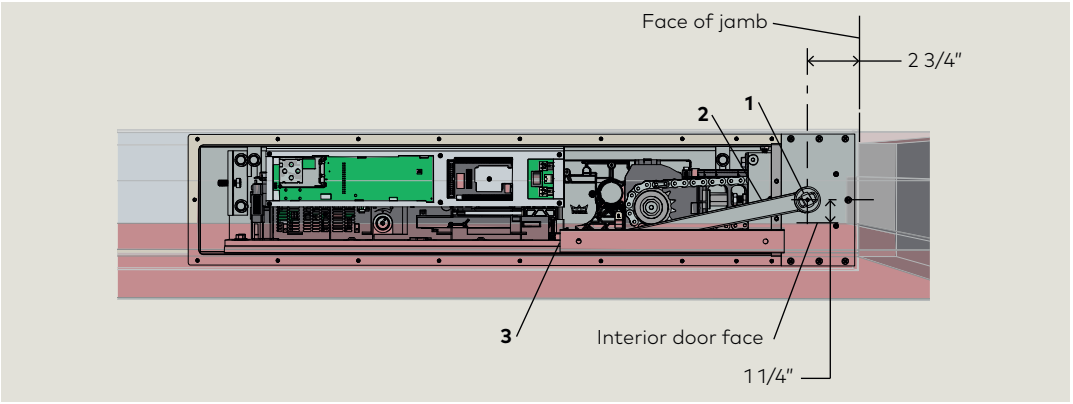


Fig. 16.4.5 LH slide arm and track, alignment of spindle with door face overhead view

1 Cement case spindle
2 Bottom arm
3 Slide track
4 Jamb



16.5 Reinstall cement case cover

16.5.1 Install case cover, single door.

1. Insure gasket is clean, then place cover over gasket.
2. Use a Phillips No. 2 bit to install twenty one 8-32 x 3/4" PFHMS securing the cover to the cement case.

16.5.2 Install case cover, double doors.

1. Install covers on both cement cases per Para. 16.5.1.

CAUTION

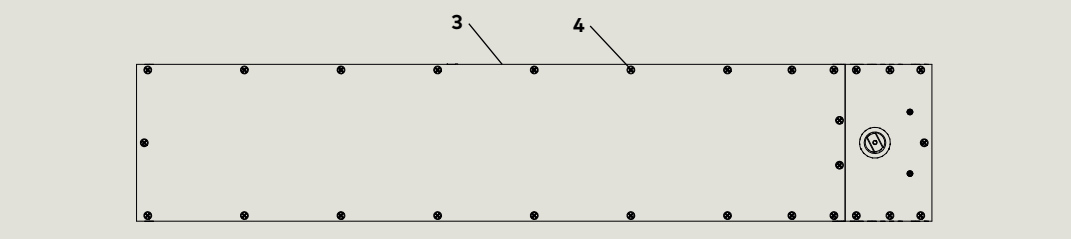
Use only a Phillips screwdriver to hand tighten the screws!

CAUTION

Cover(s) must be installed on cement case(s) before anchoring cement poured in concrete blockout.

Fig. 16.5.1 ED250 cement case with cover installed.

3 Cover
4 (21) 8-32 x 3/4" PFHMS (Phillips flat head machine screws)



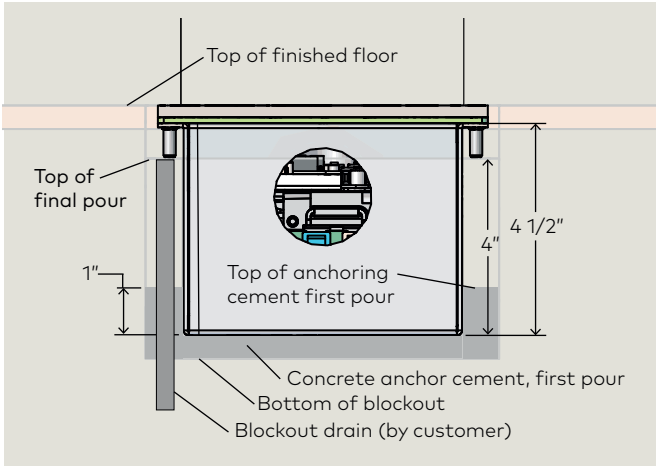
16.6 First anchoring cement pour in blockout around bottom one inch of cement case

16.6.1 First anchoring cement pour, cement case cover.

CAUTION

Cement case cover must be installed prior to anchoring cement pour (Para. 16.5).

Fig. 16.6.1 ED250 cement case end view, first anchoring cement pour



16.6.2 Blockout drain installation (customer).

NOTICE

Blockout drain (Fig. 16.6.1, 16.6.2).
Blockout drain must be installed prior to first anchoring cement pour (Para. 16.6.3, 16.6.4).
Reference Chapter 13, Installation Templates.

16.6.3 First anchoring cement pour.

1. Pour anchoring cement in blockout to a level one inch above bottom off cement case.

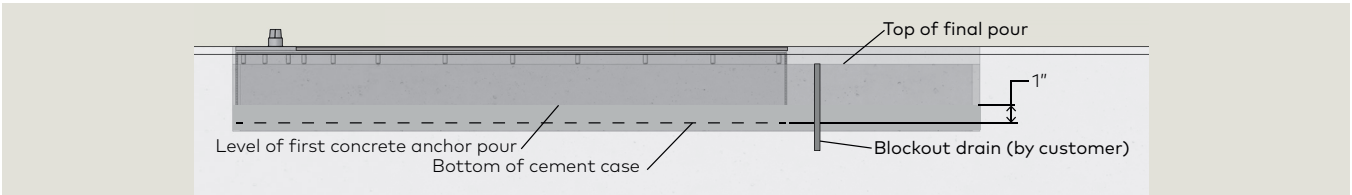
CAUTION

Allow anchoring cement to set for time period referenced in manufacturer's instructions.

16.6.4 First anchoring cement pour, double doors.

2. Pour anchoring cement in blockout to a level one inch above bottom of both cement cases.

Fig. 16.6.2 ED250 cement case front view, first anchoring cement pour



16.7 Remove cement case cover.

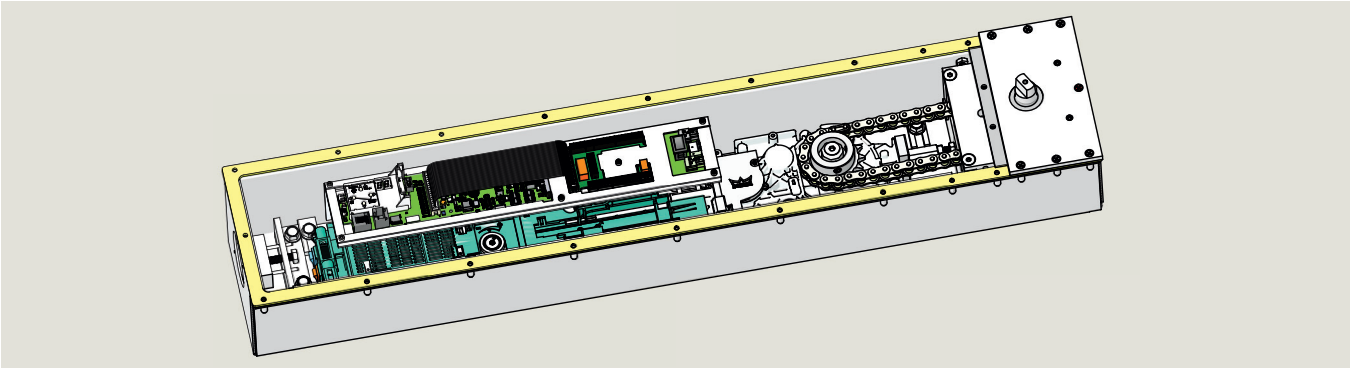
16.7.1 Remove cement case cover.

1. Remove the twenty one 8-32 x 3/4" PFHMS securing the cover to the cement case.
2. Remove cover to access ED250 operator.

16.7.2 Double doors

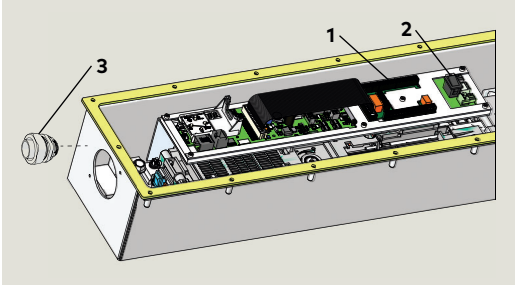
1. Remove the twenty one 8-32 x 3/4" PFHMS securing the cover to each cement case.
2. Remove covers to access ED250 operators.

Fig. 16.7.1 Cement case cover removed



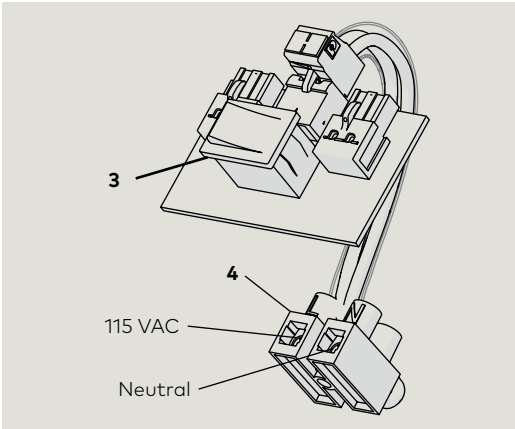
16.8 Single door, install and terminate 115 Vac liquidtight conduit and wiring

Fig. 16.8.1 Cement case 115 Vac fitting



1 Accessory terminal blocks
2 Power off/on switch
3 115 Vac liquidtight fitting (by others)

Fig. 16.8.2 115 Vac terminal block



3 Power off/on switch, power connection board
4 115 Vac terminal block

16.8.1 Installation of 115 Vac conduit from blockout to cement case.

1. Install 115 Vac liquidtight conduit and conduit fitting into cement case.

WARNING

Installation of 115 Vac conduit and fitting and termination of wiring must be done by qualified personnel.

WARNING

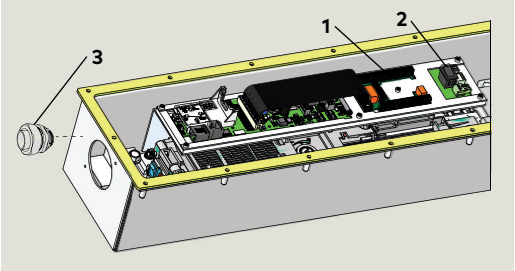
115 Vac power source for ED250 must be OFF!

16.8.2 Route 115 Vac wiring into cement case and terminate wiring.

1. Terminate 115 Vac and neutral wires at 115 VAC terminal block located near power off/on switch.
2. Terminate ground (green) wire at one of the ED250 operator mounting screws. Use suitably sized ring lug to terminate wire at mounting screw.

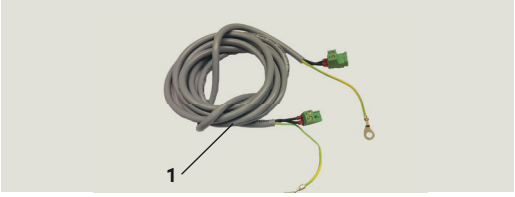
16.9 Double doors, install and terminate 115 Vac liquidtight conduit and wiring

Fig. 16.9.1 Cement case 115 Vac liquidtight fitting



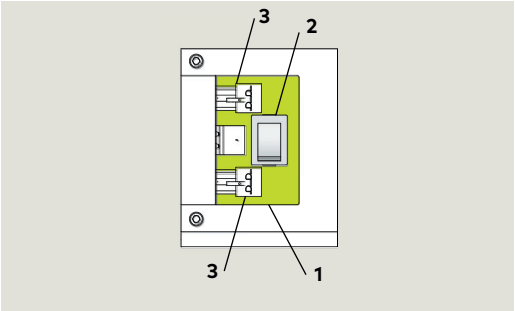
1 Accessory wiring terminal board
2 Power off/on switch
3 115 Vac liquidtight fitting (by others)

Fig. 16.9.2 Double door 115 Vac power cable



1 ED250 115 Vac power cable ‚11' DX3484-030

Fig. 16.9.3 Power connection board



1 115 Vac power connection board
2 Power off/on switch
3 Socket for 115 Vac power connection cable

16.9.1 Installation of 115 Vac conduit from blockout to cement case.

NOTICE

- Only one cement case requires 115 Vac liquidtight conduit and wiring from blockout.
- 115 Vac cable connects the two ED250 operators (Fig. 16.9.2).
- Reference Para. 16.14 for installation.

WARNING

Installation of 115 Vac conduit and fitting and termination of wiring must be done by qualified personnel.

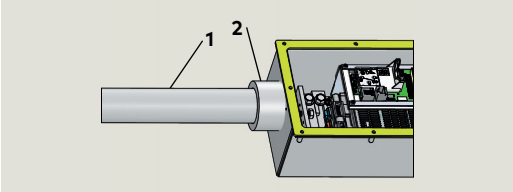
WARNING

115 Vac power source for ED250 must be OFF!

1. Install 115 Vac conduit and wiring into selected cement case per Para. 16.8.
2. Route 115 Vac wiring into cement case and terminate per Para, 16.8.

16.10 Single door, install PVC reducer fitting and PVC pipe

Fig. 16.10.1 Cement case PVC reducer fitting and PVC pipe



1 PVC pipe (by others)
2 PVC reducer coupling

16.10.1 Installation of PVC reducer fitting and PVC conduit from blockout to cement case.

1. Insert PVC reducer fitting into cement case 2 3/8" hole, install PVC conduit into fitting.

CAUTION

PVC coupling and PVC pipe installation should be done by qualified personnel.

CAUTION

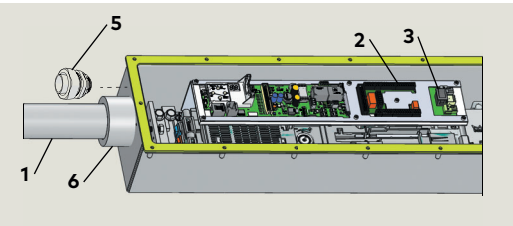
Seal PVC reducer coupling both inside and outside of cement case 2 3/8" hole with Permatex No. 2 sealant.

16.10.2 Additional liquidtight conduit and fittings for accessory wiring.

1. Install any additional liquidtight conduit and fittings that are required for accessory wiring.

16.11 Single door, route accessory wiring into cement case

Fig. 16.11.1 Accessory wiring terminal block



1 PVC pipe (by others)
2 Accessory wiring terminal block
3 Power off/on switch
5 115 Vac liquidtight fitting
6 PVC reducer fitting

16.11.1 Route accessory wiring into cement case.

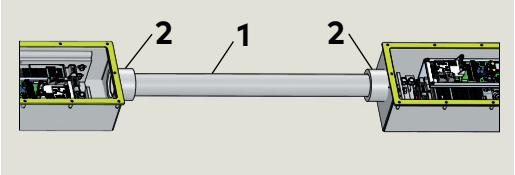
1. Route accessory wiring into cement case through PVC pipe and reducer fitting and any additional accessory wiring liquidtight conduits and fittings.

TIPS AND RECOMMENDATIONS

It is recommended not to terminate accessory wiring at accessory wiring terminal board until after ED250 has been commissioned (Para. 21). Reference Chapter 23.

16.12 Double doors, install PVC reducer fittings and PVC pipe

Fig. 16.12.1 Double door electrical installation kit



1 PVC pipe
2 PVC reducer coupling

16.12.1 Install PVC reducer fittings and PVC pipe.

1. Install PVC reducer fittings and PVC pipe between the cement cases. Also install any required tee fittings (by others) in PVC pipe.

CAUTION

PVC couplings and PVC pipe installation should be done by qualified personnel.

CAUTION

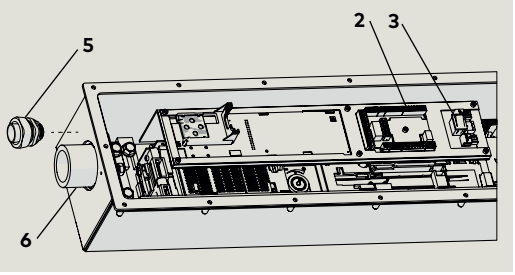
Seal PVC reducer couplings both inside and outside of cement case 2 3/8" holes with Permatex No. 2 sealant.

16.12.2 Additional liquidtight conduit and fittings for accessory wiring.

1. Install any additional liquidtight conduit and fittings into cement cases that are required for accessory wiring.

16.13 Double doors, route accessory wiring into cement cases

Fig. 16.13.1 Accessory wiring terminal block



2 Accessory wiring terminal block
3 Power off/on switch
5 115 Vac liquidtight fitting
6 PVC reducer fitting

16.13.1 Route accessory wiring into cement case.

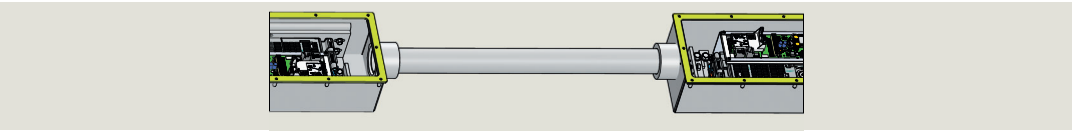
1. Route accessory wiring into cement cases through PVC pipe and reducer fittings and any additional accessory wiring liquidtight conduits and fittings.

TIPS AND RECOMMENDATIONS

It is recommended not to terminate accessory wiring at accessory wiring terminal boards until after ED250s have been commissioned (Para. 21). Reference Chapter 23.

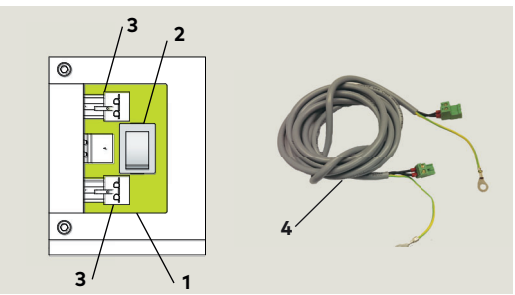
16.14 Double doors – install case to case 115 Vac cable

Fig. 16.14.1 Double door 115 Vac power cable case to case connection



1 115 Vac power connection board

Fig. 16.14.2 Power connection board and 115 Vac power cable



1 115 Vac power connection board
2 Power off/on switch
3 Socket for 115 Vac power connection cable
4 ED250 115 Vac power cable ‚11' DX3484-030,

16.14.1 Install 115 Vac power cable, case to case.

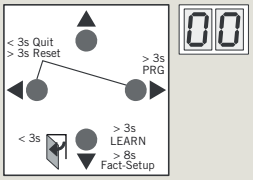
1. Install 115 Vac power cable (Fig. 16.14.2) from cement case with 115 Vac power wiring to other case.
2. Connect cable to socket on each power connection board (Fig. 16.14.2).

16.15 Rotate cement case spindle to enable door hanging

TIPS AND RECOMMENDATIONS

Partial learning cycle (Para. 16.15.3) will be used to rotate spindle.

Fig. 16.15.1 Keypad and display



16.15.1 Set braking circuit plug position

Fig. 16.15.1.1 ED250 PCB bracket assembly

1 Power switch
2 Braking circuit 3 pin socket

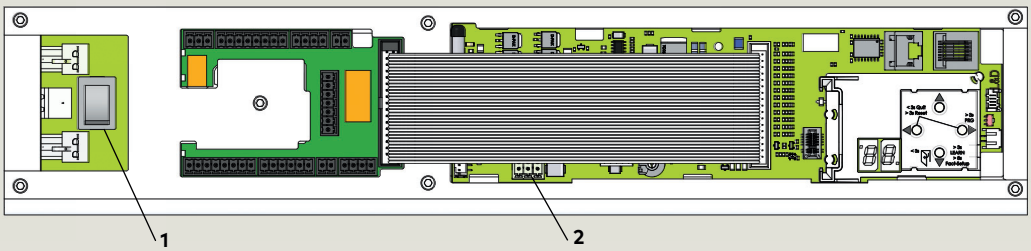


Fig. 16.15.1.2 Plug position, pull

1 Braking circuit plug
2 Braking circuit 3 pin socket

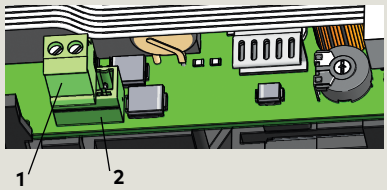
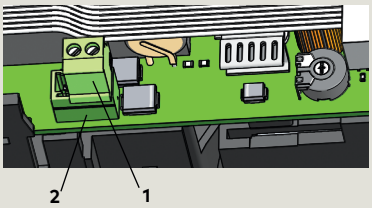


Fig. 16.15.1.3 Plug position, push

1 Braking circuit plug
2 Braking circuit 3 pin socket



16.15.1.1 Braking circuit plug .

Braking circuit plug is positioned in its 3 pin socket for either a door pull or push configuration.

- **Braking circuit plug is factory installed in the left 2 pins, the pull position.** (Fig. 16.15.1.2).

NOTICE

Refer to Para. 16.15.2, configuration parameter **AS** (installation type) for door push and pull configurations.

WARNING

Braking circuit will not work correctly if braking circuit plug is improperly positioned, or if an incorrect plug is used!
Door may close at high speed and/ or be difficult to open!

16.15.1.2 Change braking circuit plug position.

To change plug position for push door application, install plug in right 2 pins, toward user interface (Fig. 16.15.1.3).

WARNING

Insure power switch is OFF before changing plug position!

16.15.2 Set AS installation type parameter

Fig. 16.15.2.1 Arm and track, LH (push)

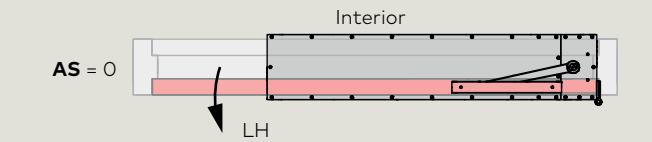


Fig. 16.15.2.2 Arm and track, RH (pull)

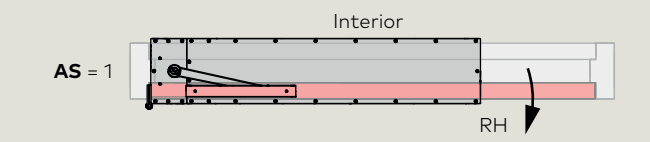


Fig. 16.15.2.3 Offset pivot arm, RH pull

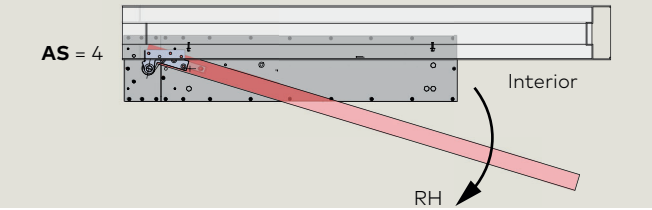


Fig. 16.15.2.4 Offset pivot arm, LH pull

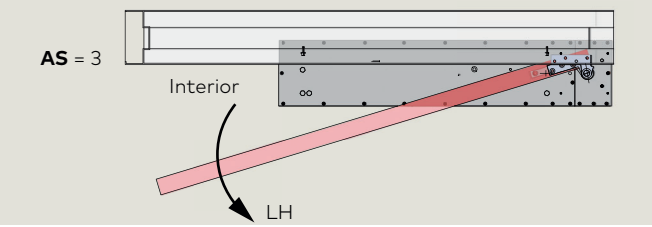


Fig. 16.15.2.5 Center hung arm, pivot at right jamb

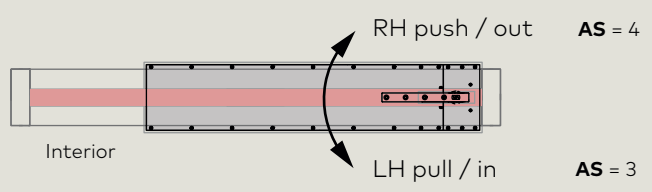


Fig. 16.15.2.6 Center hung arm, pivot at left jamb

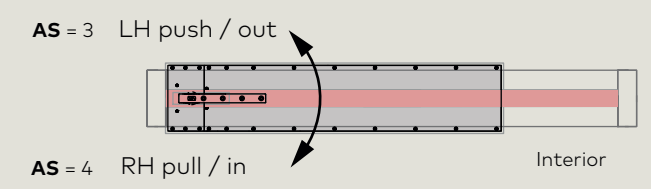


Table 16.15.2.1 AS parameter values

AS	**Installation type, in-ground (IG)**
Parameter value	Parameter description
0*	IG - Arm and track, LH push
1	IG - Arm and track, RH pull
2	IG - N/A
3	Overhead concealed (OHC) RH In-ground cement case: Offset pivot arm, LH pull Center hung arm, pivot at right jamb, LH pull/in Center hung arm, pivot at left jamb, LH push/out
4	OHC, LH In-ground cement case: Offset pivot arm, RH pull Center hung arm, pivot at right jamb, RH push/out Center hung arm, pivot at left jamb, RH pull/in
*	Factory setting

AS factory setting = 0.

16.15.2.1 Set AS parameter value.

NOTICE

1. **AS = 0.**
   - "0" is **AS** factory setting.
   - **For system to recognize AS = 0, steps in Para. 16.15.2.2 must be followed.**
2. **Set AS** parameter to value other than 0.
   - Follow steps in Para. 16.15.2.3

16.15.2..2 Set parameter AS value to 0.

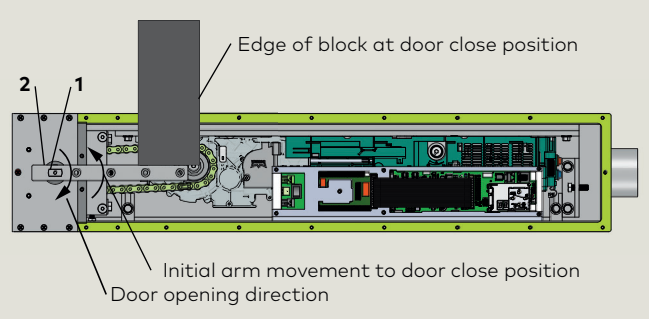
Step 1 Press ▶	AS	Press **PRG** greater than 3 s to enter program mode, **AS** parameter displayed.
Step 2 Press ▶	00	Displays "00" , factory setting.
Step 3 Press ▶	00	"00" starts flashing.
Step 4 Press ▲▼	01	Scroll to "1".
Step 5 Press ▲▼	00	Scroll to "0".
Step 6 Press ▶	00	Saves "0" value for Pull. Display stops flashing.
Step 7 Press ◀	AS	Returns to Installation type parameter.
Step 7		**Go to Para. 23.3, set door width parameter Tb.**

16.15.2.3 Set parameter AS to value other than 0.

Step 1 Press ▶	AS	Press **PRG** greater than 3 s to enter program mode, **AS** parameter displayed.
Step 2 Press ▶	00	Displays "00" , factory setting.
Step 3 Press ▶	00	"00" starts flashing.
Step 4 Press ▲▼	01	Scroll to "1" (push as example).
Step 5 Press ▶	01	Saves "1" value for Push. Display stops flashing.
Step 6 Press ◀	AS	Returns to Installation type parameter.
Step 7		**Go to Para. 10.5, set door width parameter Tb.**

16.15.3 Initiate learning cycle to rotate spindle to door hanging position

Fig. 16.15.3.1 Arm and cement case cover installed; center hung arm RH pull example



1 Spindle
2 Pivot arm (center hung arm shown as example)

Fig. 16.15.3.2 Center hung arm

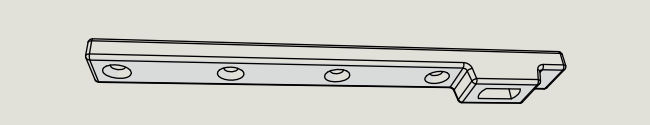


Fig. 16.15.3.3 Offset pivot arm

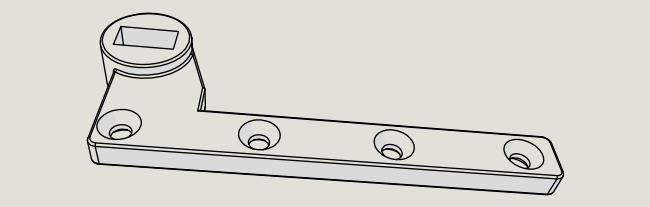


Fig. 16.15.3.4 Arm for slide track

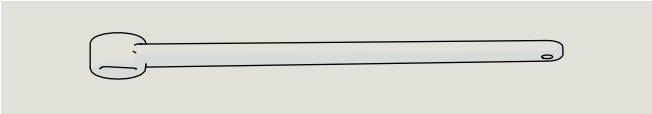
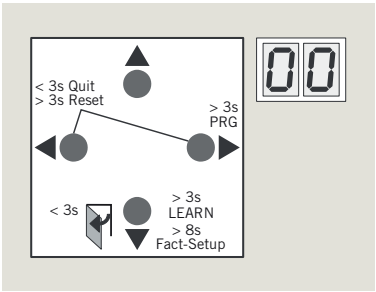


Fig. 16.15.3.5 User interface



CAUTION

Do not turn off power!
System is ready for door installation.

16.15.3.1 Install cement case cover and arm on spindle.

TIPS AND RECOMMENDATIONS

- Temporary installation of arm on spindle is required for learning cycle.
- When learning cycle is initiated, spindle first rotates to find door closed location. Since the door is not installed, a block (wood or other material) must be placed at the door closed location.

1. Secure arm to spindle with supplied hardware.
2. Place block on floor with edge of block in door closed location.

CAUTION

Block must be placed against arm in the arm door closing direction.

3. Block must not contact cement case gasket!

16.15.3.2 Initiate learning cycle to rotate spindle.

CAUTION

Braking circuit plug (Para. 16.15.1) and **AS** parameter (Para. 16.15.2) must be set before initiating partial learning cycle.

CAUTION

Temporary block must be secured or held in place at door closed location during learning cycle. Stay clear of arm travel path during learning cycle!

Step 1 Press ▼		Press and hold down button until display changes. • Spindle first rotates to door closed location. Display shows a sequence of symbols. • Spindle will start to rotate in door open direction.
Step 2		• Spindle stops. • Display indicates spindle is at 70° position for hanging door.

16.15.3.3 Remove block.
16.15.3.4 Remove arm.

16.16 Set operator spring tension

16.16.1 Operator spring tension function.

1. Spring tension sets closing force on door.
2. Required spring tension is based on door width.

16.16.2 Spring tension adjustment factory setting.

1. Spring tension adjustment is factory set fully CCW, no spring tension.
2. Spring has to be pretensioned per Para. 16.16.1. Use 5 mm T handle hex key.

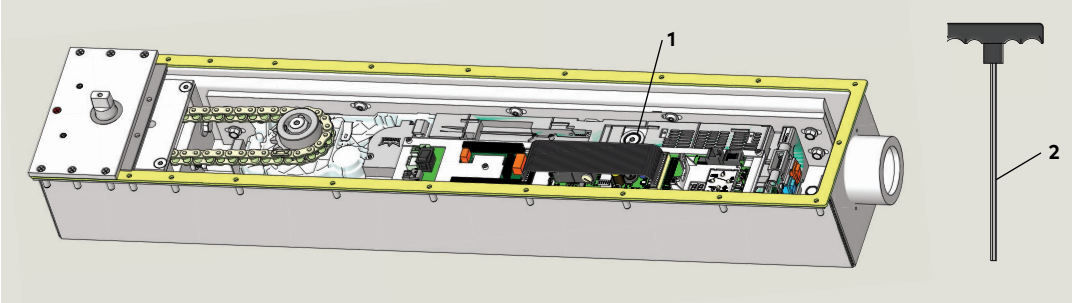
CAUTION

A minimum of ten spring tension revolutions are required to operate system.

Table 16.16.1 ED250 operator spring tension

Door width			
Inches	36	42	48
mm	914	1067	1219
Spring setting revolutions			
ED250	14	14	18

Fig. 16.16.1 Spring tension adjustment

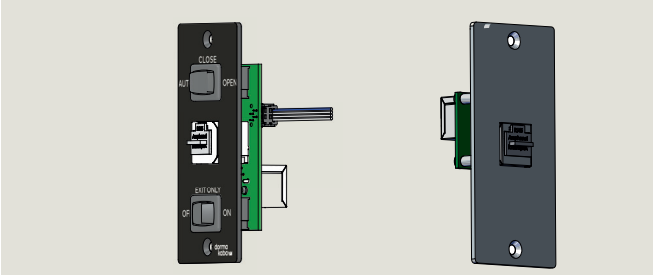


16.17 Install Mode switch panel – Install RJ45 plate assembly (double doors only)

16.17.1 Mode switch installation.

1. Install Mode switch at customer or contractor specified location.
2. Mode switch panel and cables, Ref Chapter 5, Accessory mounting kits
   - Program switch
   - RJ 45 communication cable.
3. Mode switch and RJ45 communication cable must be routed to cement case accessory wiring conduit.

Fig. 16.17.1 Mode switch panel and RJ45 plate assembly

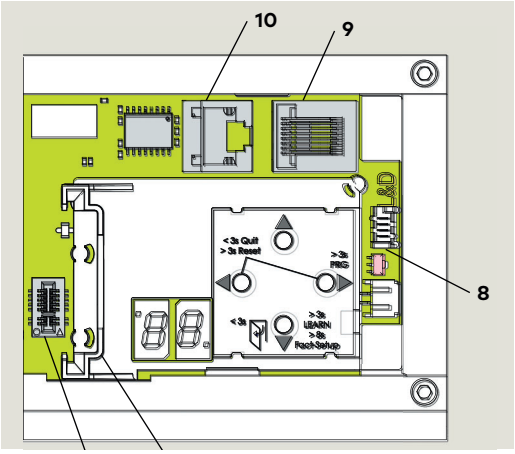


8 Mode switch connector

9 Double door operator to operator communication cable

10 dormakaba handheld communication port

Fig. 16.17.2 Operator communication ports



16.17.2 Double door Mode switch and RJ45 panel installation.

1. Install Mode switch at customer or contractor specified location.
2. Mode switch panel and cable, Ref Chapter 5, Accessory mounting kits.
   - Program switch
   - RJ45 communication cable
3. Install RJ45 plate assembly at customer or contractor specified location.
4. RJ45 plate assembly and cable, Ref Chapter 5, Accessory mounting kits;
   - RJ plate assembly.
   - RJ 45 communication cable

16.17.3 Optional key switch panels.

Reference Appendix D for key switch panel wiring.

16.18 Hang door

16.18.1 Door with pivot arm or center hung arm.

WARNING

Hand pinch point and crushing hazards!

TIPS AND RECOMMENDATIONS

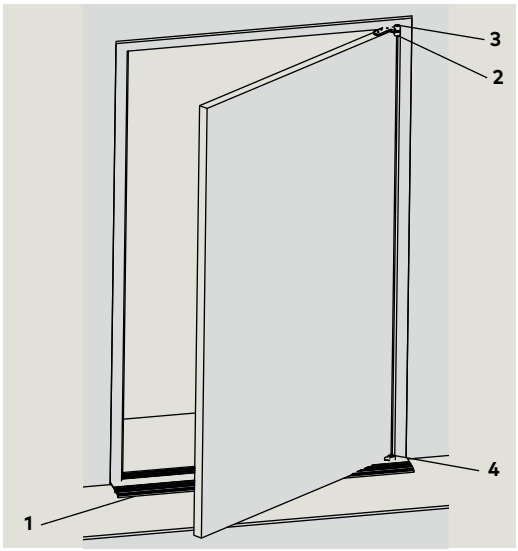
Figures 16.18.1, 2 and 3 are shown as examples.

1. Tools; set of pry bars recommended.
2. Spindle rotated to 70 degrees (Para. 16.15.3).
3. Install arm on door bottom.
4. Hang door.
5. Fasten arm to spindle.
6. Insure door is parallel to jamb.

16.18.2 Double doors

1. Hang each door per Para. 16.18.1.

Fig. 16.18.1 LH offset pivot door



1 Threshold
2 Door pivot hardware (by others)
3 Door frame pivot hardware (by others)
4 Offset pivot arm
5 Center hung arm

Note
Door and frame shown transparent for hardware views.

Fig. 16.18.2 LH center hung door

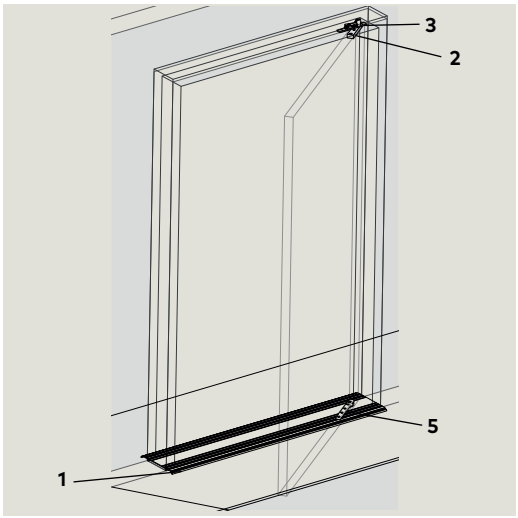
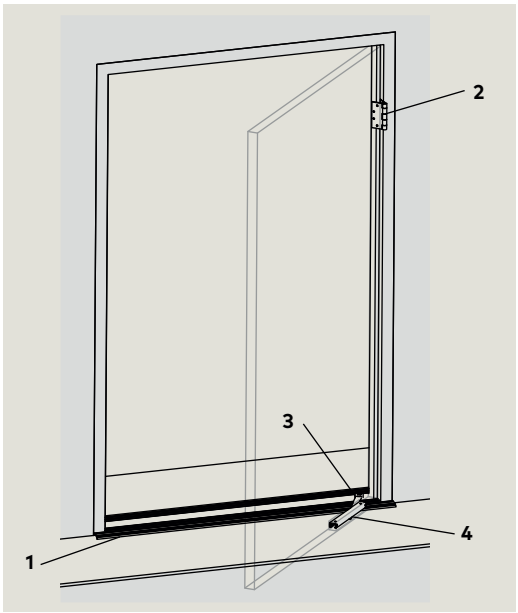


Fig. 16.18.3 LH slide arm and track door



1 Threshold
2 Butt hinge
3 Arm
4 Track

Note
Door and frame shown transparent for hardware views.

16.18.3 Door with track, installing door.

1. Mount arm to track slide in door using M8 shoulder screw. Using torque wrench with 5 mm hex key, torque screw to 12 ft-lb.
2. Insert arm slot into spindle as door is being installed.
3. Fasten arm to spindle.
4. Insure door is parallel to jamb.

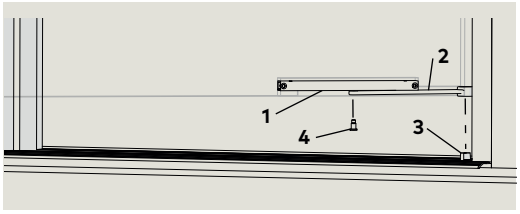
16.14.4 Door threshold

TIPS AND RECOMMENDATIONS

It is recommended to place door threshold over blockout and cement case to check door clearance before proceeding.

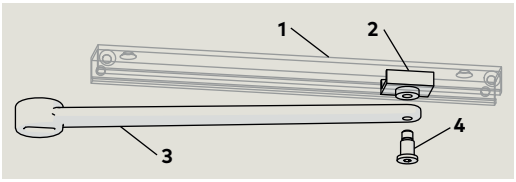
1 Track
2 Arm
3 Spindle
4 Shoulder screw

Fig. 16.18.4 Mounting track arm to spindle



1 Track
2 Slide
3 Arm
4 M8 shoulder screw

Fig. 16.18.5 Arm and track assembly



16.19 Reinstall cement case cover

16.19.1 Install cover.

1. Insure gasket is clean, then place cover over gasket.
2. Install the twenty one 8-32 x 3/4"PFHMS securing the cover to the cement case. Hand tighten with No. 2 Phillips screwdriver.

CAUTION

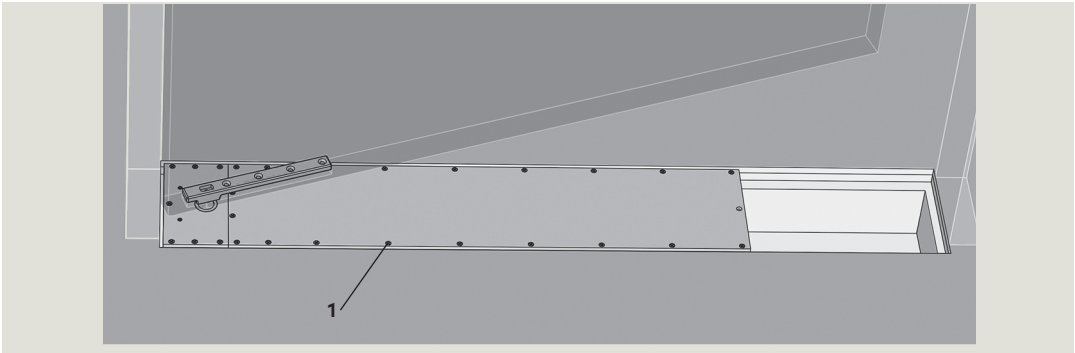
Do not over tighten screws!

CAUTION

Cover must be installed on cement case before final anchoring cement poured in concrete blockout.

Fig. 16.19.1 ED250 cement case with cover installed.

1 (21) 8-32 x 3/4" PFHMS (Phillips flat head machine screws)



16.20 Blockout drain installation

16.20.1 Blockout drain installation (customer).

NOTICE

Blockout drain.
Blockout drain must be installed prior to final anchoring cement pour (Para. 16.21).
Reference Chapter 13, Installation Templates.

16.21 Final anchoring cement pour

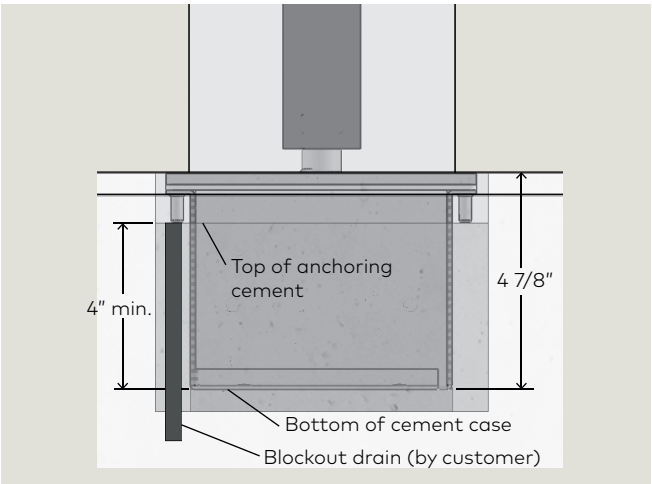
16.21.1 Final anchoring cement pour.
Reference: Chapter 13,Installation templates.
Center hung door shown as reference.

1. Door must be hung and in its final position.
2. Pour anchoring cement into blockout to a minimum depth of four inches from bottom of cement case.

CAUTION

Allow cement to set for time period referenced in manufacturer's instructions.

Fig. 16.20.1 ED250 cement case end view, final anchoring cement pour



16.22 Remove cement case cover for ED250 commissioning

16.22.1 Remove cement case cover.

17 Set door width parameter Tb

17.1 Door width parameter Tb

Table 17.1.1 Tb parameter values

Tb	rb	Door width	
Door width measurement			
Inches		[mm]	**Tb**
28 - 31 15/16		[711] - [811]	7
32 - 35 15/16		[813] - [912]	8
36 - 39 15/16		[914] - [1014]	9
40 - 43 15/16		[1016] - [1116]	**10***
44 - 47 15/16		[1118] - [1218]	11
48 - 51 15/16		[1219] - [1319]	12

Tb factory setting = 10.

17.1.1 Measure door width.

1. Measure door width in inches or mm

17.1.2 Set Tb door width parameter value.

NOTICE

1. **If door width = 40 - 43 15/16"**, **Set Tb = 10**.
   - "10" is **Tb** factory setting.
   - **For system to recognize Tb = 10**, **steps in Para. 17.1.3 must be followed.**
2. **Set TB** parameter to value other than 10.
   - Follow steps in Para. 17.1.4

17.1.3 Set parameter TB value = 10.

Step 8 Press ▼	rb	Scroll to **Tb** parameter.
Step 9 Press ▶	10	Displays "10" , factory setting.
Step 10 Press ▶	10	"10" starts flashing.
Step 11 Press ▲▼	11	Scroll to 11
Step 12 Press ▲▼	10	Scroll to 10
Step 13 Press ▶	10	Saves value. Display stops flashing.
Step 13 Press ◀	rb	Returns to door width parameter.
Step 14		**Go to Chapter 18, Set reveal depth rd.**

17.1.4 Set parameter TB to value other than 10.

Step 8 Press ▼	rb	Scroll to **Tb** parameter.
Step 9 Press ▶	10	Displays "10" , factory setting.
Step 10 Press ▶	10	"10" starts flashing.
Step 11 Press ▲▼	11	Scroll to 11 (Door width = 44 - 47 15/16" as example)
Step 12 Press ▶	11	Saves value entered. Display stops flashing.
Step 13 Press ◀	rb	Returns to door width parameter.
Step 14		**Go to Chapter 18 Set reveal depth parameter rd.**

18 Set reveal depth, door type

18.1 Reveal depth parameter rd

Fig. 18.1.1 Reveal depth parameter rd

2	rd		Reveal depth

rd factory setting = 0.

18.1.1 Reveal depth parameter.

1. Reveal depth is set in increments of 10 mm (approximately 3/8").

18.1.2 Reveal depth parameter, center hung door.

1. Reveal depth: 0, **rd** = 0

18.1.3 Reveal depth parameter, offset pivot door.

1. Reveal depth: 3/4", **rd** = 2

18.1.4 Reveal depth parameter, arm and track.

1. Reveal depth: 1", **rd** = 3

18.1.5 Set rd reveal depth parameter value.

NOTICE

1. **If reveal depth = 0, set rd = 0.**
   - "0" is **rd** factory setting.
   - **For system to recognize rd = 0, steps in Para. 18.1.6 must be followed.**
2. **Set rd** parameter to value other than 0.
   - Follow steps in Para. 18.1.7

18.1.6 Set parameter rd, reveal depth = 0.

Step 15 Press ▼		Scroll to **rd** parameter.
Step 16 Press ▶		Displays "00" , factory setting.
Step 17 Press ▶		"00" starts flashing.
Step 18 Press ▲▼		Scroll to "01".
Step 19 Press ▲▼		Scroll to "00".
Step 20 Press ▶		Saves value. Display stops flashing.
Step 21 Press ◀		Returns to reveal depth parameter.
Step 21		**Go to Para. 23.5, Set door type parameter dL.**

18.1.7 Set parameter rd to value other than 0.

Step 15 Press ▼		Scroll to **rd** parameter.
Step 16 Press ▶		Displays "00" , factory setting.
Step 17 Press ▶		"00" starts flashing.
Step 18 Press ▲▼		Scroll to new value ("10" as example).
Step 19 Press ▶		Saves value. Display stops flashing.
Step 20 Press ◀		Returns to reveal depth parameter.
Step 21		**Go to Para. 23.5, Set door type parameter dL.**

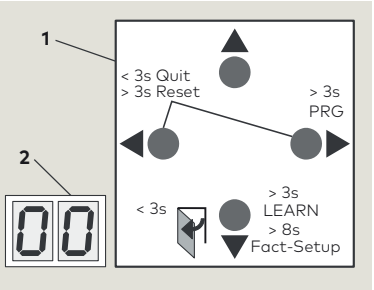
18.2 Set door type parameter **dL**

Table 18.2.1 Door type parameter dL values

dL	**Door type**
Parameter value	Parameter description
0*	Single door
1	Pair doors, with astragal. Active door operator, door opens first.
2	Pair doors, with astragal. Inactive door operator.
3	Pair doors, without astragal. Active door operator. Both doors open simultaneously.
4	Pair doors, without astragal. Inactive door operator. Both doors open simultaneously.

***dL** factory setting = 0.

Fig. 18.2.1 4 button keypad, 2 digit display



1 4 button keypad
2 2 digit display

18.2.1 Set dL door type parameter value.

NOTICE

1. **Set dL = 0** (single door =0).
   - "0" is **dL** factory setting.
   - **For system to recognize dL**= 0, **steps in Para. 18.2.2 must be followed.**

dL must be set to "0" for single door commissioning.

18.2.2 Set parameter dL, door type = 0.

Step 22 Press ▼	dL	Scroll to **dL** parameter.
Step 23 Press ▶	00	Displays "00" , factory setting.
Step 24 Press ▶	00	"00" starts flashing.
Step 18 Press ▲▼	01	Scroll to "01".
Step 18 Press ▲▼	00	Scroll to "00".
Step 25 Press ▶	00	Saves value. Display stops flashing.
Step 26 Press ◀	dL	Returns to door type parameter.
Step 27 Press ◀	_ _	Exits program mode.

TIPS AND RECOMMENDATIONS

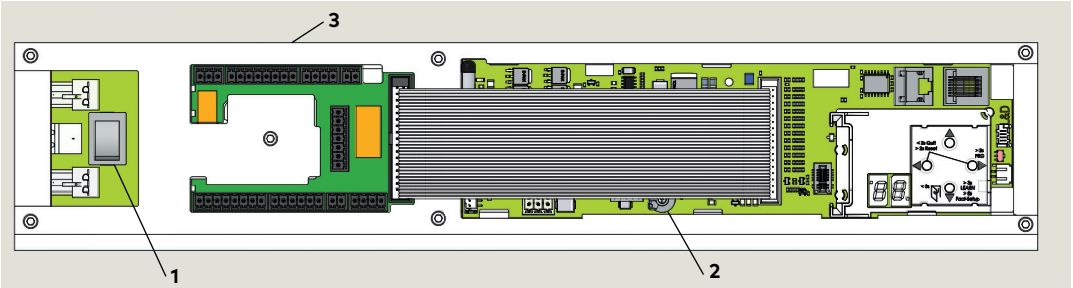
If display shows _0 after basic parameters have been set:

- Press ▼ for 3 seconds.
- bC will be displayed.

19 Power fail closing speed

19.1 Set power fail closing speed

Fig. 19.1.1 Power fail closing speed potentiometer



1 Power switch
2 Power fail closing speed potentiometer
3 PCB bracket assembly

19.1.1 Power fail closing speed potentiometer.

- Single turn
- Factory setting: fully CCW
- CCW increases closing speed.
- CW decreases closing speed.
- 3/32" [2-3 mm] flat blade screwdriver required for adjustment.

19.1.2 Setting door closing speed upon power failure.

1. Turn ED250 power switch OFF.
2. Manually open door to 90° angle and let it close.
3. If door closes in less than 5 seconds, turn potentiometer 1/4 turn CW and retry test.
4. Continue retrying test after potentiometer adjustment until the door closing time is a minimum of 5 seconds.

TIPS AND RECOMMENDATIONS

Minimum 5 second closing time is required to meet requirements of:

- A117.1, Accessible and Usable Buildings and Facilities, Section 404.2.7.
- 2010 ADA Standards for Accessible Design, Section 404.2.8.

NOTICE

Error message E73.
If door closes in less than three seconds, error message **E 73** (System error 3, braking circuit) will be displayed.
Reference Appendix B, Troubleshooting.

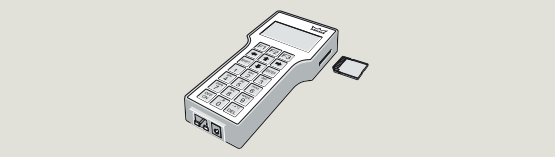
20 Parameters

20.1 Parameters

20.1.1 Firmware version and updates.

- Operator firmware version is displayed during first commissioning. Reference Chapter 21.
- dormakaba handheld can be used to check operator firmware version and to perform firmware updates. Reference Appendix C, dormakaba handheld, or dormakaba handheld manual.

Fig. 20.1.1 dormakaba handheld



20.1.2 Configuration parameters.

Configuration parameters (Para. 20.1.6) are set during first commissioning.

- Parameter **AS**, installation type is set in initial spindle rotation. Reference para.16.15.2.
- Refer to Para. 20.1.8 for configuration parameter detail.

20.1.3 Driving parameters.

Driving parameters can be set once first commissioning has been completed.

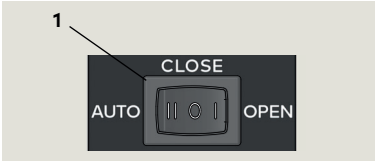
- Reference Para. 20.1.7 for a list of driving parameters.
- Reference Appendix A for details on each driving parameter.

20.1.4 Changing parameter values.

1. Set Mode switch in CLOSE position

Fig. 20.1.2 Mode switch

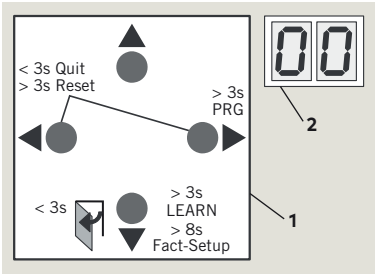
1 Mode switch, 3 position



1. Use 4 button keypad as outlined in Steps 1 through 8 to view or change parameter values.

Fig. 20.1.3 4 button keypad, 2 digit display

1 4 button keypad
2 2 digit display



Step 1 ▶	Press and hold right button greater than 3 s to enter program mode.
Step 2 ▲▼	Press up or down button to scroll through parameters until desired parameter is displayed.
Step 3 ▶	Press right button to display current parameter value.
Step 4 ▶	Press right button again to enable editing of value, display will start flashing.
Step 4 ▲▼	Press up or down button to select desired parameter value.
Step 5 ▶	Press right button to save selected value. Display stops flashing.
Step 6 ◀	Press left button to return to selected parameter.
Step 7 ▲▼	Press up or down button to scroll through parameters until next desired parameter is displayed.
Step 8 ◀	Press left button for a minimum of 3 s to exit program mode.

20.1.6 Configuration parameters.

Parameter			Description
1	AS		Installation type
2	rd		Reveal depth
3	Tb		Door width
4	dL		Door type

20.1.7 Driving parameters.

Reference Appendix A for parameter detail.

Driving parameter			Description
5	So		Opening speed, automatic mode
6	Sc		Closing speed, automatic mode
7	dd		Hold open time, automatic mode
8	dn		Hold open time, night/bank
9	do		Hold open time, manual opening of door
10	Sb		Wall masking on door swing (hinge) side
11	ST		Safety sensor test
12	SA		Activation by safety sensor on approach (opposite hinge) side
13	SP		Suppression of safety sensor on swing hinge) side during initial movement
14	Ud		Locking mechanism delayed opening time
15	Pu		Door preload prior to unlocking
16	TS		PR (Power reserve) module test
17	Fo		Static force on door closing edge in opening direction (wind load control)
18	Fc		Static force on door closing edge in closing direction (wind load control)
19	EP		Motor driven latching action, automatic mode
20	EA		Door opening angle at which motor driven latching action is activated
21	FH		Keep closed force
22	PG		Push and Go
23	PS		Program switch type
24	S1		DCW EPS, electronic program switch behavior following a power reset
25	S2		Internal program switch, function on delay
26	du		Door unlocking during business hours
27	Sr		Status relay function, terminal block X7
28	bE		Input 4/4a and X3, 1G 24V locking device output configuration

Driving parameter			Description
29	CC		Cycle counter, number displayed * 10000
30	EC		Delete error log
31	CS		Reset service interval display (yellow LED)
32	SL		Factory setting level (Fact Setup button)
33	OA		Opening angle, set during learning cycle
34	hd		Door closer mode, automatic or manual
35	hA		Power assist function activation angle
36	hF		Power assist function force adjustment
37	hS		Power assist function support for manual mode in door closed position
38	F1		Upgrade card, fire protection
39	F2		Full energy
40	F3		Not used.
41	F4		Not used.
42	F5		Not used
43	F7		Upgrade card, barrier free toilet
44	F8		Upgrade card, DCW I/O module
45	C1		Configuration of COM 1 interface
46	bc		Backcheck angle when door opened manually
47	Td		Door thickness [mm]
48	d1		Deactivation of drive, emergency pushbutton at X4, 4 and 4a, trigger type
49	d2		Night/bank function, trigger type
50	FC		Hold open system release by manually closing door, trigger type (v1.7)
51	Ad		Active door with astragal: castor angle, angle door must reach before passive door starts to open
52	HS		Hinge clearance
53	S3		OHC mode: permanent open mode via night-bank input
54	S4		OHC mode: adjustable behavior after a blockage / hold open
55	S5		Reversing after triggering of approach side safety sensor / opposite hinge side in mode HD = 1

20.1.8 Configuration parameters, detail

Parameter and value range, factory setting = **bold**.			Parameter description
1	AS	0 - 5 **0**	**Installation type** Reference Para. 16.15.2 for AS parameter detail.
2	rd	ED250 -3 to 50 **0**	**Reveal depth** **0** Reveal is set in increments of 10 mm (3/8"). Reference Chapter 17, reveal depth.
3	rb Tb	ED250 7 to 12 **10**	**Door width** **10** Door width is set in increments of 100 mm (4"), "10" = 1000 mm (39.4"). Reference Chapter 17, door width.
4	dL	0 to 4 **0**	**Door type** **0** Single door 1 Double door • Overlapping door (with astragal) • Active door operator. 2 Double door • Overlapping door (with astragal) • Passive door operator. 3 Double door • Edgeless door (no astragal) • Active door operator. 4 Double door • Edgeless door (no astragal) • Passive door operator.

21 Single door first commissioning

21.1 First commissioning

Fig. 21.1.1 Mode switch

Fig. 21.1.2 Power switch

2 Power switch

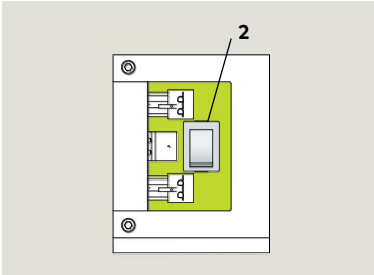
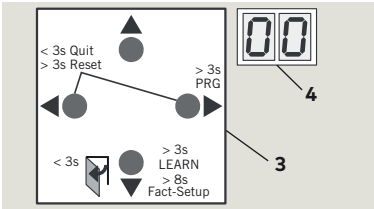


Fig. 21.1.3 4 button keypad, 2 digit display

3 Four button keypad
4 Two digit display



TIPS AND RECOMMENDATIONS

If pressing down button (Step 3) does not result in desired display orientation, return to Step 2, turn power button off, then on to repeat commissioning steps.

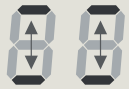
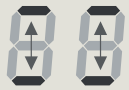
Conditions prior to commissioning.

1. ED250-IG installation complete, through Chapter 19.
2. Door installation complete.
3. Key switches and other separately supplied hardware are installed and connected to operator.
4. 115 Vac branch circuit to operator is energized.
5. Operator motor is cold.

CAUTION

Motor must be cold for commissioning!

21.1.1 First commissioning.

Step 1	Mode switch to CLOSE position.
Step 2	Power switch to ON position.
	System check. • Series of letters and numbers rapidly displayed.
	Control unit self check. • Two segments jumping back and forth.
	Horizontal dashes move up and down.
Step 3	Press 4 button keypad down button ▼.
	While 2 digit display segments move up and down, letters and numbers will change if required to display correct orientation.
	Display scrolls: • Device ID (Ed250) • Firmware version (format F x x x x)
	Program mode display. Program mode will be displayed indicating system requires further parameter settings.

21.2 Perform learning cycle

CAUTION

Learning cycle must be performed while motor is cold!

CAUTION

Door must not be manually moved or held in position during the learning cycle!

CAUTION

Verify that the following parameters have been set.

- **AS**, Installation type
- **rd**, Reveal depth
- **Tb**, Door width
- **dL**, Door tyPE

TIPS AND RECOMMENDATIONS

During learning cycle, operator functions are deactivated.

WARNING

No personnel or objects must be in range of door motion!

Fig. 21.2.1 Mode switch

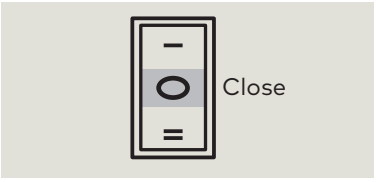
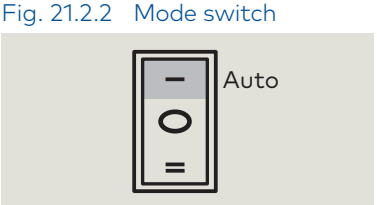
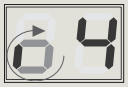


Fig. 21.2.2 Mode switch



Step 1		Secure motion range of door.
Step 2		Set MODE switch to CLOSE position, Fig. 21.2.1.
		Rotating "o" and a "0" indicates operator learning cycle is required.
		Display indicates door is at 70° position and is waiting for door opening angle to be set.
Step 3 Press ▼		Press and hold down button until display changes. • Door performs several movements and display shows a sequence of symbols. • Movements of door must not be interrupted!
Step 4		• Manually move door to desired opening angle. Maximum door angle is 110°.
Step 5 Press ▼		Momentarily press down button to continue learning cycle. • Door performs several movements and display shows a sequence of symbols. • Movements of door must not be interrupted!
		**Operator spring tension too low.** • Display with small rotating "o" and an "F" during learn cycle indicates spring tension is too low. • Door will close. 1. Increase spring tension (Para. 16.16). 2. Restart learning cycle (Step 3).
		Door completes learning cycle. • Display with two horizontal bars indicate operator is ready for operation.
Step 6 Press ▼		Momentarily press down button to cycle door.
Step 7		Following automatic learning cycle, actual forces on door, and door opening and closing times must be measured and changed if necessary to insure compliance with ANSI/BHMA standards.
Step 9		Set program switch to Auto, Fig. 21.2.2.

22 Double door first commissioning

22.1 Separately commission active and passive doors

22.1.1 Commission active door first.
Refer to Chapter 21, Single Door First Commissioning.

22.1.2 Commission passive door.
Refer to Chapter 21, Single Door First Commissioning.

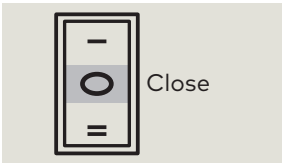
22.2 Set operator parameters for double door operation

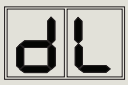
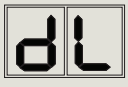
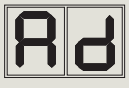
22.2.1 Active door, set parameters dL and Ad.

1. Set Mode switch to CLOSE.
2. Set parameters dL (door type) and Ad (castor angle) for active door.
   - Castor angle sets opening angle of active door before passive door starts to open. Factory setting is 30°.

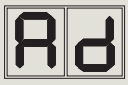
1 Mode switch, 3 position

Fig. 22.1.1 Mode switch



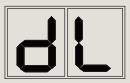
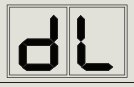
Step 1 Press ▶		Press and hold right button greater than 3 s to enter program mode, AS parameter displayed.
Step 2 Press ◀		Scroll to **dL** parameter.
Step 3 Press ▶		Displays "00" , factory setting.
Step 4 Press ▶		"00" starts flashing.
Step 5 Press ▲▼		Scroll to select parameter value ("1" as an example).
Step 6 Press ▶		Saves value entered. Display stops flashing.
Step 7 Press ◀		Returns to door type parameter.
Step 8 Press ▼		Scroll to Ad parameter.

	**Door type**
Parameter value	Parameter description
0*	Single door
1	Double door, with astragal. Active door operator, door opens first.
2	Double door, with astragal. Inactive door operator.
3	Double door, without astragal. Active door operator. Both doors open simultaneously.
4	Double door, without astragal. Inactive door operator. Both doors open simultaneously.
*	Factory setting

Step 9 Press ▶		Displays "30", factory setting.
Step 10 Press ▲▼		Scroll to select parameter value (10° as an example).
Step 11 Press ▶		Saves value entered. Display stops flashing.
Step 12 Press ◀		Returns to caster angle parameter.
Step 13 Press ◀		Exits program mode. Operator is ready for operation.

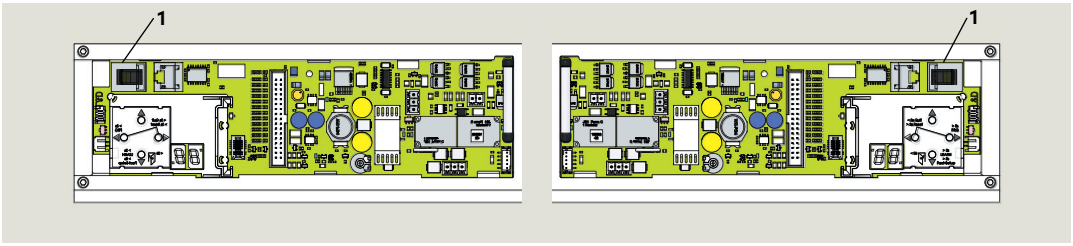
22.2.2 Passive door, set parameter dL.

1. Set Mode switch to CLOSE.
2. Set parameter dL (door type) for passive door.

Step 1 Press ▶		Press and hold right button to enter program mode, AS parameter displayed.
Step 2 Press ▼		Scroll to **dL** parameter.
Step 3 Press ▶		Displays "00" , factory setting.
Step 4 Press ▶		"00" starts flashing.
Step 5 Press ▲▼		Scroll to select parameter value ("2" as an example).
Step 6 Press ▶		Saves value entered. Display stops flashing.
Step 7 Press ◀		Returns to door type parameter.
Step 25 Press ◀		Exits program mode. Operator is ready for operation.

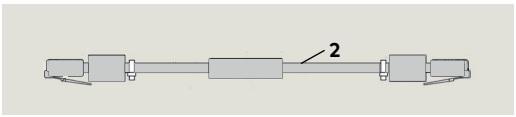
22.3 Connect communication (sync) cable between operators

Fig. 22.3.1 Double door operators, RJ45 jack for communication cable



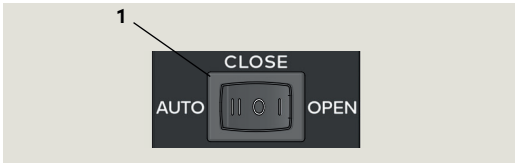
1 RJ45 jack (horizontal) for communication cable

Fig. 22.3.2 Communication (sync) cable



2 Communication (sync) cable, 80" DX3485-030

Fig. 22.3.3 Mode switch



1 Mode switch, 3 position

22.3.1 Install communication cable.

1. Set Mode switch to CLOSE.
2. Install and route communication cable between the two cement cases using the PVC conduit.
3. Connect communication cable to active and inactive operator RJ45 horizontal jacks.
4. Secure cable inside each cement case.

22.3.2 Test door operation.

1. Set program switch to AUTO.
2. Test double door operation.

23 Connect accessory wiring

23.1 Connect accessory wiring, single door

23.1.1 Connect accessory wiring.

TIPS AND RECOMMENDATIONS

- Reference Chapter 11, System Accessories.

1. Terminate all accessory wiring at ED250 terminal board.
2. Secure all accessory wiring in cement case away from ED250 operator, gearbox, and chain.

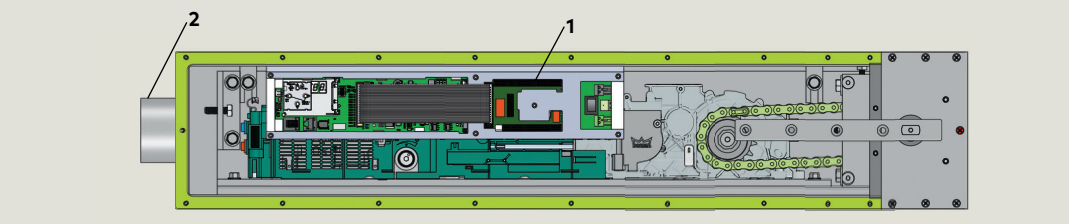
23.1.2 Test system accessories.

Test functionality of all accessories.

CAUTION

All accessory wiring to ED250 operator must be completed, and accessories tested, before cement case cover is installed (Chapter 25).

Fig. 23.1.1 Accessory wiring terminal board



1 Accessory wiring terminal board
2 Accessory wiring PVC reducer fitting

23.2 Connect accessory wiring, double doors

23.2.1 Connect accessory wiring.

TIPS AND RECOMMENDATIONS

- Reference Chapter 11, System Accessories.

1. Terminate all accessory wiring at ED250 terminal boards in both cement cases.
2. Secure all accessory wiring in cement cases away from ED250 operator, gearbox, and chain.

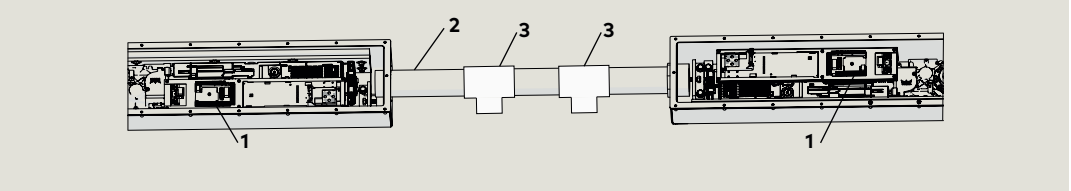
23.2.2 Test system accessories.

Test functionality of all accessories.

CAUTION

All accessory wiring to ED250 operators must be completed, and accessories tested, before cement case covers are installed (Chapter 25).

Fig. 23.2.1 Accessory wiring terminal boards, double door



1 Accessory wiring terminal board
2 Accessory wiring PVC pipe
3 Tee fittings (by others)

25 Install cement case cover

25.1 Install cement case cover

25.1.1 Cement case checks.

Mode switch in Open position.

1. Check spindle seal installation.
2. Clean cement case of all debris.
3. Check roller chain tightness for 3/4" deflection when chain squeezed together.
4. All case penetrations other than liquidtight conduit fittings sealed with Permatex No. 2.
5. All accessory wiring secured. No wiring adjacent to or in contact with moving parts.
6. 115 Vac wiring secured. No wiring adjacent to or in contact with moving parts.

25.1.2 Clean and align gasket.

1. Clean gasket
2. Align gasket with cement case mounting holes.

25.1.3 Install cover.

1. Place cover on cement case gasket
2. Install and tighten the twenty one 8-32 x 3/4" PFHMS securing the cover to the cement case.
3. Use a Phillips No. 2 screwdriver to tighten the screws.

CAUTION

Do not over tighten screws!

25.1.4 Seal seam between spindle and cement case covers.

1. Seal cover seam with Permatex No. 2.

Fig. 25.1.1 Cement case with cover off

1 Spindle shaft seal
2 Spindle
4 Cement case gasket

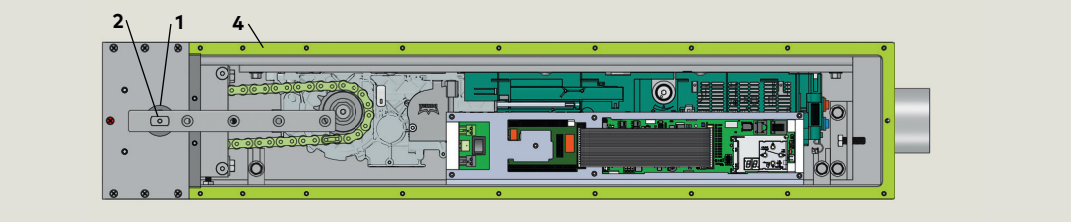
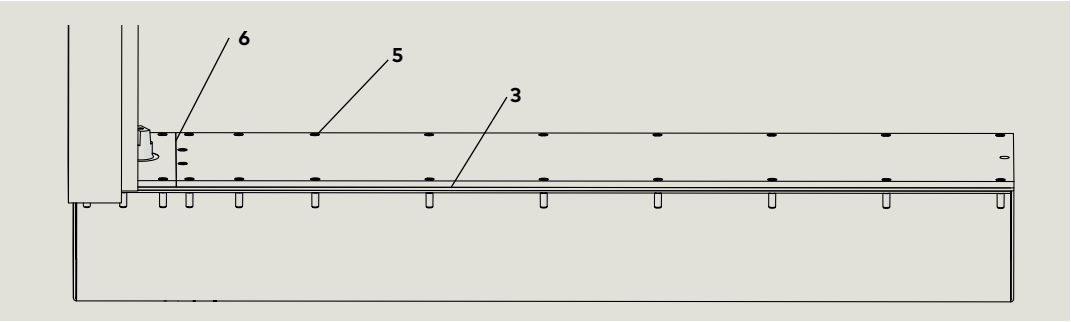


Fig. 25.1.2 Cement case with cover on

3 Cement case gasket
5 8-32 x 3/4" PFHMS
6 Cover seam



26 Install door threshold

26.1 Install door threshold

Fig. 26.1.1 Threshold example for ED250 in-ground

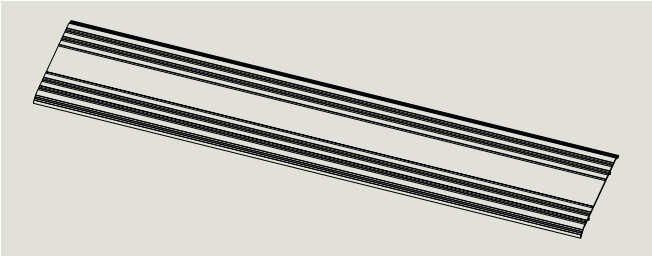


Fig. 26.1.2 Threshold installed example for ED250 in-ground

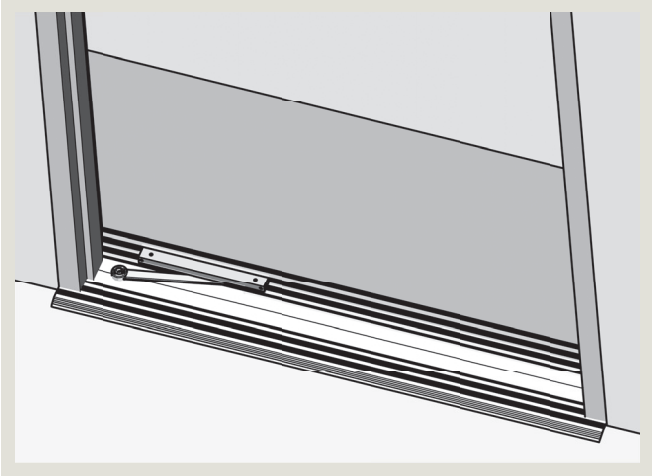
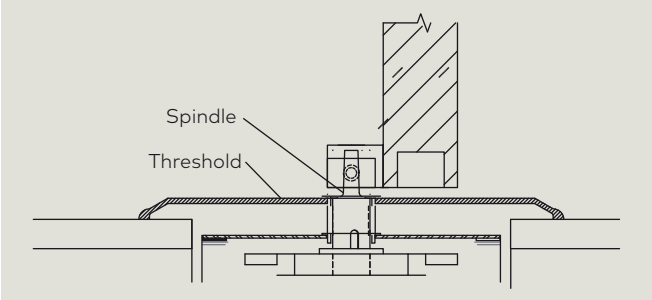


Fig. 26.1.3 Threshold installed end view example



NOTICE

- Threshold supplied by customer / contractor.
- Customer / contractor installation responsibility.

NOTICE

Refer to Warranty Guidelines, page 3 for threshold manufacturing and installation requirements.

CAUTION

- Cement case cover must be installed and sealed (Chapter 24).
- Blockout should be free of debris.

26.1.1 Install threshold over blockout and cement case.

CAUTION

Threshold fasteners cannot contact cement case or cement case covers.

26.1.2 Threshold seal at spindle.

CAUTION

Spindle opening at threshold must be sealed with an O-ring or similar device.

26.1.2.1 Seal perimeter of threshold.

1. Seal entire perimeter of threshold with silicone sealant.

27 Install door signage

27.1 Install door signage

27.1.1 Install door signage based on type of door installation.

1. Install applicable door signage as outlined in Chapter 12, ED250 door signage.

28 Maintenance – ED250 in-ground door threshold

28.1 In-ground door threshold

Fig. 28.1.1 Threshold example for ED250 in-ground

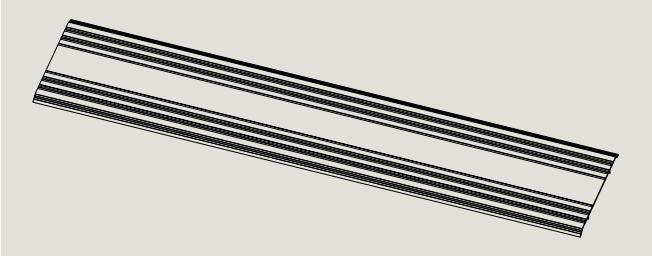


Fig. 28.1.2 Door threshold installation example for ED250 in-ground

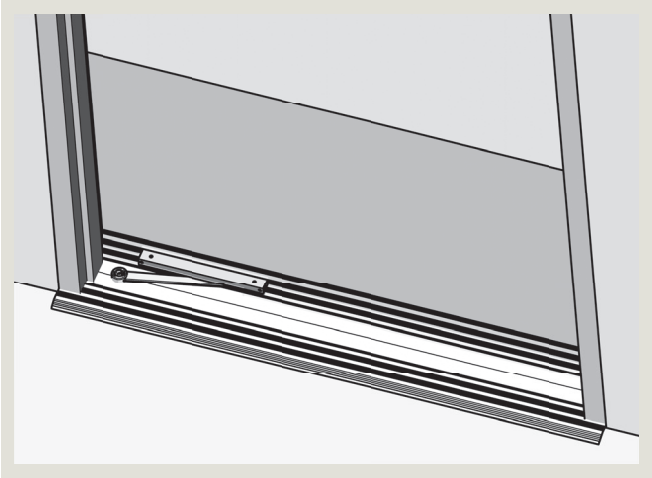
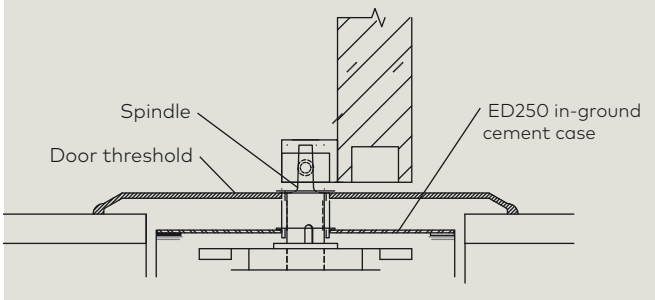


Fig. 28.1.3 Threshold installation end view example



NOTICE

Door threshold installation and maintenance is owner's responsibility.

28.1.1 Door threshold seal at spindle.

CAUTION

Spindle opening at threshold must be sealed with an O-ring or similar device.

28.1.2 Door threshold perimeter seal.

CAUTION

Threshold perimeter must be sealed with a silicone sealant.

28.1.3 Cleaning door threshold and floor area around threshold.

CAUTION

Do not pressure wash door threshold or floor area adjacent to door threshold!

WARNING

Access to the ED250 in-ground cement case must only be done by dormakaba USA Inc. certified technicians!

29 Maintenance

29.1 In-ground single swing door with offset pivot arm

29.1.1 Offset pivot arm door maintenance.

1. Pivot arms, check for wear and tear.

Fig. 29.1.1 Left hand door with offset pivot arm

1 ED250 in-ground cement case
2 Offset pivot arm
3 Door pivot (by others)
4 Door frame pivot (by others)
5 Door frame
6 Blockout
- Threshold not shown
- Door transparent for hardware views

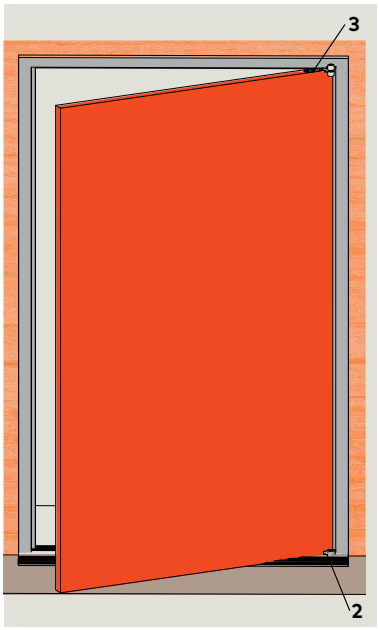
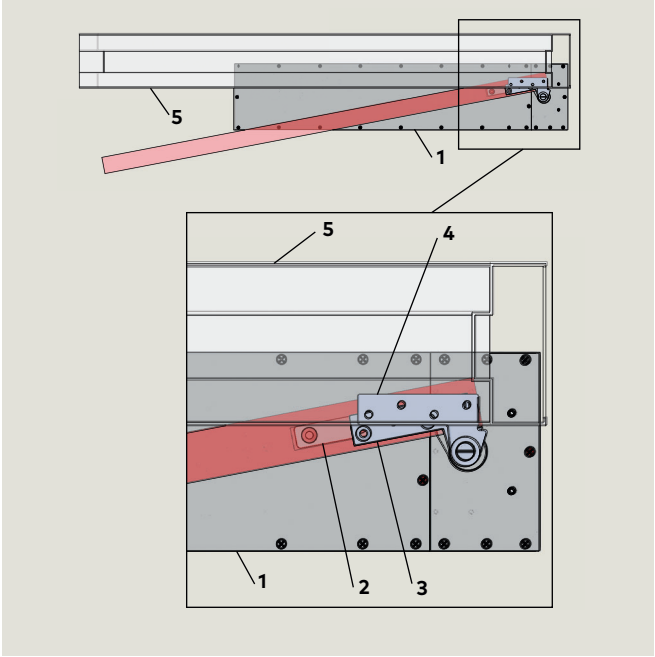


Fig. 29.1.2 Door overhead view



29.2 ED250 in-ground single swing door with center hung arm

29.2.1 Center hung door maintenance.

1. Center hung arms, check for wear and tear.

Fig. 29.2.1 Door with center hung arm

1 ED250 in-ground cement case
2 Blockout
5 Door frame
6 Center hung arm
9 Top of door and door frame hardware (by others)

Threshold not shown

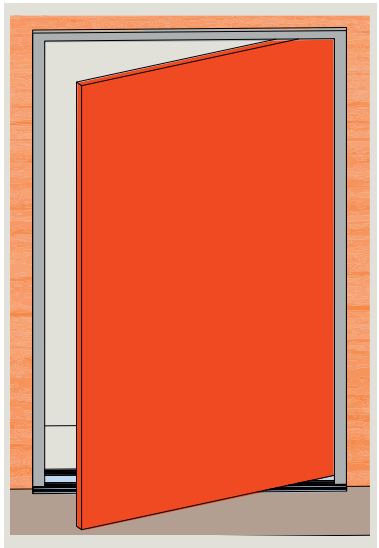
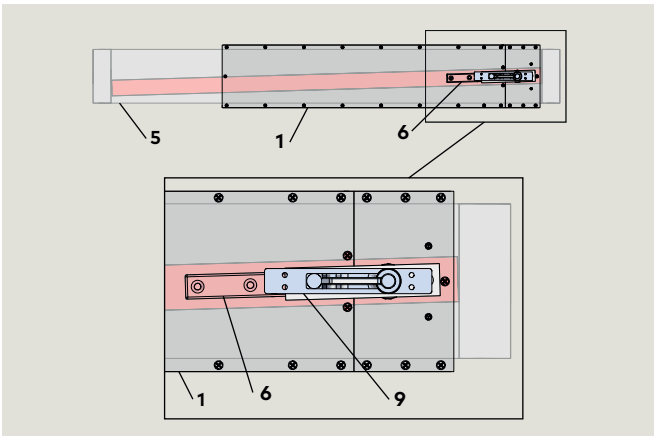


Fig.29.2.2 Door overhead view



29.3 ED250 in-ground single swing door with arm and track

29.3.1 Arm and track door maintenance.

1. Track, check for wear or damage.
2. Track, check for debris in track.
3. Slide, check for wear or damage.

Fig. 29.3.1 LH door with arm and track

1 ED250 in-ground cement case
2 Blockout
3 Door
4 Butt hinge (by others)
5 M8 shoulder screw
6 Slide
7 Track
8 Arm
9 Threshold (by others)

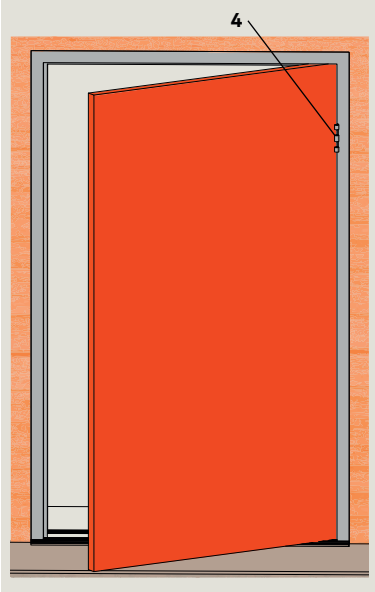


Fig. 29.3.2 Overhead view, door closed

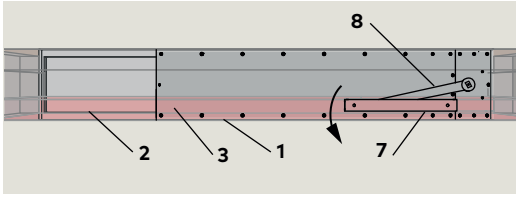


Fig. 29.3.3 Front view

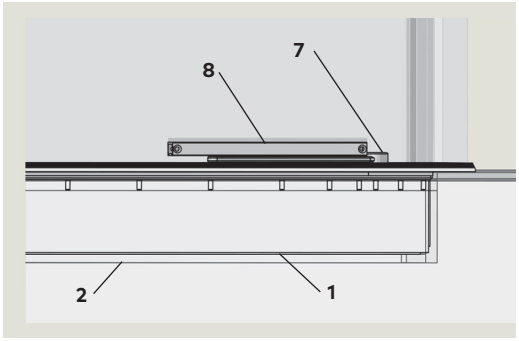
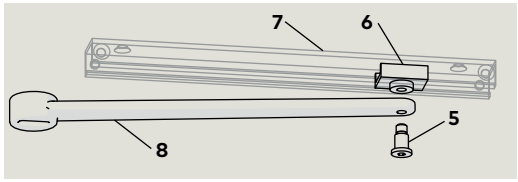


Fig. 29.3.4 Arm and track



29.4 Removing and reinstalling cement case cover

29.4.1 Removing cement case cover.

1. Use a Phillips No. 2 screwdriver bit to remove the twenty one 8-32 x 3/4" PFHMS securing the cover to the cement case.

29.4.2 Reinstalling cement case cover.

1. Insure gasket is clean and aligned with case mounting holes, then place cover over gasket.
2. Using a Phillips No. 2 screwdriver bit, install the twenty one 8-32 x 3/4" PFHMS securing the cover to the cement case.

WARNING

Access to the ED250 in-ground cement case must only be done by dormakaba USA Inc. certified technicians!

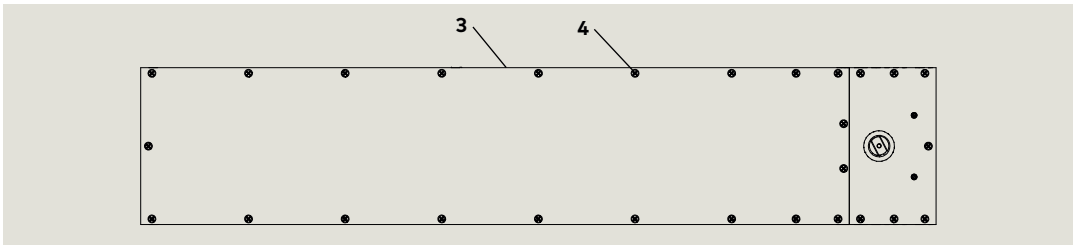
3. Hand tighten screws using a Phillips No. 2 screwdriver.

CAUTION

Do not over tighten cover screws!

Fig. 29.4.1 ED250 cement case with cover installed.

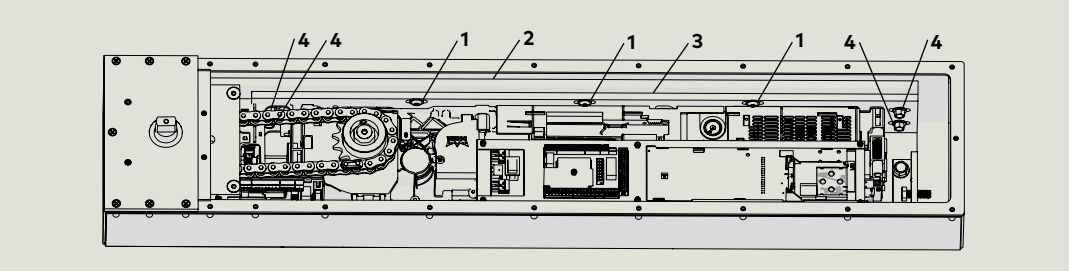
3 Cover
4 (21) 8-32 x 3/4" PFHMS (Phillips flat head machine screws)



30 Cement case spindle and chain adjustments

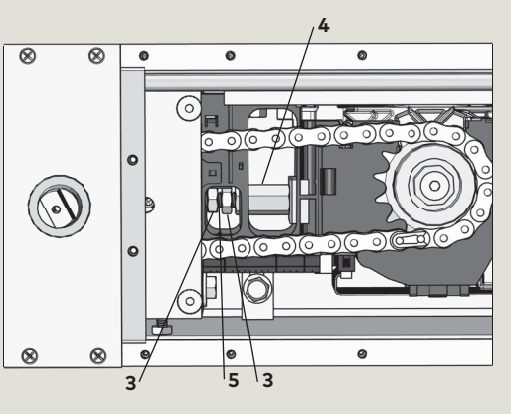
30.1 Cement case chain tension

Fig. 30.1.1 Operator mounting screws



1 BHSCS (Flanged button head socket cap screw)
2 Operator mounting main extrusion
3 Spacer plate
4 1/4" x 5/8" FHCS (flanged head cap screw) and washer)

Fig. 30.1.2 Chain tensioning adjustment



3 3/8" hex nut
4 Chain tension nut (3/8" x 1 1/4" hex standoff)
5 3/8" x 2" long threaded stud

30.1.1 Check chain tension.

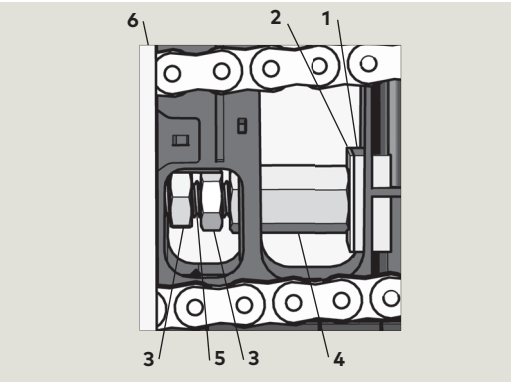
Chain tension is set for a 3/8" deflection in chain when squeezed together.

Chain tension adjustment is accomplished by adjusting chain tension nut (**4**) on a threaded stud. This moves ED250 operator toward or away from spindle drive, loosening or tightening chain.

30.1.2 Chain tension adjustment procedure.

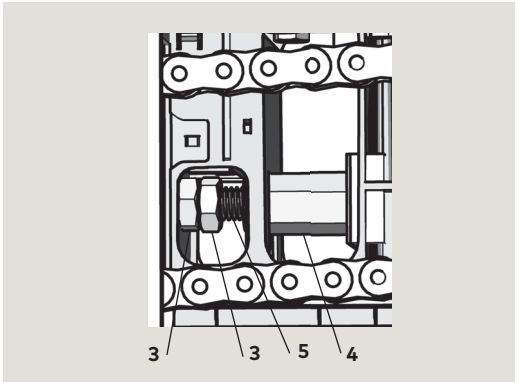
1. Loosen four 1/4" x 5/8" FHCS (**4**) and three BHSCS (**1**) that secure operator to spacer plate (Fig. 30.1.1).
2. Loosen both 3/8" hex nuts (**3**) on threaded stud (Fig. 30.1.2).
3. Adjust chain tension nut **(4)** CCW to tighten chain or CW to loosen chain until 3/8" deflection in chain when squeezed together (Fig. 30.1.3).
4. Tighten both 3/8" nuts (**3**) against gearbox side (Fig. 30.1.4).
5. Retighten operator mounting screws loosened in step 1 to secure operator against spacer plate.

Fig. 30.1.3 Hex nuts loosened for chain tensioning



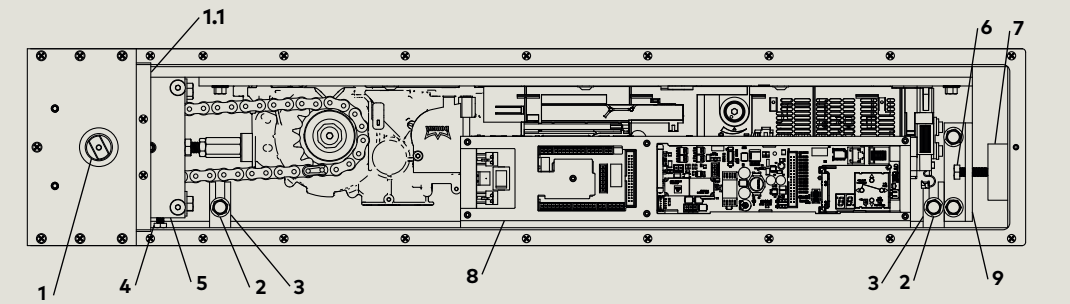
1 3/8" thick pad
2 Plate for pad
3 3/8" hex nut
4 Chain tension nut (3/8" x 1 1/4" hex standoff)
5 3/8" x 2" long threaded stud
6 Gearbox side

Fig. 30.1.4 Hex nuts tightened after adjustment



30.2 Spindle centering – factory setting

Fig. 30.2.1 Spindle centering hardware



- **1** Spindle
- **1.1** Spindle gearbox
- **2** 5/16" x 3/8" flange head cap screw
- **3** Slide mounting plate
- **4** 1/4" x 3/4" cap screw
- **5** Gearbox top
- **6** 5/16" x 1" cap screw
- **7** Block, operator mounting
- **8** Operator mounting main extrusion
- **9** Angle iron with threaded hole for (6)
- **10** Pad, operator mounting
- **12** Cement case

Fig. 30.2.2 Spindle centering hardware, cement case side view

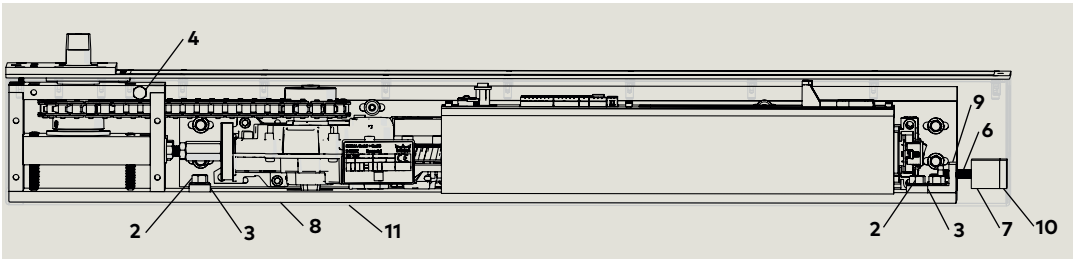
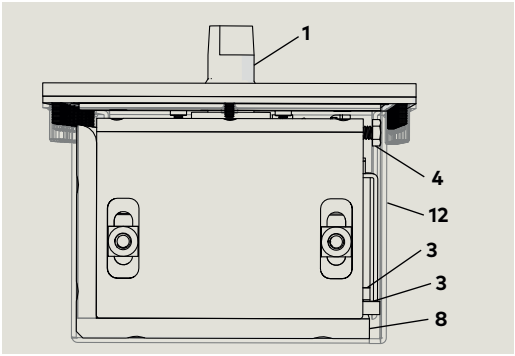
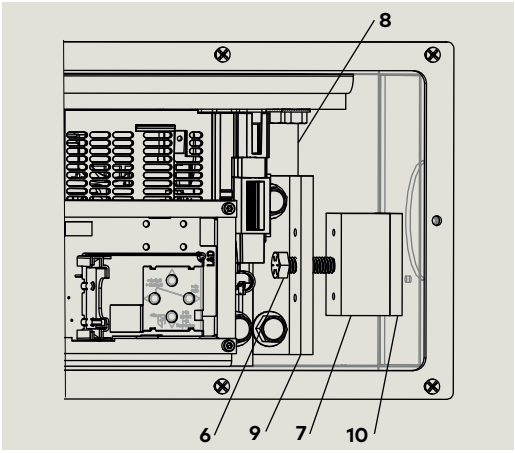


Fig. 30.2.3 Spindle side adjustment



- **1** Spindle
- **2** 5/16" x 3/8" flange head cap screw
- **3** Slide mounting plate
- **4** 1/4" x 3/4" cap screw
- **8** Main extrusion, operator mounting
- **12** Cement case

Fig. 30.2.4 Spindle lateral adjustment



- **6** 5/16" x 1" cap screw
- **7** Block, operator mounting
- **8** Operator mounting main extrusion
- **9** Angle iron with threaded hole for (6)
- **10** Pad, operator mounting
- **12** Cement case

TIPS AND RECOMMENDATIONS

Cement case shown transparent for internal case views.

30.2.1 Spindle centering in cement case.
Spindle gearbox (Fig. 30.2.1, item 1.1) is secured to operator mounting main extrusion (Fig. 30.2.1 item 8).
Main extrusion location is set at factory against cement case sidewalls using adjustments in Para. 30.2.2 and .3.

30.2.2 Operator mounting main extrusion side position against cement case.

1. Two side mounting plates (Fig. 30.2.1, 30.2.2 item 3) are used as spacers holding extrusion against opposite cement case wall.

30.2.3 Main extrusion side position adjustment.

1. 1/4" x 3/4" cap screw (Fig. 30.2.3, item 4) is used to move extrusion against opposite cement case wall (factory adjustment).

30.2.4 Main extrusion lateral position.

1. 5/16" x 1" cap screw and operator mounting block and pad (Fig. 30.2.4, item 6,7 and 10).
2. Cap screw is adjusted against block and pad to hold position of main extrusion against end of cement case (factory adjustment).

30.3 Cement case spindle height adjustment

NOTICE

Spindle height adjustment overview.

1. Spindle should not need height adjustment of factory setting up to a 1/2" threshold.
2. Two washers (shims), installed on the spindle above the sprocket (Fig. 30.3.) must be removed to enable a small spindle height adjustment (maximum 3/16"). Reference Para. 30.3.6.
3. **If spindle height is adjusted, sprocket height on spindle must be adjusted to keep roller chain level horizontally.** Reference Para. 30.3.8.

TIPS AND RECOMMENDATIONS

Spindle shims overview.

1. Center hung and offset pivot applications. Shims keep spindle from raising up when door panel is removed.
   - Over time spindle can have a tendency to seize in bottom arm of door due to the two-sided spindle profile.
2. Bottom slide arm applications. Shim inhibits the spindle from raising up.
   - Since there isn't any weight bearing down on the spindle, sometimes on rotation the spindle can slightly raise up.

Fig. 30.3.1 Spindle, sprockets and roller chain - cement case not shown

2 Spindle
6 Spindle sprocket
12 ED250 sprocket
13 Roller chain
14 Main extrusion

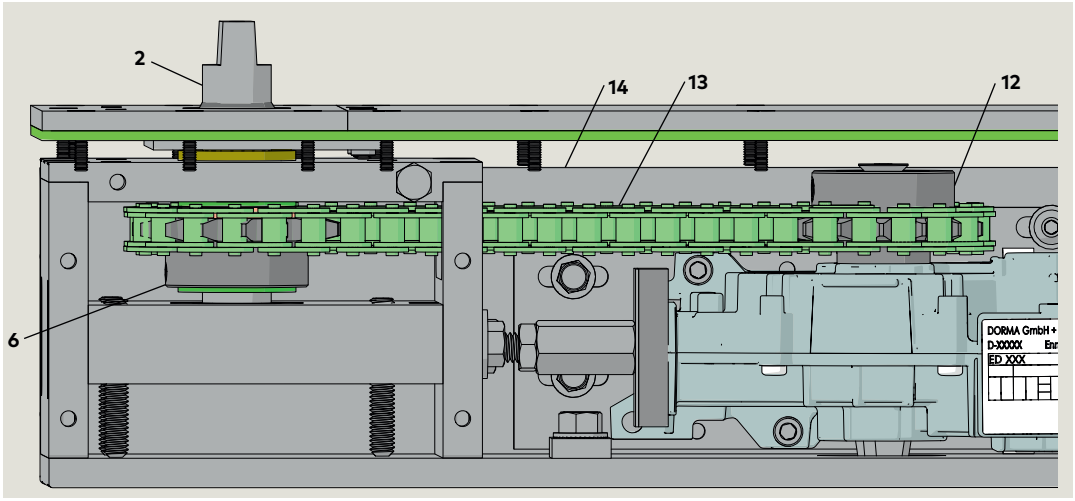


Fig. 30.3.2 Spindle shims installed above sprocket, cement case and roller chain not shown

1 Case spindle cover
11. Case cover
2 Spindle
3 Sealing plate
4 Flanged sleeve bearing
5 Top gearbox plate
6 Spindle sprocket
7 Shim, 1/8" THK
8 Shim, 1/16" THK
9 Gearbox adjustable plate
10 Shaft seal
11 .312-18 x 2" steel cup point set screw
14 Main extrusion

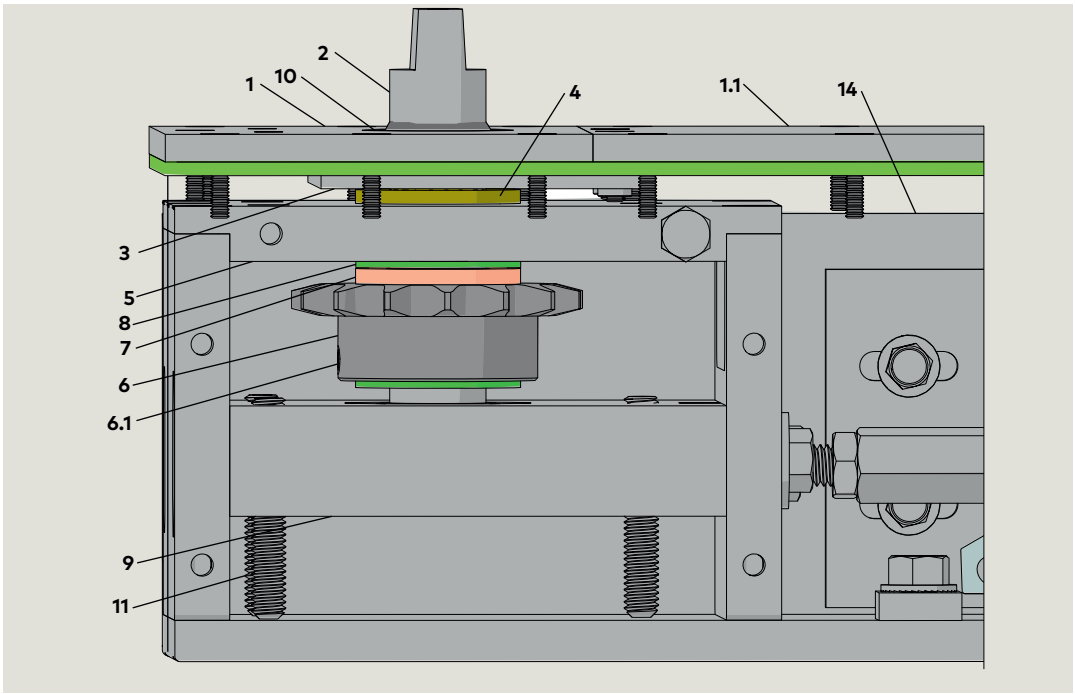
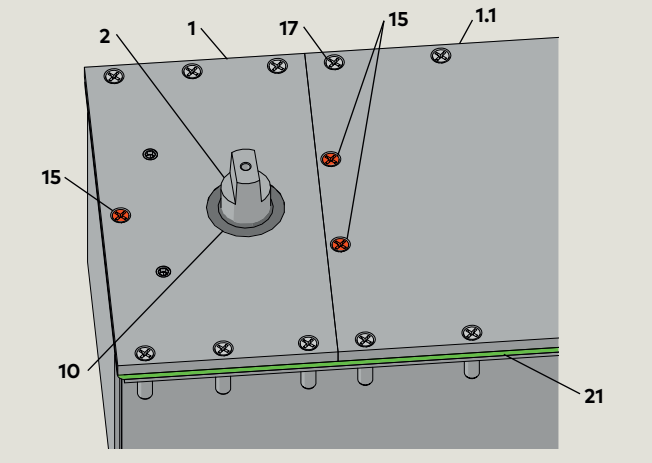
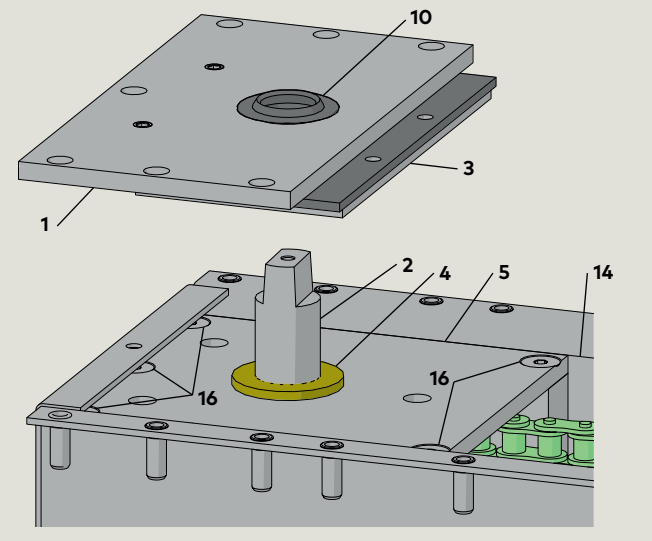


Fig. 30.3.3 Cement case with covers installed



1	Case spindle cover	**15**	8-32 x 3/4" PFHMS
1.1	Case cover	**17**	8-32 x 3/4" PFHMS
2	Spindle	**21**	Cover gasket, ED250 IG
10	Shaft seal		

Fig. 30.3.4 Case spindle cover, sealing plate and shaft seal removed - cover gasket not shown



1	Case spindle cover	**5**	Top gearbox plate
2	Spindle	**10**	Shaft seal
3	Sealing plate	**14**	Main extrusion
4	Flanged seal bearing	**16**	1/4-20 X 3/4" FHSCS

30.3.1 Remove door and bottom arm attached to spindle.

WARNING

Hand pinch point and crushing hazards!

1. Program switch to OFF.
2. Power to in-ground case OFF.
3. Move door to removal location and remove door. Reference Para. 16.18.
4. Remove arm attached to in-ground case spindle. Reference Para. 16.18.

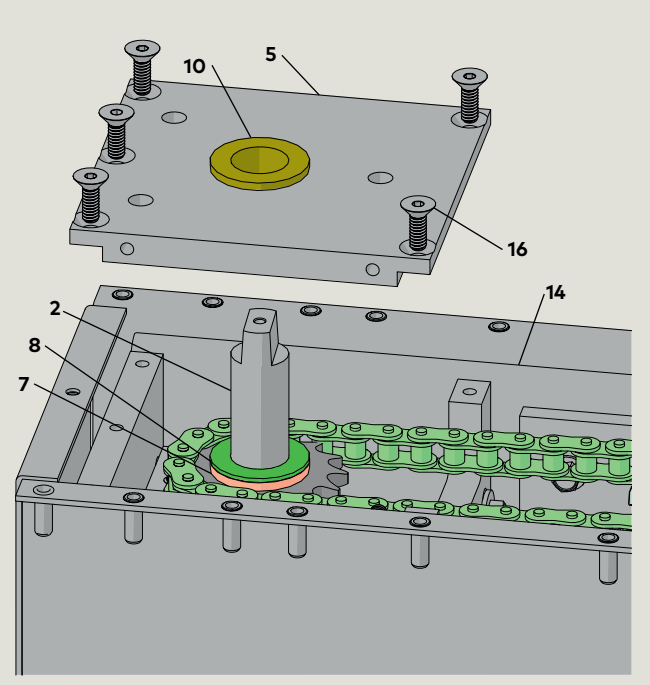
30.3.2 Remove case cover.

1. Remove all 8-32 x 3/4" PFHMS securing both covers to in-ground case, including the three red screws (**15**).
2. Remove case cover (**1.1**).

30.3.3 Remove case spindle cover, sealing plate and shaft seal.

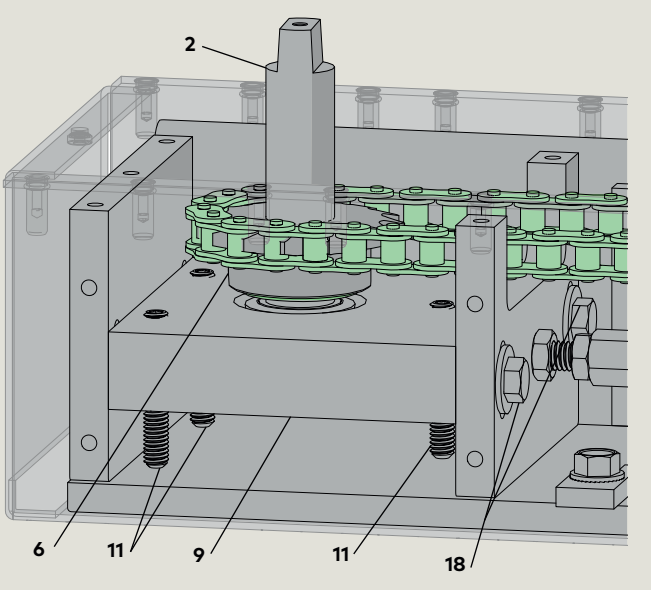
1. Lift case spindle cover (**1**) with attached sealing plate and shaft seal (Fig. 30.3.4) over spindle.

Fig. 30.3.5 Top gearbox plate removed



2 Spindle
5 Top gearbox plate
7 Shim, 1/8" THK
8 Shim, 1/16" THK
10 Flanged sleeve bearing
14 Main extrusion
16 1/4-20 X 3/4" FHSCS

Fig. 30.3.6 Spindle height adjustment



2 Spindle
6 Spindle sprocket
9 Adjustable plate
11 5/16 x 2" steel cup point set screw
18 5/16 x 5 1/2" high strength steel cap screw

30.3.4 Remove top gearbox plate cover.

NOTICE

Spindle lateral adjustment required.
To access three of the five top gearbox cover FHSCS (**16**) under in-ground case cover flange (Fig. 30.3.4), the in-ground case main extrusion assembly (**14**) must be moved laterally so that the three FHSCS can be removed.
Reference Para. 30.2 for procedure.

1. Adjust lateral position of main extrusion assembly (**14**) to access the three FHSCS (**16**).
2. Remove all five FHSCS (**16**).
3. Lift the top gearbox plate and bronze bearing over spindle.

30.3.5 Remove shims.

1. If required for spindle height adjustment, remove one or both shims (**7,8**) from spindle.

TIPS AND RECOMMENDATIONS

Maximum height adjustment: approximately 3/16".

30.3.6 Adjusting spindle height.

1. Loosen the two 5/16" x 5 1/2: cap screws (**18**) using 9/16" socket (Fig. 30.3.6).
   - Cap screws secure adjustable plate (**9**) (and spindle height) in position in the gearbox.
2. Rotate the three cup point set screws (**11**) (Fig. 30.3.6) clockwise to raise spindle height and counter clockwise to lower height. Use 5/32" T-handle hex key.
   - Turn each set screw an equal amount when adjusting spindle height.

30.3.7 Spindle height adjustment completed.

1. Tighten two 5/16" x 5 1/2" cap screws (**18**) using 9/16" socket (Fig. 30.3.6).

30.3.8 Roller chain horizontal level adjustment.

NOTICE

Roller chain level adjustment.
After spindle height adjustment, spindle sprocket (**6**) height must be adjusted so that roller chain is horizontally level.

1. Loosen two 1/4-20 x 1/4" set screws (**19**) that secure the spindle sprocket in position. Use 1/8" allen key.
2. Adjust spindle sprocket (**6**) height so that roller chain is horizontally level.
3. Tighten the two 1/4-20 x 1/4" set screws (**19**).

30.3.9 Reinstall top gearbox cover.

1. Reference Para. 30.3.4 and Fig. 30.3.5.
2. Reinstall top gearbox cover (**5**) and flanged sleeve bearing (**10**) over spindle (**2**)
3. Secure top gearbox cover with five FHSCS (**16**).

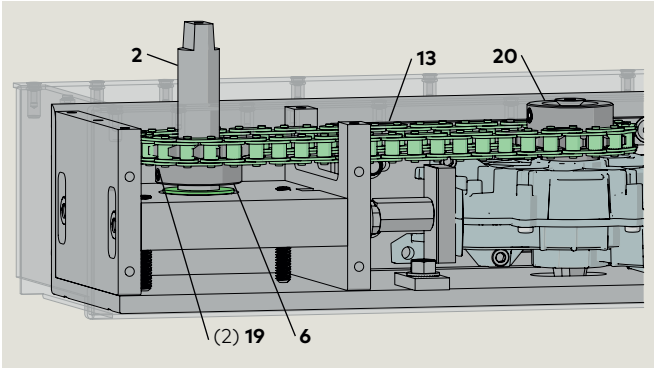
30.3.10 Move lateral position of main extrusion against left side of in-ground container.

1. Referencing Para. 30.2, adjust lateral position of main extrustion assembly (**14**) to its original position against the left side of the in-ground container.

NOTICE

Securing main extrusion in in-ground container.
After positioning main extrusion assembly, insure that (Para. 30.2):
1. Both slide mounting plates (**3**) are positioned and secured.
2. 5/16" x 1" cap screw (**6**) is tightened against block (**7**).

Fig. 30.3.7 Roller chain horizontal level adjustment



2 Spindle
6 Spindle sprocket
13 Roller chain
19 1/4-20 x 1/4" set screw
20 ED250 drive sprocket

30.3.11 Reinstall case spindle cover with sealing plate and shaft seal.

1. Reference Para. 30.3.3 and Fig. 30.3.4.
2. Insure cover gasket (**21**) is in place and aligned with holes in flange on in-ground container flange.

NOTICE

Replace cover gasket if damaged.

3. Reinstall case spindle cover (**1**) with sealing plate (**3**) and shaft seal (**10**) over spindle (**2**).

NOTICE

Replace shaft seal if worn or damaged.

4. Secure case spindle cover with 6-32 x 3/4" PFHMS (**17**).

30.3.12 Reinstall case cover.

1. Reference Para. 30.3.2 and Fig. 30.3.3.
2. Place case cover (**1.1**) on in-ground container flange and secure with 8-32 x 3/4" PFHMS (**17**).

30.3.13 Reinstall bottom arm.

1. Install arm. rotate spindle to door hanging position.

NOTICE

Spindle must be rotated to door hanging position.
- Reference Para. 16.15.3, Initiate learning cycle to rotate spindle to door hanging position.

30.3.14 Hang door.

1. Reference Para. 16.18, Hang door.

30.3.15 Perform learning cycle.

1. Reference Para. 21.3, Perform learning cycle.

31 ANSI/BHMA standards

31.1 Low energy power operated doors (ANSI/BHMA A156.19)

The following table references portions of content from ANSI/BHMA A156.19. Refer to the standard, available through ANSI or BHMA for additional information. Standard material reprinted with BHMA permission.

Reference ED250 service manual for additional parameter detail.

31.1.1 Door measurements, low energy power operated door.

ED250 Parameter					A156.19 standard	
Parameter		Function	Factory setting	Adjustment range	Para.	Requirement
So	Opening speed	Swing door opening speed	25°/s Note 1	ED250 8°/s - 27°/s	4.2	Opening Doors shall open from closed to back check or 80°, whichever occurs first, in 3 seconds or longer as required in Table I. Total opening time to 90° shall be as in Table II (next page) If door opens at more than 90°, it shall continue at the same rate as backcheck speed.
bc	Backcheck	Checking or slowing down of door speed before door being fully opened.	10°	5° - 40°	4.2	Backcheck shall not occur before 60° opening.
Sc	Closing speed	Swing door closing speed, automatic mode.	25°/s Note 1	ED250 8°/s - 27°/s	4.4	Closing Doors shall close from 90° to 10° in 3 s or longer as required in Table I (next page). Doors shall close from 10° to fully closed in not less than 1.5 s.
dd	Hold open time	Hold open time	5 s	5 s - 30 s	4.3	Time delay When powered open, the door shall remain open at the fully opened position for not less than 5 s. Exception: when push-pull activation is used, the door shall remain at the fully opened position for not less than 3 s.
hS	Reference ED250 service manual for parameter detail.	Support for manual mode in door closed position.			4.5	Doors shall open: • With a manual force not to exceed 15 lb f to release a latch if equipped with a latch. • To set a door in motion 30 lb f. • To fully open the door 15 lb f. • Forces shall be measured 1" from latch edge of door.
hA		Adjustment, door activation angle.				
hF		Power assist function.				
Fo	Static force in opening direction	Static force on door closing edge in opening direction.	13.5 lb f	4.5 lb f - 15 lb f	4.5	The force required to prevent a stopped door from opening or closing shall not exceed 15 lb f measured 1" from latch edge of the door at any point during opening or closing.
Fc	Static force in closing direction	Static force on door closing edge in closing direction.	13.5 lb f	4.5 lb f - 15 lb f	4.5	

Note 1: Speed may be slower after learning cycle completed.

Note 2: Speed limited to 27°/s in low energy mode.

31.1.2 A156.19, Table I: Minimum opening and closing times.

"D" door width, inches	"W" door weight, pounds				
	100	125	150	175	200
36	3.0 s	3.5 s	3.5 s	3.0 s	3.0 s
42	3.5 s	4.0 s	4.0 s	4.5 s	4.5 s
48	4.0 s	4.5 s	4.5 s	5.0 s	5.5 s
Minimum opening time to backcheck or 80 degrees (whichever occurs first). Minimum closing time from 90 degrees to latchcheck or 10 degrees (whichever occurs first).					

31.1.3 A156.19, Table II: Total opening time to 90 degrees.

Backcheck at 60°	Backcheck at 70°	Backcheck at 80°
Table I plus 2 s	Table I plus 1.5 s	Table I plus 1 s
If door opens more than 90°, it shall continue at the same rate as backcheck speed.		
Backcheck occurring at a point between positions shall use lowest setting.		

31.1.4 Other door weights and widths.

Closing time $T = (D \sqrt{W})/188$

D = Width of door in inches.

W = Weight of door in pounds.

T = Closing time to latch check in seconds.

31.2 Full energy power operated pedestrian doors (ANSI/BHMA A156.10)

The following table references portions of content from ANSI/BHMA A156.10. Refer to the standard, available through ANSI or BHMA for additional information. Standard material reprinted with BHMA permission.

31.2.1 Door measurements, power operated swing door.

ED250 Parameter					A156.10 standard	
Parameter		Function	Factory setting	Adjustment range	Para.	Requirement
So	Opening speed automatic mode	Swing door opening speed, automatic mode.	25%	8% - 60%	10.2.1	Opening time of a swing door to 80°, not less than 1.5 s.
Sc	Closing speed automatic mode	Swing door closing speed, automatic mode.	25%	8% - 60%	10.2.5	Closing time of a swing door to latch check. Ref. Para. 41.1.2.
Fo	Static force in opening direction	Static force on door closing edge in opening direction.	13.5 lb f [60 N]	4.5 lb f - 33.7 lb f	10.2.2	Shall not exceed 30 lb f measured 1" from lock edge of door.
Fc	Static force in closing direction	Static force on door closing edge in closing direction.	13.5 lb f [60 N]	4.5 lb f - 33.7 lb f	10.2.7	Not to exceed 30 lb f measured 1" from lock edge of door at any point in closing cycle.
bc	Backcheck	Checking or slowing down of door speed before door being fully opened.	10°	5° - 40°	10.2.3	Shall occur at no less than 10° of full open position.
dd	Hold open time	Open time for swing doors using sensors or control mats upon loss of detection.	5 s	0 s - 30 s 0 s - 180 s (professional upgrade card)	10.2.4	Shall remain open a minimum of 1.5 seconds after loss of detection.
	Latchcheck	Checking or slowing down of door speed before door being fully closed.		Not adjustable	10.2.6	Shall occur for a swinging door at no less than 10° from closed position. The door will not close through the final 10° in less than 1.5 s.
hS	Reference Appendix B for parameter detail	Support for manual mode in door closed position.			10.2.8	Manual opening force in event of power failure. Swing door shall be capable of being opened manually with no greater than 30 lb f applied 1" from edge of lock style to open.
hA		Adjustment, door activation angle.				
hF		Power assist function.				

36.1.2 A156.10, 10.2.5 swing door closing time to latchcheck.

"D" door width, minimum (inches)	"W" door weight, maximum (pounds)	"T" closing time, minimum, to latch check (seconds)
36 or less	100	2.0
36	140	2.3
42	110	2.3
42	150	2.7
48	120	2.8
48	160	3.2

"D" door width, minimum (inches)	"W" door weight, maximum (pounds)	"T" closing time, minimum to latch check (seconds)
48	160	3.2

36.1.3 Other door weights and widths.

Closing time $T = (D\sqrt{W})/188$
D = Width of door in inches.
W = Weight of door in pounds.
T = Closing time to latch check in seconds.

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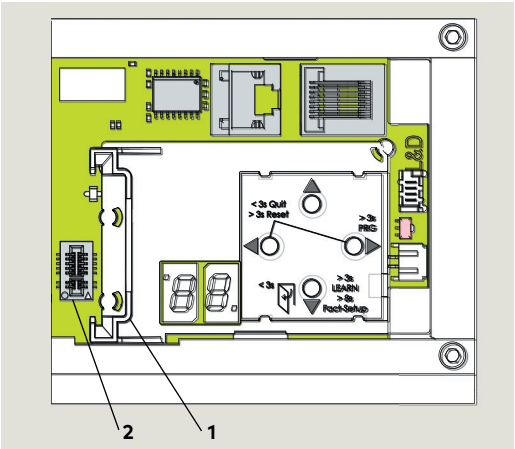
32 Upgrade cards

32.1 Upgrade cards

32.1.1 Upgrade card installation.

dormakaba USA Inc. upgrade cards can be used to expand the range of functions of the ED250 operator.
When upgrade cards are installed, information is exchanged between and permanently allocated to both the operator control unit and the upgrade card.

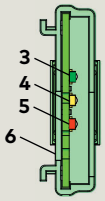
Fig. 32.1.1 Upgrade card slot and socket



1 Upgrade card slot
2 Upgrade card socket

Status LEDs
3 Green LED
4 Yellow LED
5 Red LED
6 Upgrade card professional (green)

Fig. 32.1.2 Upgrade card status LEDs



32.1.2 Upgrade cards

Upgrade card		Upgrade card color
Fire protection	ED250	Transparent red
DCW	ED250	Yellow
Barrier free toilet	ED250	Dark green

32.2 Container module

32.2.1 Container module.

- The first upgrade card installed becomes the container module.
- Every operator control unit has only one container module.
- Functions of upgrade cards installed after the first upgrade card are saved in the container module.

32.2.2 Container module removal.

- If the container module is removed, all previously enabled functions will be deactivated **after a certain time.**

32.2.3 Operator control unit replacement.

- If the control unit is replaced, the container module is removed from the old control unit and inserted into the new control unit.
- The new control unit synchronizes with the container module and all upgrade card functions are available.

32.2.4 Inserting an upgrade card that has already been activated.

- Rapidly flashing yellow LED on upgrade card indicates card is rejected.
- Card's functions in operator control unit are still valid.

32.2.5 Inserted a container module from third party control unit.

- Rapidly flashing yellow and green LEDs on container module indicates module is rejected.
- Container module can only be synchronized with one control unit.

32.2.6 Container module defective.

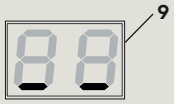
- Upgrade cards that were installed after the container module must be reinstalled.

32.3 Installing upgrade cards

32.3.1 Set Mode switch to CLOSE.

1 Upgrade card slot
6 Upgrade card
7 Container module
8 Program switch
9 2 digit display with horizontal bar.

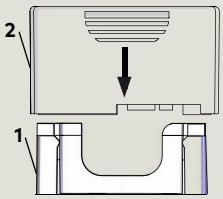
Set Mode switch to Close.



Horizontal bars indicate controller in stand by mode.

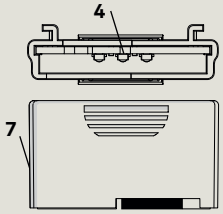
32.3.2 Installing first upgrade card

1 Upgrade card slot
2 First upgrade card



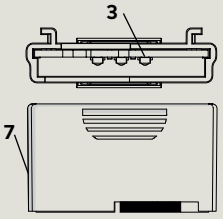
1. Insert first upgrade card into upgrade card slot.
2. This card will become container module.

4 Yellow LED
7 Container module



3. Yellow LED flashes on and off once during card insertion.

1 Upgrade card slot
3 Green LED
7 Container module



4. Green LED slowly flashes on and off indicating communication between card and control module.
5. Upgrade card becomes container module, green LED continues to slowly flash on and off.

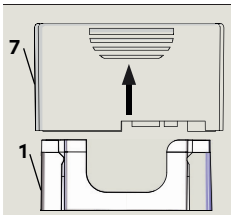
- Upgrade card function is now available.

3 Green LED
7 Container module

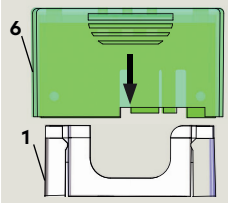
TIPS AND RECOMMENDATIONS

Container module can be configured using applicable parameter (F1 - F8) for card.
Reference Appendix A, Parameter detail.

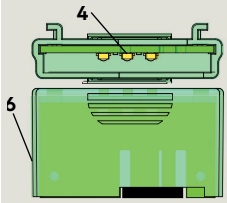
32.3.3 Installing additional upgrade cards



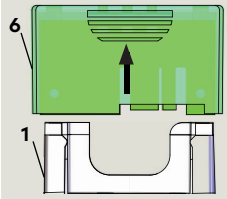
1. Remove container module from upgrade card slot.



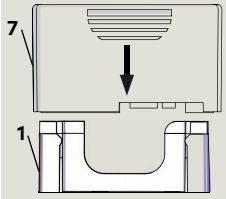
2. Insert next upgrade card into upgrade card slot.



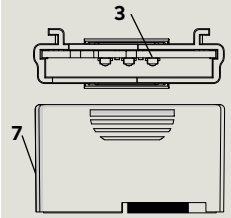
- Card function is copied to control module; upgrade card is then invalidated.
- Yellow LED indicates procedure is complete.



3. Remove upgrade card from upgrade card slot.



4. Reinsert container module into upgrade card slot.



- Control unit recognizes container module; container module stores new functions.
- Green LED slowly flashes on and off indicating successful operation.
- New card functions are now available.

TIPS AND RECOMMENDATIONS

New upgrade card can be configured using applicable parameter (F1 - F8) for card. Reference Appendix A, Parameter detail.

Appendix A - Driving parameters

A.1 Driving parameters – detail

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Opening speed, automatic mode				1. Opening speed refers to automatic mode, speed can be adjusted using this parameter. 2. Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value. 3. After parameter set, verify setting meets A156.19 (low energy) standards. See Chapter 31. *Maximum opening speed reduced to 27°/s in low energy mode.
5 	ED250 8 - 60*	°/s	**25**	
Closing speed, automatic mode				1. Closing speed refers to automatic mode, speed can be adjusted using this parameter. 2. Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value. 3. After parameter set, verify setting meets A156.19 (low energy) standards. See Chapter 31. *Maximum closing speed reduced to 27°/s in low energy mode.
6 	ED250 2 - 60*	°/s	**25**	
Hold open time, automatic mode				1. Hold open time starts once all internal, external, safety and push and go inputs have been opened or dropped, and door is in an open position. 2. Hold open time values from 0 to 30 are set in increments of 1 second. 3. Hold open time values greater than 30 seconds are set in increments of 5 seconds. 4. In low energy mode, a minimum hold open time of 5 seconds is required. 5. Hold open time can be re-triggered.
7 	0 - 30 0 - 180*	s s	**5**	
Night-bank hold open time				1. Night-bank (key switch) hold open time is set using this parameter. 2. Night-bank Hold open time starts once contact on night-bank activator input is opened and door is in an open position. 3. Night-bank hold open time can be re-triggered.
8 	0 - 30	s	**10**	
Hold open time, manual opening				1. Default hold open time of 1 second that follows every manual opening of door can be adjusted using parameter **do**. 2. Hold open time starts when door is released.
9 	0 - 30	s	**1**	
Wall masking on door hinge side				1. Wall masking required if door opens against an obstacle. 2. When door reaches set wall masking angle, system will ignore signal from safety sensor on door swing (hinge) side. 3. The wider the detection range of safety sensor used, the greater the area must be in which system has to ignore sensor's emitted signal. To insure personnel safety, it is advised to keep this range as small as possible. 4. If set wall masking angle is exceeded when door is being opened, a rapidly flashing dot appears in top left hand corner of 2 digit display. 5. Rapidly flashing dot disappears when door angle drops below set wall masking angle.
10 	60 - 99	°	**80**	

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description	
Safety sensor test					
11 SI ST	0 - 8		**0**		Safety sensor parameter **ST** must be set to sensors used and if they are active-high or active-low. See E 04 safety sensor test error, Appendix B, Troubleshooting.
				0	Sensor test off.
				1	Sensor test on swing (hinge) side. Active-high
				2	Sensor test on swing and approach sides. Active-high
				3	Sensor test on swing and approach sides. Active-high
				4	Sensor test on swing side. Active-low
				5	Sensor test on approach side. Active-low
				6	Sensor test on swing and approach sides. Active-low
				7	Wall mounted sensor with data line. Lock monitoring not available.
				8	Sensor test overhead sensor type Bodyguard III or Premier T with monitoring input.
Activation by safety sensor on approach (opposite hinge) side					
12 SA	0 - 1		**0**	0	Safety sensor's input is disregarded as soon as door is closed.
				1	Safety sensor can trigger an opening pulse while door is closed.
Suppression of safety sensor on swing (hinge) side during initialization drive					
13 SP	0 - 1		**0**	0	Safety sensor on swing side is active during an initialization drive after a power on reset.
				1	1. With SP set to 1, operator will disregard swing side safety sensor during initialization drive. After a power on reset, operator starts an initialization drive at slow speed. The initialization drive cannot be completed if safety sensor on hinge side is, or has been triggered.
Delayed opening time for locking mechanism				1. Delayed opening time delay starts as soon as door opening pulse has been generated. 2. Door opens on expiration of time delay. 3. If parameter is set to "0" and input for locking feedback contact is closed, door will not perform a preload **Pu** before door unlocks. 4. Since various motor locks do not have feedback contacts, a delay of up to 4 seconds is possible	
14 Ud	0 - 40 * 100	ms	**3** *100		
Door preload prior to unlocking				1. Door preload prior to unlocking; force with which door is pushed in the "closed" direction before door is opened. 2. The door may need to be pushed in closing direction (preload) in order to release electric strike to insure door opens. 3. Preload time is set by parameter **Ud,** delayed opening time for locking mechanism. 4. To maintain long service life, set preload force only as high as necessary.	
15 Pu	0 - 9		**0**		

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Power reserve module SVP-PR 12 test				
16 rS / TS	0 - 1		**0**	0 Test off 1 1. SVP-PR 12 power reserve module test is performed once every 24 hours, or 10 minutes after AC power has been turned on. In event of an error: • Unlocking is not performed and no automatic door movements are initiated. • Error code **E 25** is displayed, See Appendix B, Troubleshooting. 2. SVP-PR 12 power reserve module can be used but must be tested on a regular basis if using: • SVP-2000 DCW emergency escape motor lock with automatic latching action. • M-SVP 2000 DCW emergency escape lock. 3. Test is automatically activated if a fire protection module is recognized in conjunction with SVP-2000 DCW or M-SVP 2000 DCW locks.
Static force in opening direction				1. Static force in opening direction (basic parameter for wind load control). Static force on door closing edge can be changed using this parameter. 2. Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value. 3. After parameter set, verify setting meets ANSI/BHMA standard A156.19 (low energy). See Chapter 31. *Low energy operator: static force range is reduced.
17 Fo	2- 15 *10	N	**6** *10	
	.45- 3.4 *10	lbf	1.35 *10	
Static force in closing direction				1. Static force in closing direction (basic parameter for wind load control). Static force on door closing edge can be changed using this parameter. 2. Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value. 3. After parameter set, verify setting meets ANSI/BHMA standard A156.19 (low energy). See Chapter 31. *Low energy operator: static force range is reduced.
18 Fc	2- 15 *10	N	**6** *10	
	.45- 3.4 *10	lbf	1.35 *10	
Motor driven latching action, automatic mode				1. System offers a motor driven latching action in automatic mode in addition to mechanical latching action. 2. The **EP** parameter setting is designed to increase static force on door to insure proper closing despite resistance caused by door seals or locking devices. 3. Setting should be increased step by step from a low setting so as to avoid damage to the system. Use the lowest possible setting. 4. Ensure that both the door itself and the arm or track installation are suitable for the additional, permanent forces.
19 EP	0 - 9		**0**	
Motor driven latching action angle				Door opening angle at which motor driven latching action **EP** is activated. • Starting angle of the latching angle adjustable from 10°.
20 EA	2 -10	°	**3**	
Keep closed force				0 Off 1 to 9 1. Keep closed force is: • Permanently applied following motor drive latching action. • Designed to keep door in closed position even if wind acts on door. 2. Keep closed force can be set from 0 (off) to 9, maximum force.
21 FH	0 - 9		**0**	

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description	
Push & Go					
22 PG	0 - 1		**0**	0	Off
				1	1. Parameter is activated. 2. Automatic opening of door is started when door is manually moved 4° out of the closed position. 3. Door close mode parameter **hd** must be set to "0" (automatic) to enable this function.
Mode switch type					
23 PS	0 - 4		**0**	0	Internal, operator mounted Mode switch is active.
				1	External mechanical Mode switch with contacts is connected to operator terminal board. Internal Mode switch connector must be removed.
				2	External DCW electronic program switch (EPS) is connected to operator terminal board. Internal program switch connector must be removed.
				3	Mode switch control by TMS Soft control software.
				4	1. DCW electronic program switch (EPS) is installed, and operator is also connected by the building management system to TMS Soft control software. 2. When **PS** is set to 4, the program switch functions can be changed from DCW (EPS) to TMS Soft..
DCW® Electronic program switch (EPS) behavior following power reset					
24 S1	0 - 1		**0**	0	1. In event of power failure, or if operator is deliberately switched off, EPS will automatically switch to last known position when power returns. **2. Important:** The time at which power returns might not be during business hours and may affect insurance-compliant door locking requirements.
				1	1. In event of power failure, or if operator is deliberately switched off, EPS will automatically switched to OFF position when power returns. 2. This function should be used iif insurance compliant locking if required.
Internal Mode switch, switch on delay					
25 S2	0 - 1		**0**	0	Operator will perform function of new switch setting as soon as internal Mode switch is moved.
				1	1. Operator will perform function of new switch setting after a delay of 10 seconds from when internal Mode switch is moved. 2. This function is useful if user has to pass through door and its connected detectors and sensors after Mode switch is set to new function.
Unlocking during business hours					
26 du	0 - 1		**0**	0	Door is always locked when it reaches closed position.
				1	1. In automatic mode, door will not lock when it reaches closed position. This achieves faster door opening when system is equipped with motor driven locks. 2. If an electric strike opener is used, it must be suitable for 100% continuous duty factor to avoid possibility of damage.

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description	
Status relay function, X7 terminals				0	Status relay is deactivated.
27 	0 - 6		**1**	1	Status relay activated as soon as door reaches door "closed" position.
				2	Status relay activated as soon as door reaches door "open" position.
				3	Status relay activated when error codes are displayed on 2 digit operator display.
				4	"Door closed and locked" activates status relay.
				5	Status relay activated when information or error codes are displayed on 2 digit operator display.
				6	1. Status relay activated when door is opened further than opening angle parameter **OA**, set during learning cycle. 2. Parameter **OA** value can only be changed using dormakaba handheld or by performing another learning cycle.
Locking device output configuration; output X3, 1G (24V) and input X6, 4/4a				Reference Chapter 7	
28 	0 - 1		**0**	0	Locking device output terminal X3, 1G (24V) is independent of Input X6, 4/4a.
				1	1. Locking device output terminal X3, 1G (24V) is turned on as soon as contact at X6, 4/4a is opened.. 2. Terminal X3, 1G 24V output is on for as long as contact at X6, 4/4a is open, motor lock with a 100% duty factor is required. 3. This function is not available for DCW motor locks.
Cycle counter				1. Total number of opening and closing cycles displayed is shown in increments of 10000. • Display value, "4", 40,000 cycles. • Display value, "53", 530,000 cycles. 2. Total number of cycles can be displayed on dormakaba handheld. 3. A display value of "99" means 990,000 cycles or greater.	
29 	0 - 99 * 10000	cycles			
Delete error log					
30 	0 - 1		**0**	0	No function.
				1	1. When "1" entered, Error log is deleted. 2. Parameter is then automatically reset to "0".
Reset service interval display, operator yellow LED					
31 	0 - 1		**0**	0	No function.
				1	1. When "1" entered: • Service cycle counter is reset to 200,000. • Service interval is reset to 12 months. • Yellow LED not illuminated. 2. Parameter is then automatically reset to "0". 3. Values other than default values must be set using dormakaba USA, Inc. handheld: • Maintenance interval • Maintenance cycles

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Factory setting level				
32 SL	1 - 2		**1**	1 Parameter **SL** is used to determine what data will be reset during factory setting process. Standard factory settings • Mode switch CLOSE. • Door closed. 1. Press 4 button keypad down button ▼ for greater than 8 s. • All parameters reset to factory settings. • Procedure completed when "8" on 2 digit displays blinks twice. • Installed upgrade cards remain valid and do not require reinstallation. 2. Learning cycle required.
				2 Extended factory settings • Mode switch CLOSE. • Door closed. 1. Set SL=2 2. Press 4 button keypad down button ▼ for greater than 8 s. • All parameters reset to factory settings. • Procedure completed when "8" on 2 digit displays blinks twice. • Installed upgrade cards deleted from operator memory. • Parameter **SL** automatically reset to 1. 3. Control unit and upgrade cards can be used independently (delivery status). 4. Learning cycle required..
Opening angle				1. Door opening angle set during learning cycle is displayed. 2. Opening angle can only be changed during learning cycle. 3. Due to installation and parameter tolerances, display value may not match actual door position.
33 OA	0 - 110	°		
Door closer mode				
34 hd	0 - 1		**1**	0 1. Automatic mode. This mode is applicable whenever door is mainly opened automatically and where motion detectors are installed. 2. Mode is optimized for high frequency use. 3. Full energy upgrade card provides for higher door opening and closing speeds. 4. In case door is blocked during a closing cycle, operator reverses automatically. 5. Driving phase is optimized to provide reliable closing cycles. 6. Keep closed force (wind load control) parameter **FH** and Push & Go function parameter **PG** are only available in automatic mode.
				1 1. Manual mode. This mode is applicable whenever door is mainly used manually and only rarely automatically. 2. In case door is blocked during a closing cycle, door will stop at its current position. 3. Driving phase optimized for manual opening cycles. 4. Power assist function parameter **hf** is only available in manual mode.

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Power assist activation angle				1. Setting of door activation angle for Power assist function (**hF**). 2. Higher settings of **hA** result in better spring force compensation for easier manual opening. 3. Power assist function is more sensitive the smaller the activation angle.
35 hA	1 - 5	°	**3**	
Power assist function				1. Force setting for Power assist function. 2. Power assist function only available with **hd** parameter = 1, manual mode. 3. "0"; power assist function OFF; power assist function enabled for available values greater than 0. 4. Power assist function enabled when power assist activation angle **hA** reached. 5. The greater the value of **hF**, the easier the door can be manually opened from power assist activation angle **hA**. 6. If power assist set too high, door can open automatically. 7. Power assist function is not available • If operator is switched off • A smoke detector or emergency button has been triggered.
36 hF	0 - 10		**0**	
Power assist function support for manual mode in door closed position				1. Setting for power assist function support with door in **closed** position. 2. Power assist function only available with **hd** parameter = 1, manual mode. 3. The greater the value of **hS**, the easier the door can be manually opened from the **closed** position. • Parameter setting range extended to enable a finer setting (v2.5).
37 hS / hS	0 - 99		**0**	
Upgrade card parameter values				
	0 - 3		**0**	0 Upgrade card not installed, function not available. 1 Upgrade card installed, function not activated. 2 Upgrade card installed, function activated. 3 Upgrade card has been removed, function no longer available.
Upgrade card, fire protection				1. Once upgrade card installed, parameter value will automatically change to 2. 2. Following activation, drive may be used as a electrically controlled hold-open system according to EN 14637, Building hardware-Electrically controlled hold-open systems for fire/smoke door assemblies, or similar standards. 3. Full energy function is automatically activated. 4. Plug for terminal board X9 socket included with upgrade card.
38 F1	0, 2, 3		**0**	
Full energy				1. Function must be activated by changing parameter **F2** to 2. 2. The full setting range of parameters **So, Sc, Fo** and **Fc** will be available after the activation. 3. Performing a **SL** (Factory setting level) of 2 will reset **F2** to 0.
39 F2	0,2,3		**0**	
40 F3			**0**	Not used.
41 F4			**0**	Not used.
42 F5			**0**	Not used.

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Upgrade card barrier-free toilet				1. Once upgrade card installed, parameter value will automatically change to 1. 2. Function must be activated by changing parameter **F7** to 2. 3. Operator power reset is required; turn power switch off, wait 10 s and turn power back on. 4. Upgrade card assigns inputs and outputs of the control unit with functions which are required for this application.
43 F7	0, 1, 2, 3		**0**	
Upgrade card DCW				1. Once upgrade card installed, parameter value will automatically change to 2. 2. Upgrade card provides operator with DCW bus connection. 3. Plug for terminal board X8 socket included with upgrade card. 4. DCW bus enables connection of: • Program switch EPS DCW (max. 2) • Motor lock controls SVP-S 2x DCW (max. 2) • Motor lock SVP 2000 (max. 1) • RM-ED lintel mounted smoke detector • Key switch button ST 32 DCW (max. 2) • I/O module DCW (max. 1)
44 F8	0, 2, 3		**0**	
COM 1 configuration interface				
45 C1	0 - 1		**0**	0 Interface programmed for communication with dormakaba handheld. 1 Interface programmed for use with dormakaba TMS Soft control software.
Backcheck when door opened manually				1. Angle after which door is braked when manually opened. 2. Back check level is automatically optimized during manual door opening cycles. This function improves door braking behavior in end position so door does not move beyond set opening angle **OA** Entered value is subtracted from set opening angle **OA**. 3. Example • Opening angle, 90° • Parameter **bc**, 12° • Door back check starts at 78°.
46 bc	5 - 40 (v1.9)	°	**10**	
Door thickness				1. Parameter is entered in mm. 2. Door thickness affects measured door opening angle. 3. Parameter **Td** enables a more accurate door width to be entered, if required.
47 rd	0 - 99	mm	**35**	
47 Td	0 - 3 7/8"		1 3/8"	
Deactivation of drive; X6, 4 and 4a, trigger type				
48 d1	0 - 1		**0**	0 NC contact, drive function is deactivated when NC contact is open. 1 NO contact, drive function is deactivated when NO contact is closed.
Night-bank contact X1; 3 and 35, trigger type				
49 d2	0 - 1		**0**	0 1. NO contact, night-bank function is triggered when NO contact is closed. 2. Typically used when using a key switch or an access control system. 1 1. NC contact, night-bank function is triggered when NC contact is opened. 2. Typically used when connected to building management system to trigger doors (signal normally present).

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Release of hold-open system				
50 FC	0 - 1		**1**	1: 1. Upgrade care Fire Protection installed, users may release hold-open by manually moving door in closed direction. 2. A manual release button is not required.
				0: 1. Hold-open release by manually moving door in closed direction is deactivated. 2. A manual release button is required.
Castor angle for double doors				Primary door with astragal, angle active door must open before secondary door opens.
51 Ad	0 - 30	°	**30**	
Hinge clearance				1. Clearance between hinges is critical for the calculated door angle. 2. It may only have a small effect but the clearance can be adjusted in extreme cases to improve accuracy. 3. Factory setting is 3 * 10, 30 mm, 1 3/16". 4. With CPD doors, setting must be changed to a negative value. A learning cycle is then required as system creates an angle table as a function of the set parameters.
52 HS	± 5 *10	mm	**3** *10	
	±3/16 *10	inches		
Overhead concealed mode (OHC): Activation of permanent open via night-bank input (v2.2)				
53 S3	0 - 1		**0**	0: Function disabled.
				1: If night-bank signal is longer than 3 seconds, operator changes to permanent open mode.
Overhead concealed mode (OHC): Adjustable behavior after blockage / hold open (v2.2)				
54 S4	0 - 1		**0**	0: Standard behavior (3 x restart).
				1: Manual mode after blockage.
Reversing after trigger of approach side safety sensor / opposite hinge side in operating mode hd=1 (v2.2)				
55 S5	0 - 1		**0**	0: Standard behavior, stop.
				1: Reversing

Appendix B - Troubleshooting

B.1 Information and error codes

Fig. B.1.1 User interface

1 4 button keypad
2 2 digit display

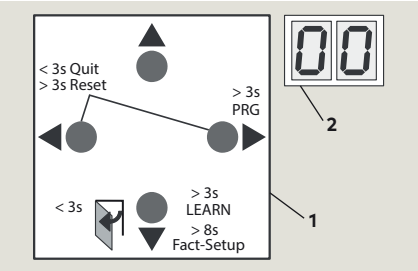


Fig. B.1.2 Operator LEDs

1 Red LED
2 Yellow LED
3 Green LED
4 PCB assembly
5 Accessory terminal board

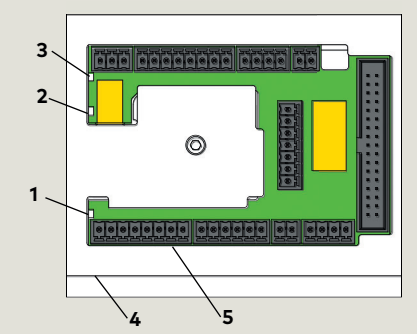
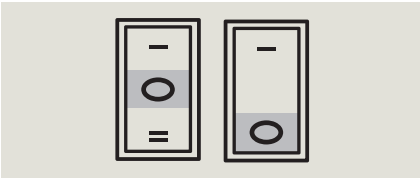


Fig. B.1.3 Program switches

7 Program switches Close position



TIPS AND RECOMMENDATIONS

Para. B.3, Information codes
Para. B.4, Error codes

B.1.1 Overview

Operator monitors internal circuits and external safety circuits managed by the operator.

B.1.2 Error and information messages.

1. With operator in use, certain conditions may develop resulting in error or information messages.
2. Operator attempts to identify the cause and respond accordingly.
3. Response depends on the severity of the error:

- Information message (**In**)
- Error message (**E**)
- Deactivating the operator's automatic function; operator will switch to emergency mode. Users can then access door manually.

B.1.3 User information display.

User interface display, or or dormakaba handheld displays:

- Information **In** codes
- Error message **E** codes

B.1.4 Viewing error messages.

To access and view error messages, briefly press the right ▶ button on the 4 button keypad.

B.1.5 Red LED on operator.

Red LED adjacent to operator power switch displays blinking codes for:

- Certain **In** information
- **E** error codes (Para. B.2)

B.1.6 Resetting error codes.

Options for resetting error codes:

1. Set program switch in Close (off) position.
2. User interface Reset buttons:

- Press both left ◀ and right ▶ buttons >3s to reset system (v1.8).

3. Power reset:

- Turn power switch OFF.
- Turn power switch back on after 10 seconds.

CAUTION

Always analyze and remove cause for error before resetting error message!
Troubleshooting charts (Para. B.3,.4) are intended as a guide for diagnosing errors.

B.1.7 Error message memory.

1. There are ten error message memory locations; E 0 through E 9.
2. The latest error message is always stored in error memory location E 0:

- As soon as another error occurs, the existing error stored in E 0 will be moved to E 1 and the latest error will be stored in E 0.

3. A maximum of 9 errors can be stored in memory locations E1 through E9.
4. Identical error messages occurring one after another are not stored again.

B.2 Red LED status codes

B.2.1 Red LED status codes.

Red LED status	Display	Description
Steady flashing		Control unit has detected error, emergency mode activated.
On steady	In 11	Hold-open device triggered.
Flashing 2 times	E 02	Locking device error.
Flashing 4 times	E 04	Safety sensor test error.
Flashing 5 times	E 25	SVP PR DCW module test negative.
Flashing 5 times	E 51 E 52 E 53	Incremental encoder error.
Flashing 6 times	E 62	Double door operation, 2nd system has incompatible firmware version.
Flashing 6 times	E 63	Double door operation, 2nd system has incompatible fire protection setting.
Flashing 7 times	E 71	System error 1 (test), second shutdown option.
Flashing 7 times	E 72	System error 2 (test), current measuring circuit.
Flashing 7 times	E 73	System error 3 (test), braking circuit
Flashing 12 times	E 12	EEPROM error
Flashing 13 times	E 13	Motor overcurrent
Flashing 15 times	E 15	Faulty learning cycle

B.3 Troubleshooting chart, "In" codes

B.3.1 Troubleshooting chart, information messages.

No.	Display	Red LED	Description	Troubleshooting information messages
	In 01	Off	**Obstruction** Door obstructed by an obstacle or person; door movement stopped by operator.	Sustained operation on a door with an obstruction can result in damage to drive. 1. Object or person obstructing door movement. • Check door movement while system is deenergized. • Remove cause of anything obstructing door movement. 2. Sensor detection range too small. • Obstructions are often caused by people using door due to sensor's detection range not matching operator's opening speed. Door is unavoidably contacted by person using door. • Sensors detection range should be increased and/or operator's opening speed should be increased. 3. Test system operation after cause of obstruction found.
2	In 08	Off	**Deactivation of drive function** • Contact at X6, 4 and 4a is opened. • Operator switched to emergency mode, door can only be used manually.	An emergency close switch, lock switch, or other system safety device may be connected to the X6 input. 1. One of the activators connected to X6 may have opened, or a defect is present. 2. Reset the applicable activator. Operator should start operation automatically. 3. If In 08 still present, check activators or system wiring.
3	In 09	Off	**Upgrade card error** • Installed upgrade card has been removed. • If two upgrade cards were installed, the upgrade card installed first (container module) has not been reinstalled or is defective.	1. Installed upgrade card cannot be removed. 2. If more than one upgrade card is installed, the first card installed becomes the container module. • Reference Chapter 32 for Upgrade card installation. • The container module must be installed last, after all other Upgrade cards are installed. 3. If container module is defective, first upgrade card (container module) must be replaced and all other upgrade cards must be reinstalled.
4	In 11	On	**Hold-open system triggered**	1. Hold-open system can be triggered: • Automatically by smoke detector or building interface system. • Manually by a manual release button. • Manually moving door. 2. The system must be reactivated by a deliberate action. 3. Depending on system's configuration, reactivation can be done by: • Manually moving door to taught opening angle. • Switching program switch to Close (off). • Pressing both 4 button keypad left ◀ and right ▶ buttons greater than 3s. 4. It must be ensured that a smoke detector or building interface has not been triggered. 5. If reactivation is unsuccessful, there may be a defect in the smoke detector or building interface system or its connections.
5	In 23	Off	**Locking alarm** • Door is blocked while in the closed position.	1. Most common cause of this error is the drive unit attempting to open a locked door. 2. To eliminate the occurrence of this error, install a lock status switch. • Lock switch detects the lock pin's switching status and switches the drive unit off if necessary. 3. It is recommended to use a lock status switch, as repeated attempts to open a locked door may damage the drive unit or the door.

B.3.1 Troubleshooting chart, information messages.

No.	Display	Red LED	Description	Troubleshooting information messages
6	In 61	Off	**Communication error, double door system** • No communication between the two operators.	1. Check communication cable connection at the two operators. • Cable connects to the horizontal RJ 45 connector next to the user interface. Check communication cable.
7	In 72	Off	**Current measuring circuit** • System could not successfully perform internal current measuring test , performed once every 24 hours.	1. The initial current measuring test my not always be successfully completed due to system tolerances and environmental conditions. 2. The test may also fail, as an example, if someone uses the door while the test is in progress.
8	In 73	Off	**Braking circuit test** • System could not successfully perform internal braking circuit test , performed once every 24 hours.	1. The initial braking circuit test my not always be successfully completed due to system tolerances and environmental conditions. 2. The test also may fail, as an example, if someone uses the door manually while the test is in progress. 3. If the cyclical test fails ten times in a row, error message **In 73** will be displayed.
9	In 91	Off	**DCW communication** • At least one registered DCW device is missing.	1. Reconnect the corresponding DCW device. 2. If this is not possible, reactivate the drive. Reactivation can be done by: • Switching program switch to Close (off). • Pressing both 4 button keypad left ◀ and right ▶ buttons greater than 3s.

B.4 Troubleshooting chart, "E" codes

B.4.1 Troubleshooting chart, "E" codes.

No.	Display	Red LED	• Description	Troubleshooting error codes
1	E 02	Flashing 2 x	**Locking device error** • Operator is attempting to open or close a locking device with feedback, or a DCW locking device. An error has occurred during this process.	1. Probable causes are a defective locking device or wiring defect. • Check the locking device and feedback system.
2	E 03	Flashing 3 x	**DCW program switch is missing**	1. Check the DCW program switch and its connections.
3	E 04	Flashing 4 x	**Safety sensor test error** • Test of moving safety sensors was unsuccessful.	1. Factory setting level of "safety sensor test" parameter **ST** is 0, test off (See Appendix A, Parameter detail). 2. When **ST** is configured to installed safety sensors, a test signal is sent to the sensors before each door opening or closing cycle. Operator waits for a response within a certain time window. 3. Check whether parameter **ST** has been configured to the installed safety sensors and their active-high or active-low signal level. 4. Check for activation of the test at the safety sensors.
4	E 12	Flashing 12 x	**EEPROM error** • Internal memory check could not be completed. • Drive unit works in door closer mode.	1. Using dormakaba handheld, reload current firmware to reinitialize system. 2. If the error is still present, the control unit must be replaced.

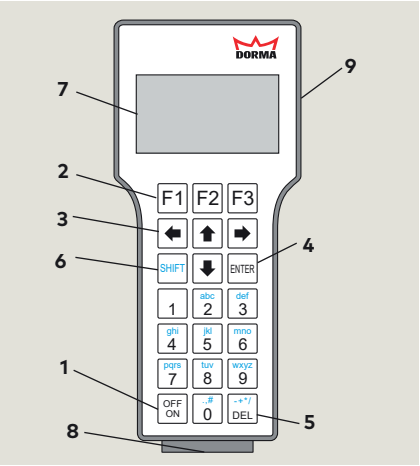
B.4.1 Troubleshooting chart, "E" codes.

No.	Display	Red LED	• Description	Troubleshooting error codes
5	E 13	Flashing 13 x	**Overcurrent detection** • Motor is consuming more current than drive unit can provide.	1. Motor is consuming too much power, check for any external causes. 2. Drive unit or control unit is defective. 3. If error repeats, operator must be replaced.
6	E 15	Flashing 15 x	**Faulty learning cycle.** • Learning cycle could not be completed (Chapter 19).	1. Error may occur if learning cycle has been interrupted, for example if door movement has been interrupted during the learning cycle. 2. Learning cycle must be repeated.
7	E 25	Flashing 5 x	**SVP-PR 12 power reserve module test negative**	1. See Appendix A, parameter **TS**, Power reserve module test. 2. Check power reserve module and its wiring.
8	E 51 E 52 E 53	Flashing 5 x	**Incremental encoder error** • Motor gear unit encoder monitoring detected a faulty state.	1. Check encoder plug connection at operator. • Secure connection. • Wiring terminations • Short circuits. 2. Check locking device for short circuits. 3. Error can be caused by defective motor or short circuit in locking device. 4. Motor gear unit must be replaced in event of defective motor.
9	E 62	Flashing 6 x	**Incompatible firmware version,** double door system, second system.	1. Equip both operators with same firmware version.
10	E 63	Flashing 6 x	**Incompatible fire protection setting**, double door system.	1. For double door systems, the Upgrade card fire protection must be installed in both control units.
11	E 71	Flashing 7 x	**System error 1, 2nd shutdown option**	1. In order to reliably switch off the drive unit, several switching elements are used and their functions are tested periodically. 2. If the function test always results in the error code, the control unit must be replaced.
12	E 72	Flashing 7 x	**System error 2, current measurement circuit**	1. The current measurement circuit is part of the safety mechanisms and its function is tested periodically. 2. If the function test always results in the error code, the control unit must be replaced.
13	E 73	Flashing 7 x	**System error 2, current measurement circuit**	1. The braking circuit is a safety element in the closer mode and will be tested every 24 hours. • During the test the motor is shut down during door closing and the door closes at a set angle in emergency mode. • Test can be noticed as a short jerk on the door and is normal. 2. Error can be due to door closing in the deenergized state too fast (under 3 seconds). See Chapter 19, Power fail closing speed. 3. Check the closing speed and reduce if necessary.
14			**Energy management** • Motor is too hot (for example, too high an ambient temperature) • System responds automatically.	1. Movement dynamics in the closed direction will be reduced. 2 Movement dynamics in both the open and closed directions will be reduced. 3 System shuts down for 3 minutes (door closer mode). 4 Hold-open time will be extended.

Appendix C - dormakaba handheld

C.1 dormakaba handheld terminal

Fig. C.1.1 dormakaba handheld



1 Off/On key
2 Function keys
3 Arrow keys
4 ENTER key
5 DEL key
6 SHIFT key
7 Alpha numeric keyboard
8 LED, recharging battery status (Off when batteries fully charged)
9 SD card slot

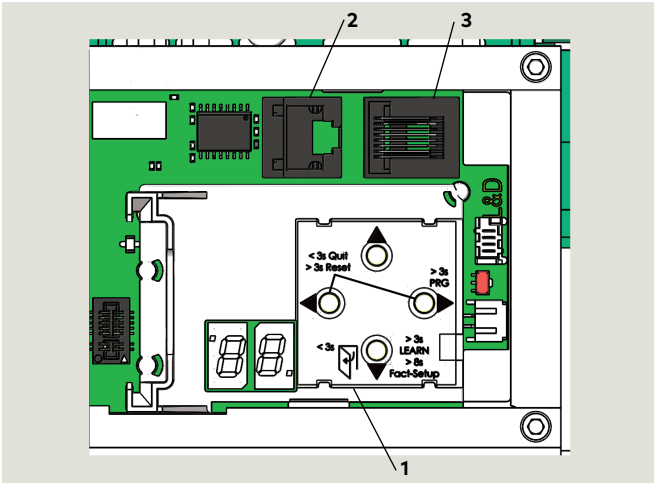
C.1.1 Interface cable

Use dormakaba interface cable (Article No. 16596101170) to connect dormakaba handheld to operator Com 1 interface.

CAUTION

Never use conventional network cable with RJ45 plug! Using conventional cable may result in permanent damage to operator!

Fig. C.1.2 Com 1 interface



1 4 button keypad
2 Com 1 interface
3 Double door comm cable connector

C.1.2 Handheld key functions.

1. OFF ON, switches Handheld on or off.
2. Function keys F1 - F3, trigger functions shown in bottom line of display (e.g., "RPT" for repeat, "UP" and "DOWN" to switch lines, "UpDoLd" for file up and download, "CHANGE" to change values, "OPEN" to trigger opening pulses.
3. Arrow keys, allow navigation within the display. Use left arrow to get back to previous screen.
4. ENTER, selects individual menu items and confirms changes of values and settings.
5. DEL, deletes figures or letters.
6. SHIFT, switch between figures and letters or small and capital letters. Current function is indicated on display (n: numeral, A: capital letters, a: small letters).
7. Alpha numeric keyboard, allows entering values and fie names in small and capital letters. There are several special characters (dot, comma, hash key, plus, minus, asterisk and diagonal slash).

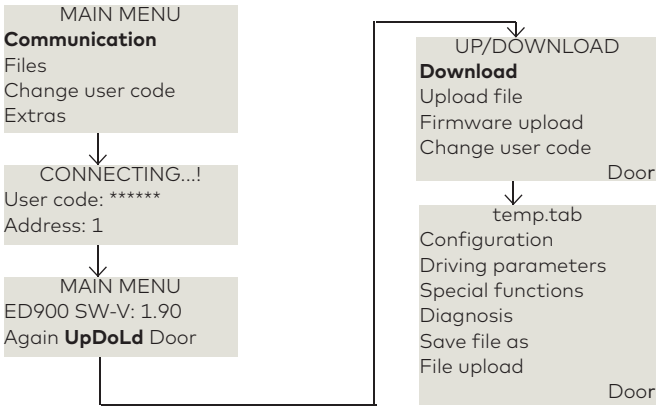
C.1.3 Handheld startup.

1. Press OFF ON to turn on Handheld terminal.
2. Screen displays Current version, creation date and name of data base. Handheld is ready for operation.
3. Select "COMMUNICATION" and enter user code (dormakaba original setting: 123456).
4. Handheld displays current software version of the connected operator (e.g., Ed100 SW- V2.3.0).

C.1.4 Downloading current parameters.

1. Press function key F2 "UpDoLd" to access menu "UP/DOWNLOAD".
2. Select "Download" to download current adjustments and parameters. System stores this data as temporary file under file name "temp.tab".
3. Every change in configuration, parameter setting or special functions confirmed with the "ENTER" key automatically uploads to the operator.
4. The Handheld does **not** automatically save the changes. The Handheld will prompt you to save the changes when quitting the menu.

C.1.5 Menu structure



NOTICE

Parameters and detail may change depending on firmware version.

C.2 dormakaba handheld; configuration parameters

"#" refers to reference numbers in Parameter list, Chapter 18.

C.2.1 Configuration parameters

#	Parameter and default		Description / Selections		
1	Installation	*	Pull arm		
			Push arm		
			Gleit BGS (Track w push arm)		
				cm	Inches
2	Reveal depth	**0**	ED100 / ED250	(-6)- 50	-2 3/8 ... 19 11/16
3	Door width (steps of 4")	**100**	ED100 / ED250	71 - 160	28 -60
4	Door type	*	single*		
			1. leaf		
			2. leaf		
			Master		
			Slave		
11	Sensor test	**0**	0	Off	
			1	Pull side high active	
			2	Push side high active	
			3	Both sides high active	
			4	Pull side low active	
			5	Push side low active	
			6	Both sides low active	
			7	Bodyguard	
			8	Bodyguard III or Premier T with monitoring	

#	Parameter and default		Description / Selections		
12	Start safety push side	*	Off*	Signal ignored once door closed	
			On	Sensor can trigger pulse with door closed	
14	Lock delay	**3**	Delayed opening time for locking mechanism		(0 ... 3) *100 msec
15	Unlock force	**0**	Preload prior to unlocking		0 ... 9
12	Test PR module	*	0*	Test off	
			1*	Test once every 24 hrs.	
23	Program switch	*	Internal*		
			External		
			DCW		
24	PGS power up (DCW)	*	Last*		
			Off		
25	PGS delay	*	Off*		
			On		
26	Daytime unlock	*	Off*		
			On	Locking device remains permanently unlocked while door is in closed position.	
27	Door status (Status relay function, X7 terminals)	*	1 Off	Relay off	
			2 Open*	door reaches closed position	
			3 Close	door reaches open position	
			4 Error	any error message	
				door closed and locked	
			5	Information or error codes displayed	
			6	Door opened further than opening angle	

C.2.1 Configuration parameters

#	Parameter and default		Description / Selections	
34	Manual mode	**On**	On*	Manual mode on.
			Off	Manual mode disabled.
35	Power assist winkel (angle)	**3**	Activation angle for power assist function (0 ... 5)	
36	Power assist kraft (force)	**0**	Force adjustment for power assist.	0 ... 10
21	Keep closed force	**0**	Force activated after latching action	0 ... 9
50	Manual release	**On**	Off; function deactivated. Manual release button required to deactivate hold open function.	
			On; function activated. Moving door manually in closing direction from hold open position deactivates hold open function.	
48	Input enable operator	*	Normal*	NC contact, operator deactivated when contact is open
			Inverse	NO contact, operator deactivated when contact is closed

#	Parameter and default		Description / Selections	
49	Input Night-bank		Normal*	NO contact; night-bank function triggered while contact closed.
			Inverse	NC contact; Night-bank function triggered while contact open.
47	Door depth	**35**	0 ... 99 mm	0 ... 7/8"
52	Hinge clearance	**3**	-5 ... +5 mm	-3/16 ... +3/16"
	I04 Out 1			
	I04 Out 1			
	I04 Out 1			
	I04 Out 1			

C.3 dormakaba handheld; driving parameters

C.3.1 Driving parameters

#	Parameter and default		Description / Selections		
				°/s	°/s
5	Speed open	**25**	ED250	8 ... 27	27 max. L.E.mode
6	Speed close	**25**	ED250	8 ... 27	27 max. L.E.mode
17	Limit force open	**60**	Static force in opening direction (wind load control)		(20 ...67) N L.E. mode
18	Limit force close	**60**	Static force in closing direction (wind load control)		(20 ...67) N L.E. mode
7	Hold-open time	**5**	Hold-open time automatic mode		(0 ... 30) s
8	Nurse bed function	**10**	Hold-open time nurse bed function		(0 ... 30) s

#	Parameter and default		Description / Selections	
5	Offenhaltez man.	**1**	Hold-open time manual mode	(0 ... 30 s
10	Wall blanking	**80**	Angle when system ignores safety sensor on hinge side	(60 ... 99)°
19	Latching action	**0**	Motor-driven latching action, automatic mode	(0 ... 9)
20	Latching angle	**3**	Opening angle, motor-driven latching angle activated.	(2 ... 10)°
46	Backcheck angle	**10**	Backcheck angle for manual opening cycles.	(5 ... 40)°
51	Coord. offset angle	**30**	Starting angle for second door of two door system.	(0 ... 30)°

C.4 dormakaba handheld; special functions (Upgrade cards) ED100 / ED250

C.4.1 Special functions (upgrade cards)

#	Parameter and default	Description / Selection	
	Upgrade card status codes	• locked: not available • unlocked: available, not active • activ or active: activated • fehlt: upgrade card missing	
40	Flip-flop func.	locked	Upgrade card professional Not used
		unlocked	
		active	
		fehlt	
41	extend HOT (extended hold-open time) r/o	locked	Upgrade card professional Not used
		unlocked	
		active	
		fehlt	
42	Nurse-Bed func.	locked	Upgrade card professional Not used
		unlocked	
		active	
		fehlt	
38	Fire protection r/o	locked	Upgrade card fire protection Not used
		unlocked	
		active	
		fehlt	
39	Full energy r/o	locked	Upgrade card full energy Not used
		unlocked	
		active	
		fehlt	
44	DCW r/o	locked	Upgrade card DCW
		unlocked	
		active	
		fehlt	
43	Disabled restr r/o	locked	Upgrade card Barrier-free toilet
		unlocked	
		active	
		fehlt	
22	Push & Go *	Off*	
		On	Door opens automatically when moved manually by 4° from closed position. Only available when "manual operation" is turned "off".

C.5 dormakaba handheld; diagnostics

C.5.1 Diagnostics

Parameter name	Description	Setting
FW vers BM r/o	Displays firmware (FW) version of basic module	x.x y y (e.g.,0190 v 1.9.0)
Rev FW version r/o		0 ... zzz
FW version SK r/o	Displays firmware version of Service Key	x x.y y (e.g., 01.00 = v 1.0.0)
FW bootloader		x x y y
Current error r/o	Displays current error	(...)
Error log 1		(...)
Error log 2		(...)
Error log 3		(...)
Error log 4		(...)
Error log 5		(...)
Error log 6		(...)
Error log 7		(...)
Error log 8		(...)
Error log 9		(...)
Current information	Displays current error	(...)
Delete errors	Press "ENTER" to delete error log.	Cmd ->
Installation dat r/o	Displays date of installation (month / yr)	mmyy (e.g., 1110 November 2010)
Hours counter r/o	Displays number of operating hours	(..) h
Service time interval	Enter maintenance interval	(6 .. 24) months **12**
Service cycle interval	Enter number of opening and closing cycles until next maintenance	(200 .. 1000)* 1000 **200**

Parameter name	Description	Setting
Wartungs datum	Maintenance data	x x y y (month, year)
Cycles total r/o	Displays total opening and closing cycles	(..)
Zyklen max h r/o	Displays maximum number of cycles in one hour	(..) h
Zyklen / h r/o	Displays number of cycles in previous hour	(..) h
Zyklen / h akt.	Displays number of cycles in current hour	(..) h
Learning cycle	Press "ENTER" to start learning cycle.	Cmd->
Learn cycle stat. r/o	Indicates status of learning cycle	(..)
Factory reset	Press "ENTER" to reset system to original settings	Cmd ->
Latching action p/u		(...) kg
Setup level (Ref. parameter SL, no. 28)	- Level 1, standard original settings. - Level 2, extended original settings	- Level 1 - Level 2
DCW list r/o	Displays DCW list	List ->
DCW reset		Cmd ->
Function mode r/o	Displays program switch setting	(..)

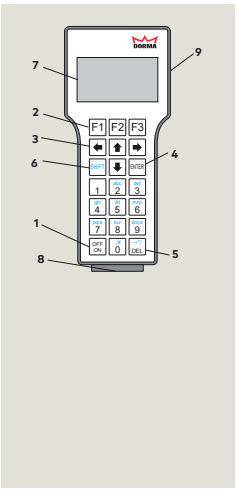
C.5.1 Diagnostics

Parameter name	Description	Setting
Setting code		0, low active (function on) 1, function off
Inp. Night - bank r/o	Status of Night -bank input X9, 6 and 1	0 1
Inp. OPEN r/o	Status of program switch permanent OPEN input X1, 34	0 1
Inp. PART OPEN r/o	Status of program switch PARTIAL OPEN input X1, 33	0 1
Inp. EXIT ONLY r/o	Status of program switch EXIT ONLY input X1, 32	0 1
Inp. AUTO r/o	Status of program switch AUTO input X1, 31	0 1
Inp. OFF r/o	Status of program switch OFF input X1, 30	0 1
Inp. Sfty pull side r/o	Status of safety sensor, hinge side input X5, 15	0 1
Inp. Sfty push side r/o	Status of safety sensor, opposite hinge side X5, 11	0 1
Inp. Activ extern r/o	Status of external activation sensor X6, 41	0 1
Inp. Activ intern r/o	Status of internal activation sensor X6, 42	0 1
Inp enable operator r/o	Status of Emergency close input X6, 4 and 4a	0 1
Inp. smoke detector r/o	Status of smoke detector input X9, 3 and 1	0 1
Inp. lock status r/o	Status of locking device input X3, 43 and 3	0 1
Locking status		locked

Parameter name	Description	Setting
Klemme 1G	Clamp X3, 1G and 3, 24 V out	
Opening width r/o	Displays opening angle	(..) °
Cur. door position r/o	Displays current door angle	(..) °
Amb. temp. r/o	Displays ambient temperature	(..) °C
Amb. max r/o	Displays maximum ambient temperature	(..) °C
Motor temp. r/o	Displays motor temperature	(..) °C
Motor temp max. r/o	Displays maximum motor temperature	(..) °C
Com 1 r/o	Com 1 connection	(..)

C.6 New dormakaba handheld; language change to English

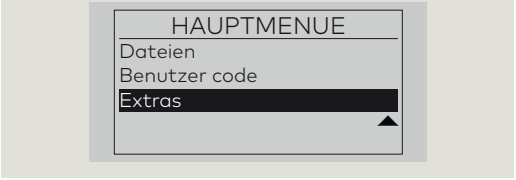
Fig. C.6.1
dormakaba handheld



C.6.1 New dormakaba handheld; language change.

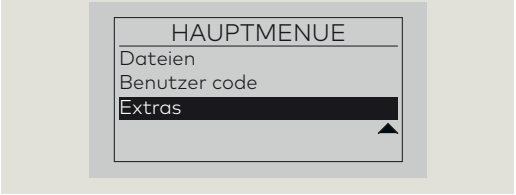
If German language is displayed on screen when handheld is first turned on (Fig. C.6.2, handheld power on sequence), use following steps to change to English.

Fig. C.6.2 HAUPTMENUE (main menu)



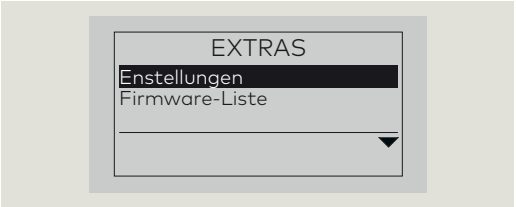
1. Scroll down Main Menu to EXTRAS:
   - Press [↓] 3 times to highlight EXTRA.

Fig. C.6.3 Main Menu; EXTRAS highlighted



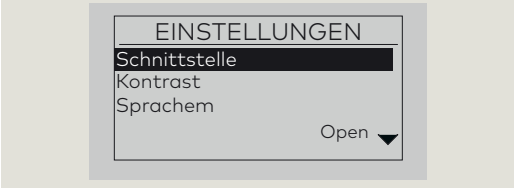
2. Press [ENTER] to select EXTRAS menu.

Fig. C.6.4 EXTRAS menu



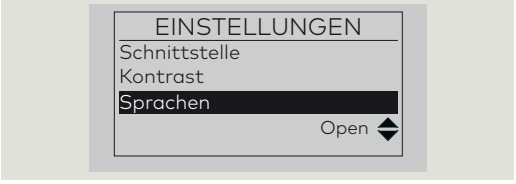
3. Press [ENTER] to select EINSTELLUNGEN (Settings) menu.

Fig. C.6.5 EINSTELLUNGEN menu



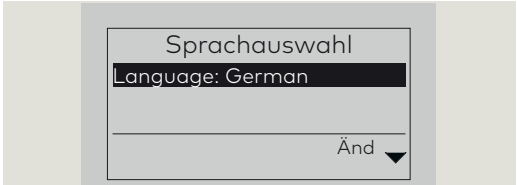
4. Scroll down EINSTELLUNGEN Menu to Sprachen (Languages):
   - Press [↓] twice to highlight Sprachen.

Fig. C.6.6 Sprachen highlighted



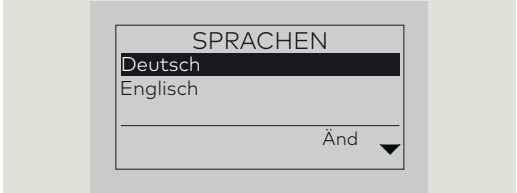
5. Press [ENTER] to select Sprachen (Fig. 26.6.6).

Fig. C.6.7 Sprachauswahl (Language Selection) menu



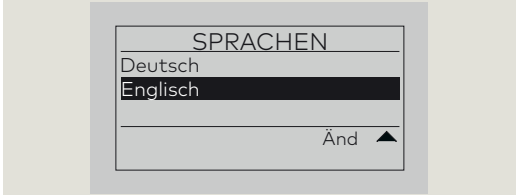
6. Press [F3] to select Änd (Amendments).

Fig. C.6.8 SPRACHEN menu



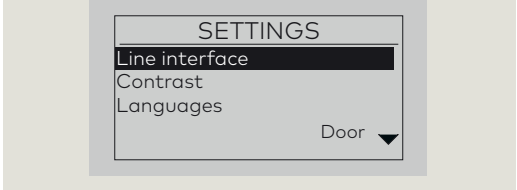
7. Scroll down SPRACHEN menu to Englisch:
   Press [↓] once to highlight "Englisch"

Fig. C.6.9 Englisch highlighted



8. Press [ENTER] to select Englisch.

Fig. C.6.10 SETTINGS menu



TIPS AND RECOMMENDATIONS

Handheld programmer will retain English setting when unit is turned off. Change to English only required the first time the programmer is turned on "out of the box".

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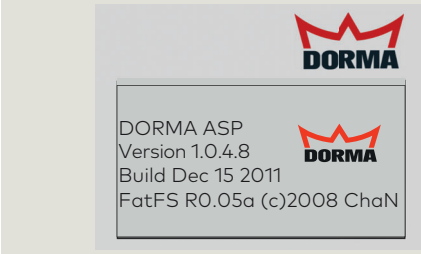
C.7 dormakaba handheld; firmware update

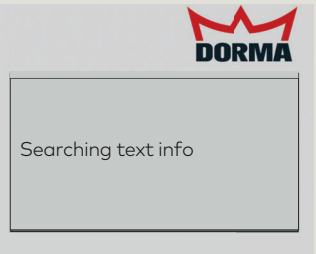
C.7.1 Firmware update procedure

CAUTION

For all firmware changes, set program switch to CLOSE and allow door to close completely before any updates are made!

Fig. C.7.1 Handheld power on sequence





1. Connect Handheld to COM 1 port (Para. 27.1) and power on.
- Handheld will boot up and display main menu.

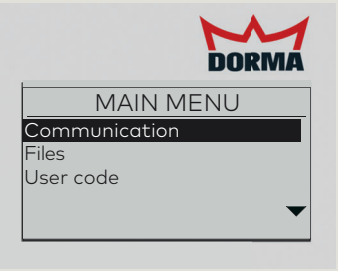
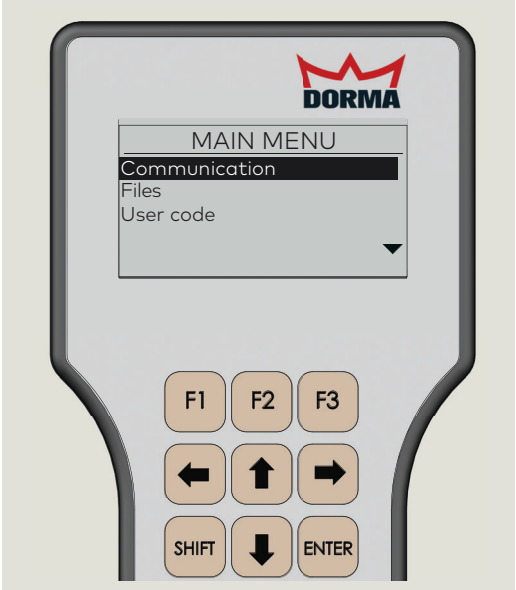


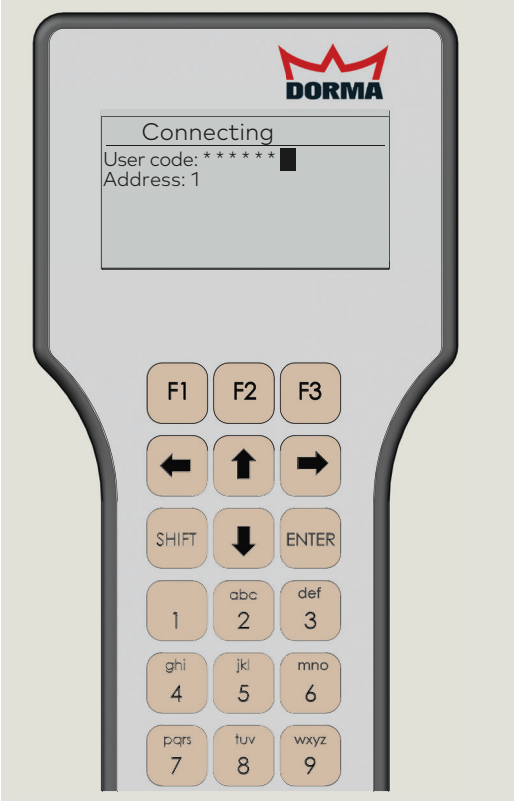
Fig. C.7.2 Select communication menu

Fig. C.7.3 Enter Handheld user code

1 ENTER button



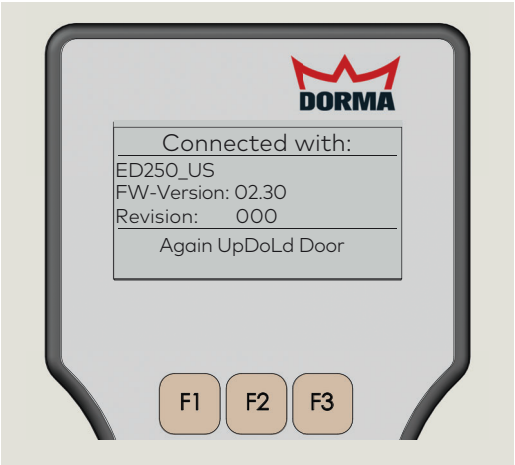
2. With Communication highlighted, press ENTER.



3. Enter handheld user code and press ENTER.

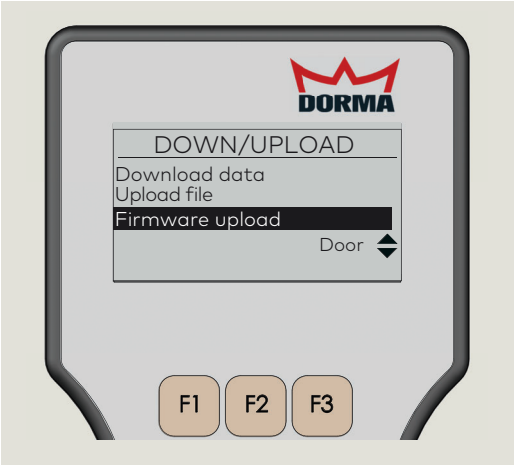
1 ENTER button
2 F2 button
3 Up/down arrows

Fig. C.7.4 Select UpDoLd



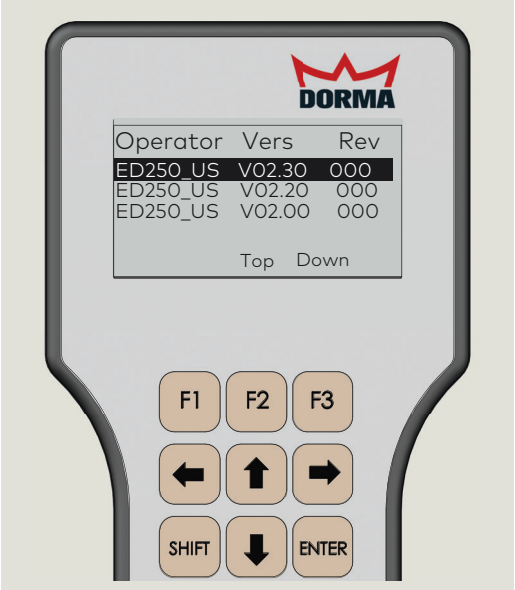
4. Press F2 to select UpDoLd.

Fig. C.7.5 Select Firmware upload



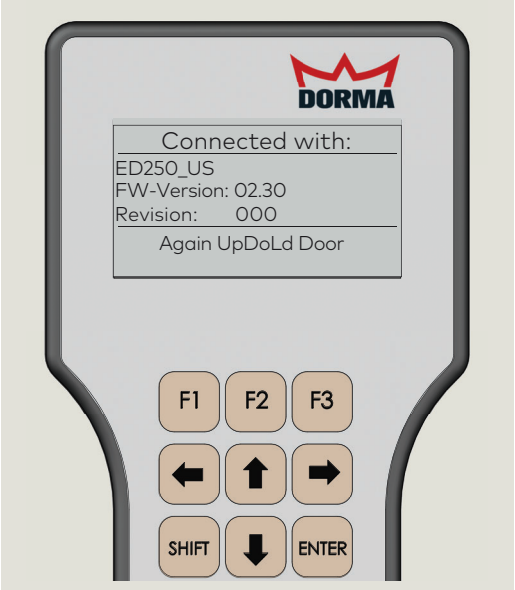
5. Use Up and Down arrows to select Firmware upload and press ENTER.

Fig. C.7.6 Select Firmware version



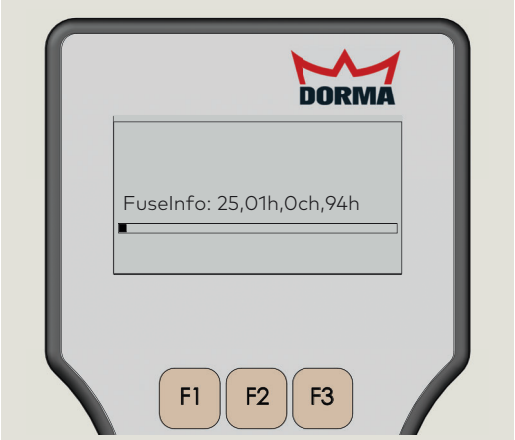
6. Use Up and Down arrows to select firmware version and press ENTER.

Fig. C.7.7 Start transmission



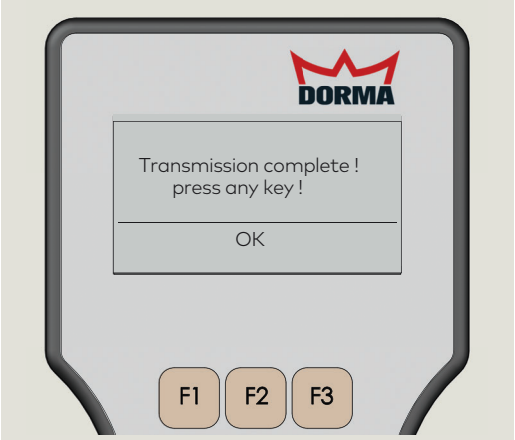
7. Press any key to start firmware transmission.

Fig. C.7.8 Firmware uploading



8. Firmware uploading to controller. Wait time of 3 to 5 minutes to upload.

Fig. C.7.9 Complete firmware update

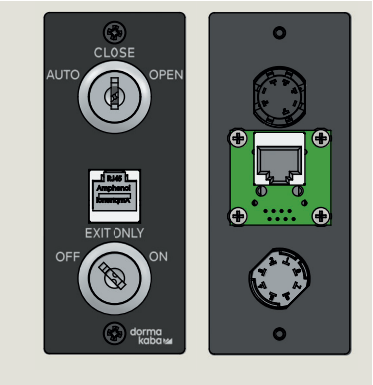


9. Press any key to complete firmware update.

Appendix D - Wiring diagrams

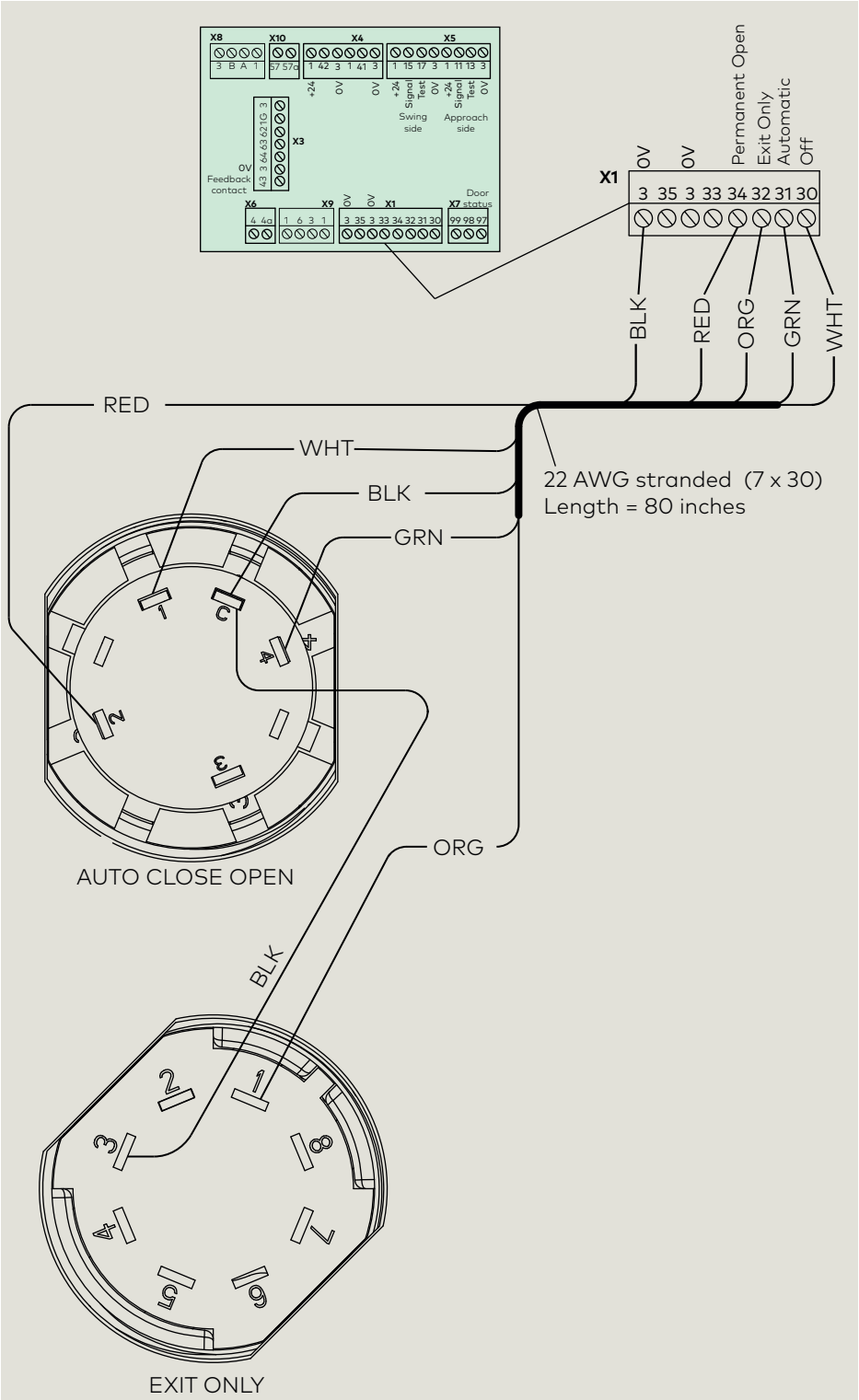
D1.1 DX4604-21C Key Switch Panel with RJ45 connector

Fig. D1.1 Key switch panel DX4604-21C



Reference Para. 16.17 for RJ45 cable connection.

Fig. D1.2 Key switch panel wiring diagram



D2.1 DX4604-11C Key Switch Panel

Fig. D2.1 Key switch panel DX4604-11C

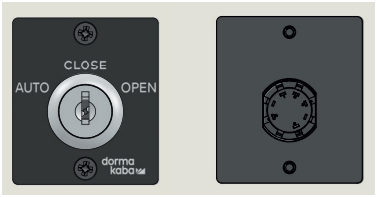
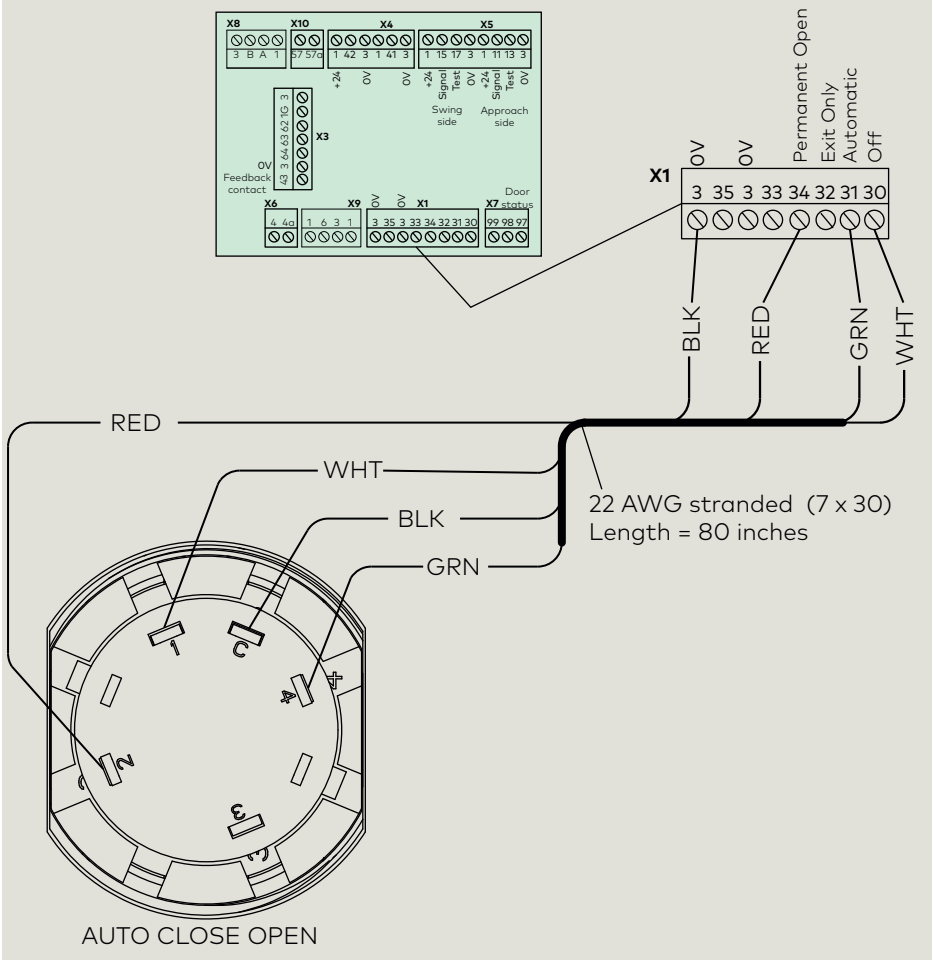


Fig. D2.2 Key switch panel wiring diagram



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