

ED100/ED250

Automatic Swing Door Operators

Installation in Surface Applied (Narrow) Header

Installation Instructions

DL4615-006 – 01-2020

| EN |

Table of contents

Table of contents	2	12	ED100/ED250 SA arm configurations	28
1	General information	4		
2	Product description	5	12.1	Single swing door right hand arm configurations 28
3	Safety information	6	12.2	Single swing door left hand arm configurations 29
4	ED100/ED250 Product overview	7	12.3	Single swing door center hung door arm configurations 30
4.1	ED100/ED250 single swing door	7	12.4	Double door arm configurations 32
4.2	ED100/ED250 pair swing doors	8	12.5	Double egress arm configurations 33
4.3	Arm configurations	8	12.6	Double door center hung arm configurations 34
4.3	ED100/ED250 operator component view	9		
5	Accessory kits, axle extension kits	10	13	Header installation
5.1	ED250 and ED100 configured for full energy accessory kit	10	13.1	Installation preparation 35
5.2	ED100 low energy accessory kit	11	13.2	Unpack header assembly 35
5.3	Arm configurations	12	13.3	Remove mounting plate from ED150 / ED250 operator 36
5.4	Axle extensions	12	13.4	Single header installation 37
5.5	Double door ED100/ED250 operator connection cables	13	13.5	Install program switch panel in header 38
5.6	Optional key switch panels	13	13.6	Double header installation 39
6	Technical data	14	13.7	SA narrow header (4 x 6") – push arm template 41
6.1	ED100/ED250 Technical data	14	13.8	SA narrow header (4 x 6") – deep push arm installation template 42
6.2	Operating specifications	15	13.9	SA narrow header (4 x 6") – pull arm template 43
7	Recommended tools and torque chart	16	13.10	SA narrow header (4 x 6") – deep pull arm template 44
7.1	Recommended tools	16	13.11	SA narrow header (4 x 6") – center hung door, push arm template 45
7.2	Standard tightening torque	16	13.12	Offset pivot door, surface applied header, push arm template 46
7.3	Drill bits	16	14	ED100/ED250 operator installation
8	Operational mode overview	17	14.1	Single header mounting plate installation 49
8.1	ED100/ED250 door closer modes	17	14.2	Double header mounting plate installation 50
8.2	Low energy product	17	14.3	Customer 115 Vac connection to mounting plate terminal block 51
9	User interface	18	14.4	Double door header 115 Vac mounting plate connection 51
9.1	Overview	18	14.4	Remove protective film strips from operator 52
9.2	4 button keypad and display	18	14.5	Install ED100/ED250 operator on mounting plate in header 53
9.3	Program switch panel, optional key switch panels	19	14.6	Double header ED100/ED250 operator installation 54
10	System accessories	20	14.7	Connect cables to ED100/ED250 operator 55
10	ED100/ED250 door signage	22	14.8	Double header operator legend plate 55
10.1	Full energy operator	22		
10.2	Low energy operator	22		
11.3	Door signage, full energy single swing door	23		
11.5	Door signage, full energy double swing doors	24		
11.6	Door signage, low energy double swing doors	26		
11.7	Safety label, automatic swing doors	27		
11.8	Safety label, low energy swing doors	27		

15	Arm with track mount installation	56	28	Install header cover	81
15.1	Arm with track installation	56	28.1	Install header cover	81
15.2	Splined arm and track assemblies	56	29	Install door signage	81
15.3	Splined arm and track hardware	56	29.1	Install door signage	81
15.4	Slide shoe assembly	57	30	ANSI/BHMA standards	82
15.5	Install hardware into track	57	30.1	A156.10 Power operated pedestrian doors	82
15.5	Fasten track assembly to door	58	30.2	A156.19 Low energy power operated doors	83
15.6	Arm assembly	59	31	Upgrade cards	86
15.7	Arm assembly with CPD lever	59	31.1	Upgrade cards	86
15.8	Mount drive arm to operator	60	31.2	Container module	86
16	Push arm installation	62	31.3	Installing upgrade cards	87
16.1	Push arm installation templates	62	32	Maintenance	88
16.2	Hardware	62	32.1	Safety label, automatic swing doors	88
16.3	Install push arm assembly	63	32.2	Safety label, low energy swinging doors	88
17	Measure reveal depth, door width	65	32.3	ED100/ED250 environment and cleaning	89
17.1	Reveal depth parameter rd	65	32.4	Yellow LED, service level	89
17.2	Record reveal depth measurement, rd value	65	32.5	Pull arm maintenance	90
17.3	rd parameter values	65	32.5.1	Arm fasteners – torque requirements	91
17.4	Door width parameter Tb	66	32.6	Push arm maintenance	92
17.5	Record door width measurement, Tb value	66	32.6.1	Push arm – M8 SHCS torque requirements	93
17.6	Tb parameter values	66	Appendix A - Driving Parameters	94	
18	Braking circuit plug	67	A.1	Driving parameters – detail	94
18.1	Braking circuit plug position	67	Appendix B - Troubleshooting	103	
19	Operator spring tension	68	B.1	Information and error codes	103
19.1	Set operator spring tension	68	B.2	Red LED status codes	104
20	Power fail closing speed	69	B.3	Troubleshooting chart, "In" codes	105
20.1	Set power fail closing speed	69	B.4	Troubleshooting chart, "E" code	106
21	Parameters	70	Appendix C - dormakaba handheld	108	
21.1	Parameters	70	C.1	dormakaba handheld	108
22	Single door first commissioning	73	C.2	Configuration parameters	109
22.1	First commissioning	73	C.3	Driving parameters	110
22.2	Set configuration parameters	74	C.4	Special functions (Upgrade cards)	111
22.3	Key switch option; set Parameter PS, Program switch type	75	C.5	Diagnostics	112
22.3	Perform learning cycle	76	C.6	New dormakaba handheld; language change to English	113
23	Double door first commissioning	77	C.7	dormakaba handheld; firmware update	114
23.1	Separately commission active and inactive doors	77	Appendix D - Header hole preparation	116	
23.2	Set operator parameters for double door operation	77	D.1.1	Header, no preparation	116
23.3	Connect communication cable between operators	78	D.1.2	Single LH header	116
24	Connect accessory wiring	79	D.1.3	Single header cover bottom view	116
24.1	Connect accessory wiring	79	D.1.4	Single RH header	116
25	Set track bumper stop	79	D.1.5	Double header	117
25.1	Set track bumper stop position	79	Appendix E - Wiring diagrams	118	
27	Install push arm door stop	80	E1.1	DX4604-21C Key Switch Panel with RJ45 connector	118
27.1	Install push arm bumper stop (optional assembly)	80	E2.1	DX4604-11C Key Switch Panel	119

1 General information

1.1 Installation Instructions

This manual provides installation instructions for ED100/ED250 automatic swing door operators used in single door and double door surface applied header installations.

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.

1.3 dormakaba.com website

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

1.4 Symbols used in these instructions.



WARNING

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

NOTICE

Draws attention to important information presented in this document.

CAUTION

This symbol warns of a potentially unsafe procedure or situation.



TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

1.5 Dimensions

Unless otherwise specified, all dimensions are given in inches (").

1.6 Building codes and standards.

ED100/ED250 installation: observe applicable national and local building codes.

2 Product description

2.1 Intended use.

The ED100 and ED250 are electromechanical operators used exclusively for opening and closing interior or exterior swing doors.

The ED250 or ED100 operator is installed in a surface mount header at customer site. The header must be installed on an interior building surface.

For double swing doors, both operators are installed in a single header.

2.2 Low energy operator and full energy operator.

2.2.1 ED100

- Supplied as a low energy operator (ANSI/BHMA A156.19).
- Configured as a full energy operator using parameter adjustment (ANSI/BHMA A156.10).

2.2.2 ED250

- Supplied as a low energy operator (ANSI/BHMA A156.19).
- Configured as a full energy operator using parameter adjustment (ANSI/BHMA A156.10).



WARNING

For low energy applications, ED100/ED250 parameter settings must meet ANSI/BHMA A156.19 specifications.

Reference:

- Chapter 30, ANSI/BHMA standards



WARNING

To reduce risk of injury to persons, use this ED100/ED250 operator only with automatic swing doors that the operator is designed for. Reference Chapter 6, Technical data.

2.3 Arm configurations.

ED100 and ED250 are both suitable for installation using:

- ED push arm
- ED pull arm with track
- ED push arm with track [application specific]*

*Does not qualify for use on a smoke or fire-rated door.



TIPS AND RECOMMENDATIONS

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

2.5 Maximum door weight and width.

Reference Para. 6.2, Operating specifications.

2.6 Hardware as shipped.

2.6.1 Single swing door.

1. Box containing surface mount header assembly for one ED100/ED250 operator. Included inside header:
 - Accessory installation kit, either full energy or low energy (Chapter 5).
 - Program switch panel (Chapter 4).
 - Box containing push arm or pull arm kit.
2. Box containing ED100 or ED250 operator with attached mounting base.

2.6.2 Double swing doors.

1. Box containing surface mount header assembly for two ED100/ED250 operators. Included inside header:
 - (2) accessory installation kits, either full energy or low energy (Chapter 5).
 - Program switch panel (Chapter 4).
 - (2) boxes, each containing a push arm or pull arm kit.
 - ED100/ED250 operator connection cables (Para. 5.5).
2. (2) boxes, each containing an ED100 or ED250 operator with attached mounting base.

3 Safety information

3.1 Safety instructions.

This document contains important instructions for installation of the ED100/ED250 swing door operators. Review these instructions thoroughly prior to installation, and follow them carefully during installation, commissioning, troubleshooting and maintenance.

3.2 Door signage requirements, reference Chapter 11.

Proper signs and labels shall be applied and maintained on the door controlled by the ED250/ED100 automatic swing door operator:

- Full power: ANSI/BHMA A156.10: Standard for power operated doors.
- Low Power: ANSI/BHMA A156.19: Standard for power assist and low energy power operated doors.

3.3 Safety warnings.



WARNING

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



WARNING

Hazard to mechanical processes by use of control settings, elements, or procedures not documented in this manual!



WARNING

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



WARNING

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



WARNING

Metallic doors must be grounded per national and local codes!



WARNING

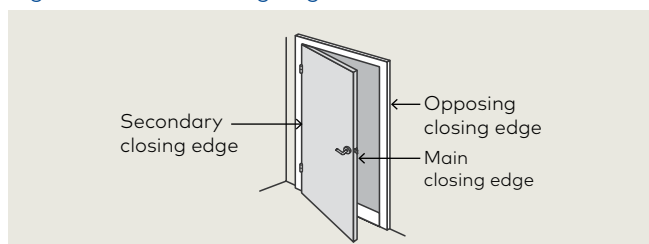
Hand pinch point and crushing hazards at door closing edges!



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.



WARNING

Hand pinch point and crushing hazards at push arm and arm and track!

Fig. 3.2 Hazards at push arm

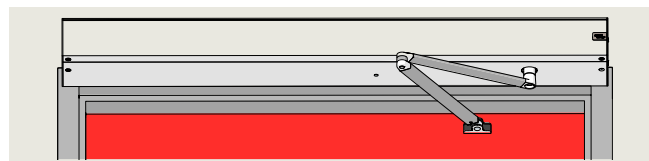
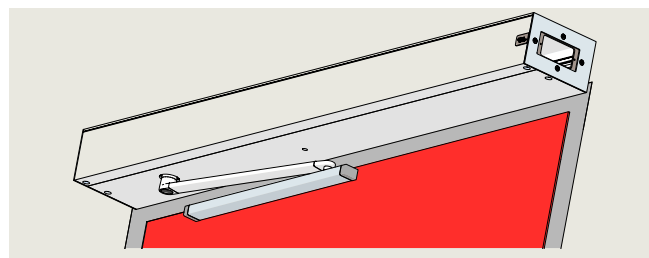


Fig. 3.3 Hazards at arm and track



4 ED100/ED250 Product overview

4.1 ED100/ED250 single swing door

- 1 ED100/ED250 4" x 6" header
- 2 Header cover
- 3 Cover screws
- 4 Program switch panel mounting surface
- 5 Jamb brackets
- 6 4" x 6" header track
- 7 Splined spindle
- 8 ED100/ED250 operator
- 9 Hole for spring tension adjustment

Fig. 4.1.1 Header assembly with cover

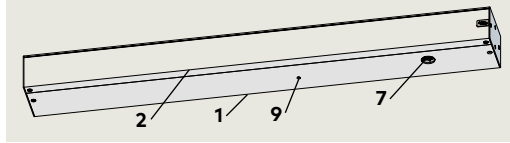


Fig. 4.1.6 Header without operator

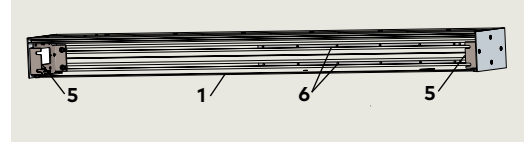
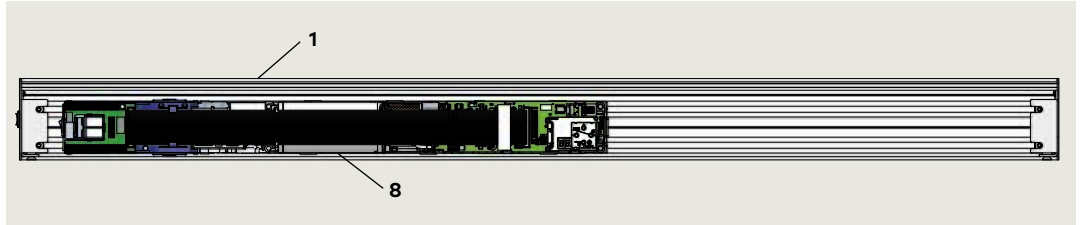


Fig. 4.1.2 Header with ED100/ED250 operator



- 1 ED100/ED250 header
- 8 ED100/ED250 operator
- 8.1 Splined spindle
- 10 Splined push arm assembly
- 11 Terminals for accessory wiring
- 12 Bag containing terminals and third guide pin*
- 13 Mounting plate
- * Included with operator
- 14 Track
- 15 Arm

Fig. 4.1.3 ED100/ED250 operator

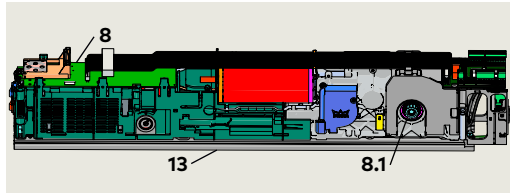


Fig. 4.1.7 Header with push arm

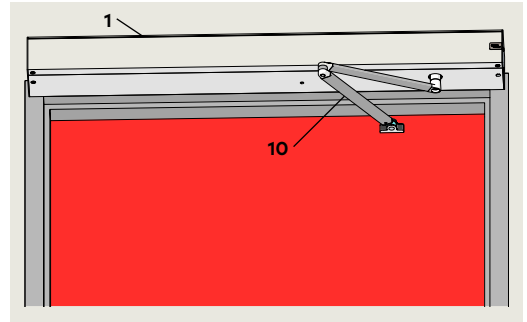


Fig. 4.1.4 Accessory terminals, guide pin



Fig. 4.1.8 Header with arm and track

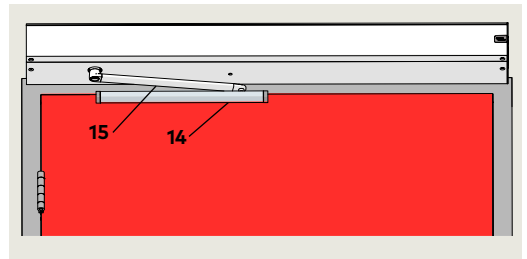


Fig. 4.1.5 Program switch panel

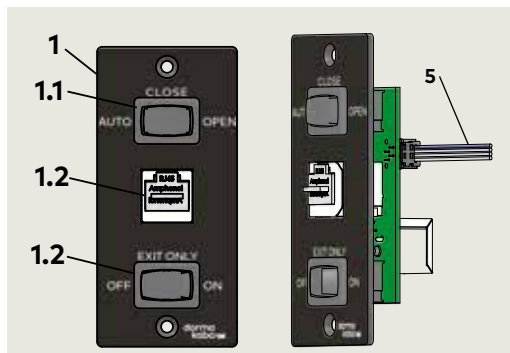
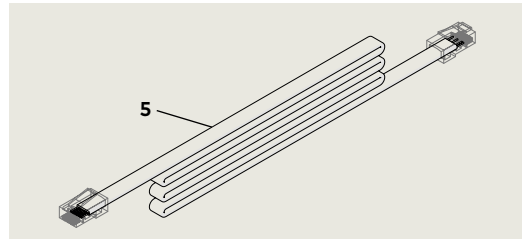


Fig. 4.1.9 RJ45 communication cable



- 1 Program switch panel DX4604
- 01C, 3 ft. cable
- 02C, 10 ft. cable
- 2 Program switch, 3 position
- 3 Exit only switch, 2 position
- 4 Comm port for dormakaba handheld
- 5 RJ45 comm. cable

Reference Para. 5.6 for Key Switch Panel options.

4.2 ED100/ED250 pair swing doors

- 1 Double header
- 2 Header cover
- 3 Cover screws
- 4 Program switch panel
- 5 Hole for drive axle
- 6 Header track
- 7 Hole for spring tension adjustment

Fig. 4.2.1 Double header

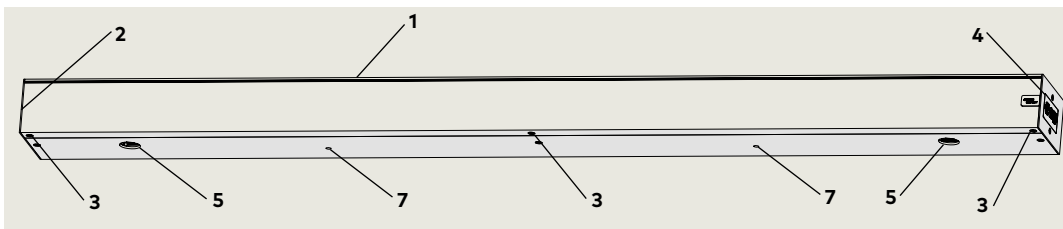


Fig. 4.2.2 Double header without operators

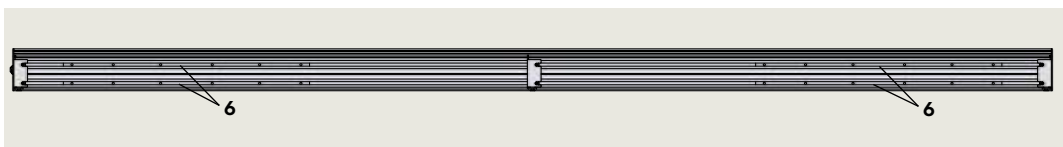


Fig. 4.2.3 Double header with operators

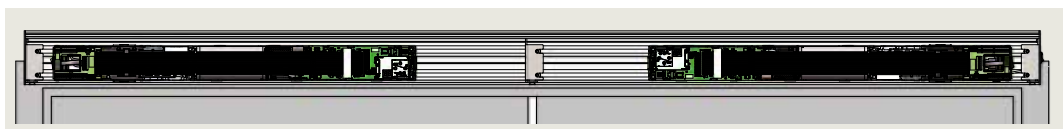
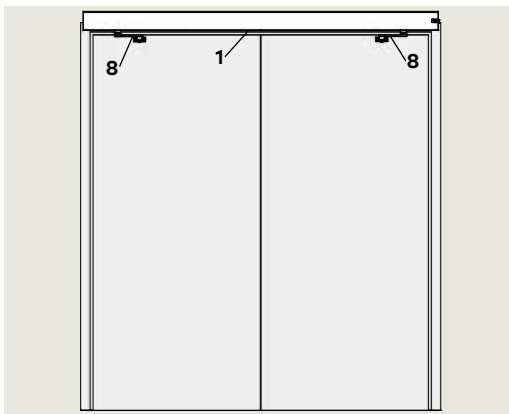
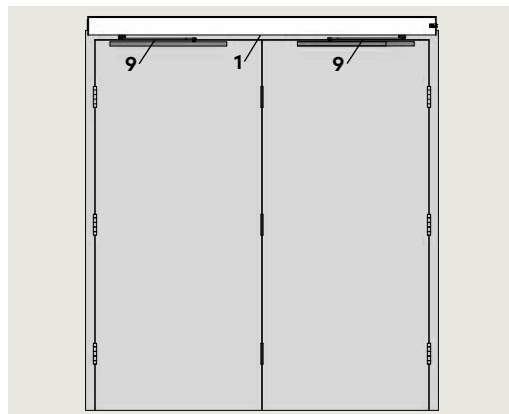


Fig. 4.2.4 Double header with push arms



- 1 Double header
- 8 Push arm
- 9 Pull arm with track

Fig. 4.2.5 Double header with pull arms



4.3 Arm configurations

4.3.1 Arm configurations

- Push arm
- Deep push arm
- Pull arm with track
- CPD pull arm with track
- CPD push arm with track

[application specific]*

*Does not qualify for use on a smoke or fire-rated door.



TIPS AND RECOMMENDATIONS

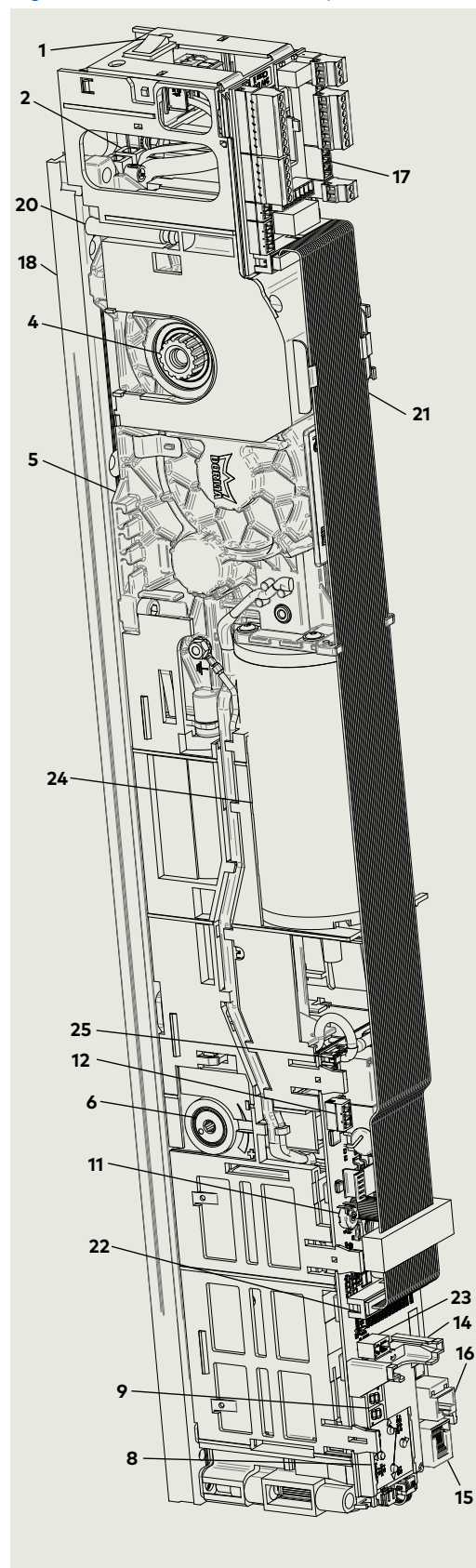
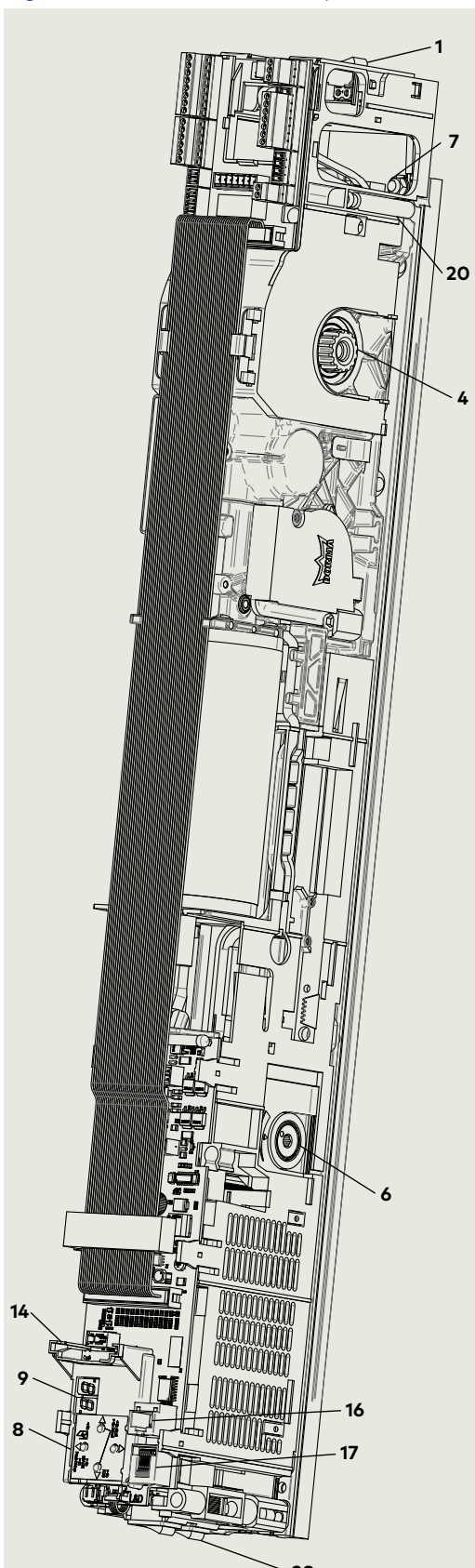
Reference Chapter 12 for arm configuration detail.

4.3 ED100/ED250 operator component view

Fig. 4.3.1 ED100/ED250 component view 1

Fig. 4.3.2 ED100/ED250 component view 2

- 1 Power switch
- 2 120 VAC terminals
- 3 Housing unit
- 4 Splined spindle
- 5 Operator (motor, gear, spring)
- 6 Spring tension adjustment, closing force
- 7 Ground stud
- 8 4 button user interface
- 9 Information display
- 10 Slot for internal program switches
- 11 Potentiometer, closing speed adjustment
- 12 Terminal jumper socket, push or pull mounting
- 14 Slot for upgrade cards
- 15 RJ45 socket, double door operator synchronization
- 16 Com 1 service connector
- 17 Accessories terminal board
- 18 Mounting plate
- 19 Customer ground terminal
- 20 Guide pin
- 21 Ribbon cable
- 22 Ribbon cable socket
- 23 Upgrade card socket
- 24 Motor
- 25 Encoder socket and cable
- 26 Motor socket and cable
- 27 Control board
- 28 Program switches



5 Accessory kits, axle extension kits

5.1 ED250 and ED100 configured for full energy accessory kit

- 1 DD0586-010
- 2 DD0758-010
- 3 DD0762-010
- 4 DD0762-020
- 6 Side 2, DD0739-010
- 6.1 Side 1, DD0739-010
- 7 Safety Information label, full energy
- 8 Safety Information label, low energy
- 9 Side 1, DD0756-010
- 9.1 Side 2, DD0756-010

Fig. 5.1.1 Decal kit, low energy

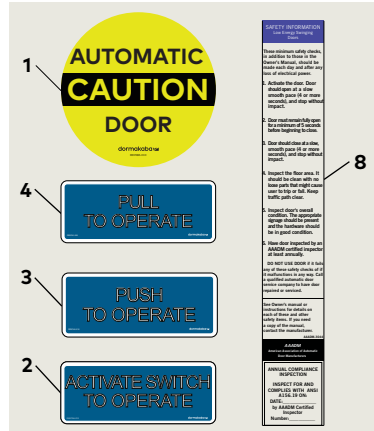
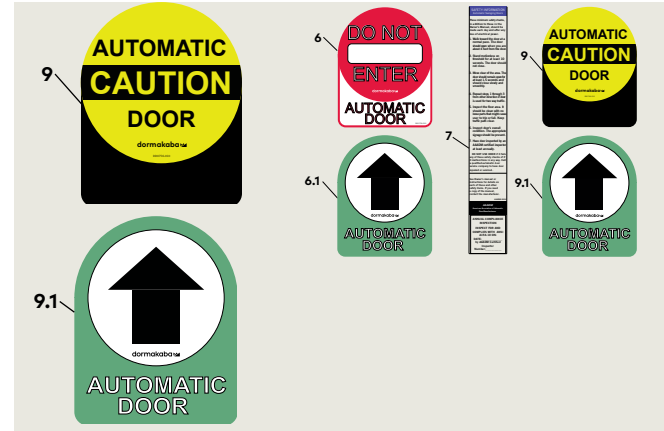


Fig. 5.1.2 Decals, full energy



- 8 Header mounting screw pack DK4608-010
- 8.1 #12 x 2.5 RHWSP
- 8.2 1/4-20 x 1.5 PHSLFP
- 9 Push arm screw kit DK2719-010
- 9.1 10-24 x 11/2" barrel nut
- 9.2 10-24 x 1" PPHMS
- 10 Pull arm screw kit DK2719-020
- 10.1 10-24 x 11/2" barrel nut
- 10.2 10-24 x 11/4" FHSC

Fig. 5.1.3 Header mounting screw pack

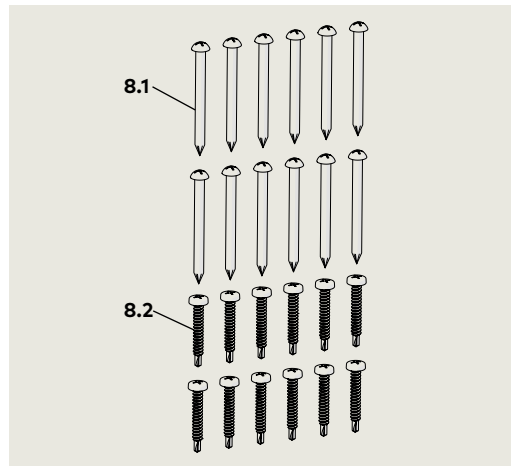


Fig. 5.1.4 Push arm screw kit

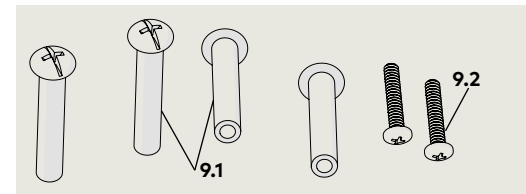
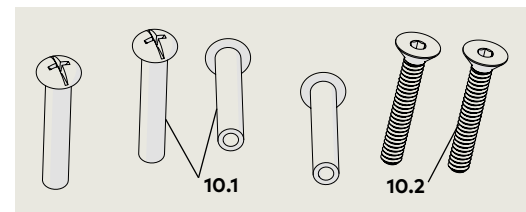


Fig. 5.1.5 Pull arm screw kit



- 11 1/4-20 x 1" FHMSF
- 12 11/2" hole plug
- 13 3/8" [10 mm] hole plug

Fig. 5.1.6 Hole plug kit

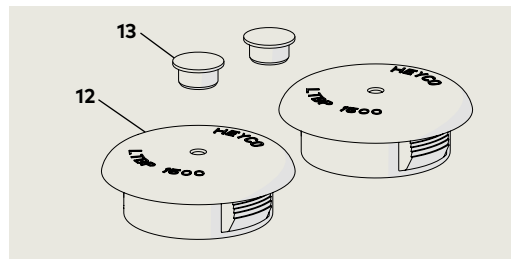
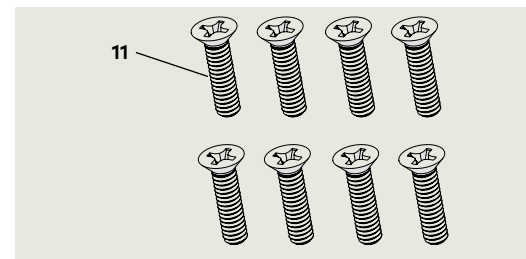


Fig. 5.1.7 Mounting base screw kit



- 14 Communication cable DX4607 for program switch panel
 - 15 Program switch panel DX4604
- Manuals not shown
- 18 Owner's manual

Fig. 5.1.8 Program switch panel

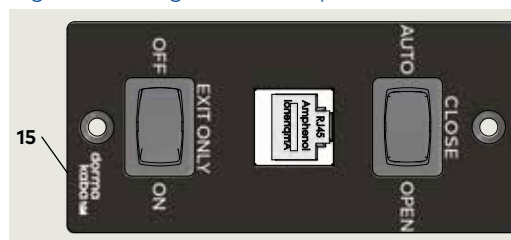
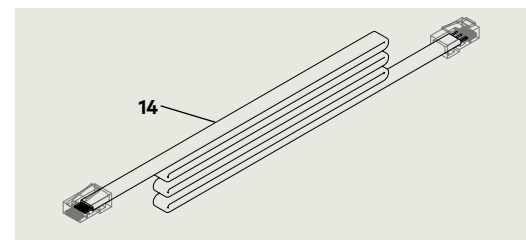


Fig. 5.1.9 Communication cable



Reference Para. 5.6 for optional key switch panels.

5.2 ED100 low energy accessory kit

- 1 DD0586-010
- 2 DD0758-010
- 3 DD0762-010
- 4 DD0762-020
- 5 Safety Information label, low energy
- 8 Header mounting screw pack DK4608-010
- 8.1 #12 x 2.5 RHWSP (round head wood screw, Phillips)
- 8.2 1/4-20 x 1.5 PHSLFP (pan head self tapping, Phillips)
- 9 Push arm screw kit DK2719-010
- 9.1 10-24 x 1 1/2" barrel nut
- 9.2 10-24 x 1" PPHMS (Phillips pan head machine screw)
- 10 Pull arm screw kit DK2719-020
- 10.1 10-24 x 1 1/2" barrel nut
- 10.2 10-24 x 1 1/4" FHSCS (flat head socket screw)
- 11 1/4-20 x 1" FHMS (flat head machine screw, Phillips)
- 12 1 1/2" hole plug
- 13 3/8" [10 mm] hole plug
- 14 Communication cable DX4607 for program switch panel
- 15 Program switch panel DX4604
- 18 Manuals not shown.
- 18 Owner's manual

Fig. 5.2.1 Decal kit, low energy

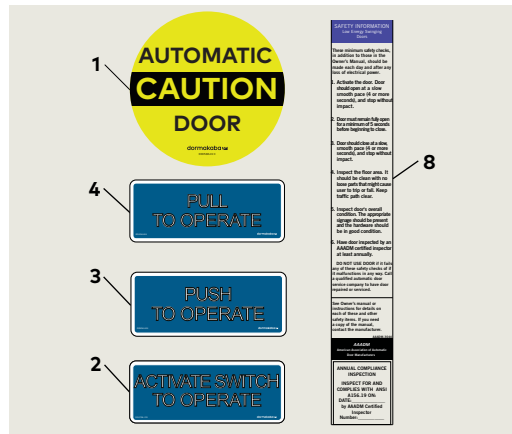


Fig. 5.2.4 Header mounting screw pack

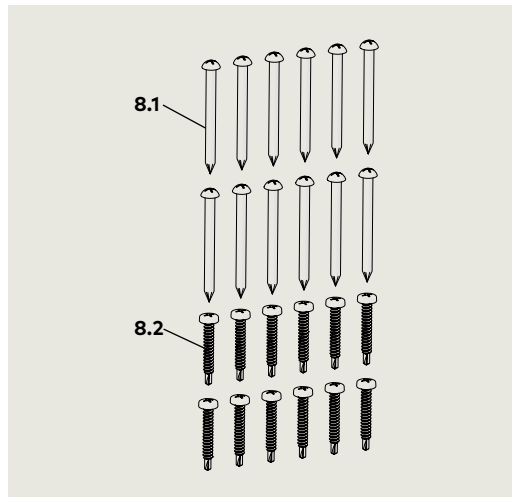


Fig. 5.2.7 Hole plug kit

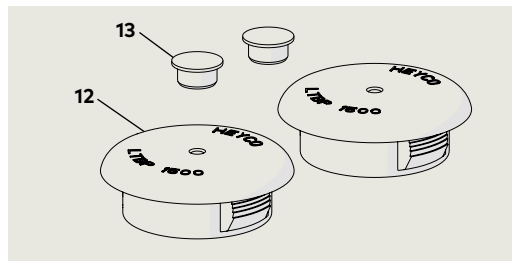


Fig. 5.2.2 Push arm screw kit

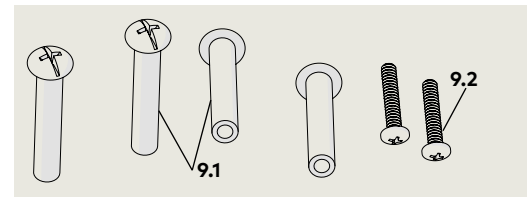


Fig. 5.2.3 Pull arm screw kit

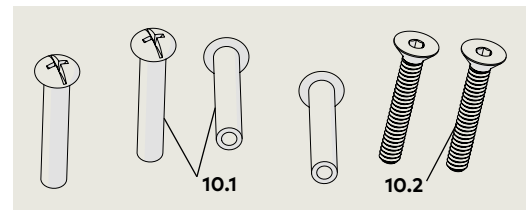


Fig. 5.2.5 Mounting base screw kit

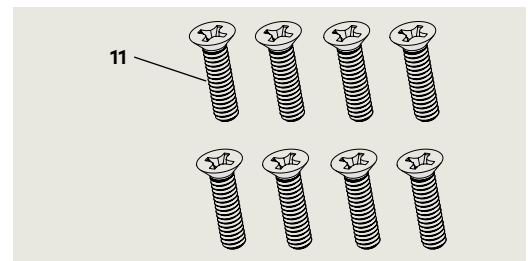


Fig. 5.2.6 Communication cable

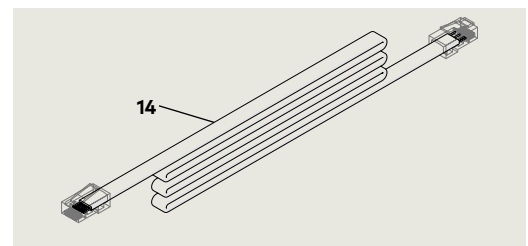
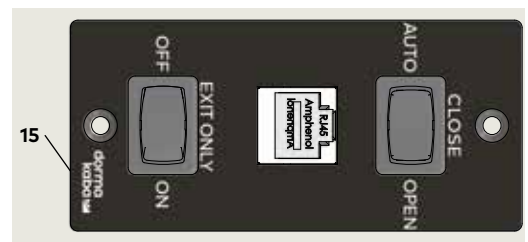


Fig. 5.2.8 Program switch panel



Reference Para. 5.6 for optional key switch panels.

5.3 Arm configurations

- 1 Drive arm
- 2.1 Adjustment shaft tube, 225 mm
- 2.2 Adjustment shaft, 225 mm
- 3 Shoe
- 4 Axle extension
- 5.1 Adjustment shaft tube, 450 mm
- 5.2 Adjustment shaft, 450 mm

Fig. 5.3.1 Splined push arm assembly, 225 mm

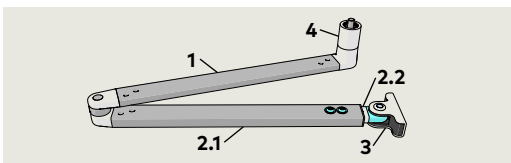
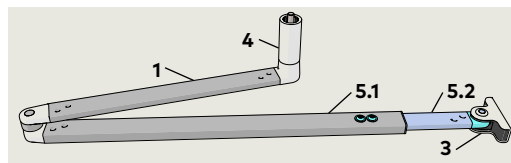


Fig. 5.3.4 Splined push arm assembly, 500 mm



- 1 Drive arm
- 2 CPD lever
- 3 Track

Fig. 5.3.2 Splined arm with CPD lever and track assembly, LH

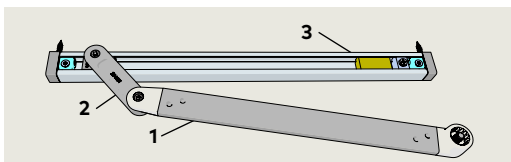
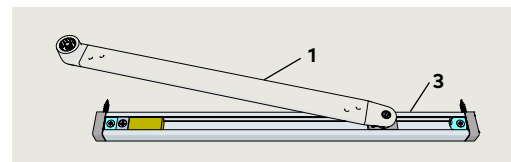
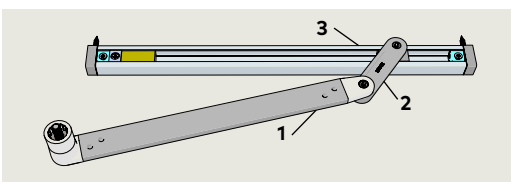


Fig. 5.3.5 Splined arm and track assembly



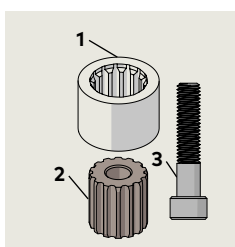
- 1 Drive arm
- 2 CPD lever
- 3 Track

Fig. 5.3.3 Splined arm with CPD lever and track assembly, RH



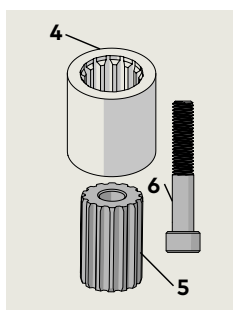
5.4 Axle extensions

Fig. 5.4.1 [20 mm] 3/4"



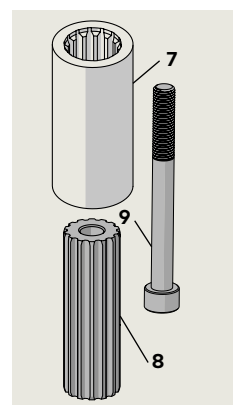
- 1 20 mm axle extension sleeve 25447200140
- 2 20 mm axle extension 25447601140
- 3 M8 -1.25 x 40 SHCS

Fig. 5.4.2 [30 mm] 1 1/8"



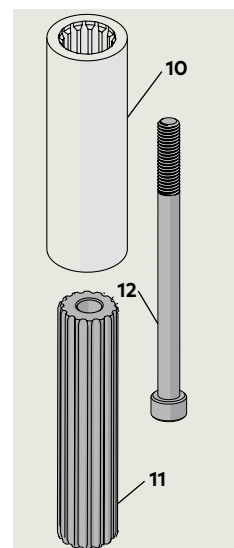
- 4 30 mm axle extension sleeve 25447300140
- 5 30 mm axle extension 25447701140
- 6 M8 -1.25 x 50 SHCS

Fig. 5.4.4 [60 mm] 2 3/8"



- 7 60 mm axle extension sleeve 25447400140
- 8 60 mm axle extension sleeve 25447801140
- 9 M8 -1.25 x 80 SHCS

Fig. 5.4.5 [90 mm] 3 9/16"



- 10 90 mm axle extension sleeve 25447500140
- 11 90 mm axle extension sleeve 25447901140
- 12 M8 -1.25 x 110 SHCS

5.5 Double door ED100/ED250 operator connection cables

- 1** Communication cable
DX3485-010,
250 mm, 9 7/8"
DX3485-020,
1030 mm, 40 1/2"
DX3485-030,
2030 mm, 80"
- 2** RJ45 plug
- 3** 115 VAC power cable
DX3484-010,
69" long
DX3484-020,
95" long
DX3484-030,
134" long

Fig. 5.5.1 Communication cable

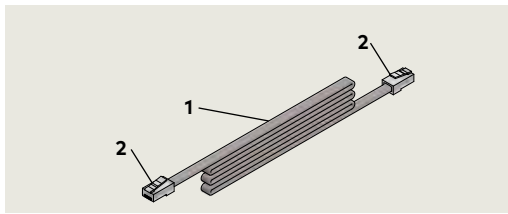


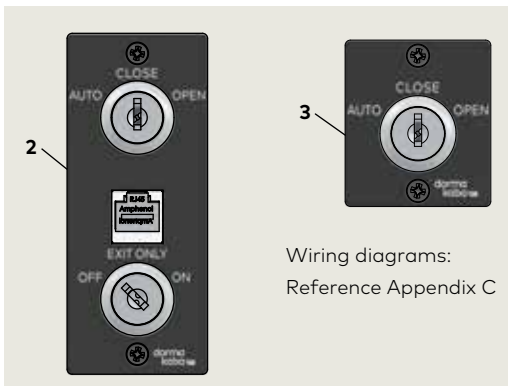
Fig. 5.5.2 115 VAC power cable



5.6 Optional key switch panels

- 2** Key switch panel, RJ45, DX4604-21C
- 3** Key switch panel DX4604-11C

Fig. 5.6.1 Key switch panels



6 Technical data

6.1 ED100/ED250 Technical data

6.1.1 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)

6.1.2 General specifications

Operator dimensions (W x H x D)	26 3/4" x 2 3/4 x 5 3/4"
Operator weight	26.5 lb
Internal power supply available for external customers	24 Vdc ± 5%, 1.5 A
Maximum door opening angle	95 to 110° depending on installation type

6.1.3 Inputs

Maximum wire size Connector plug screw size	16 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



TIPS AND RECOMMENDATIONS

- ***X4:** terminal board numbers, reference Chapter 10, System accessories.
- Parameters, reference Chapter 21.

6.1.4 Outputs

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

6.1.5 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
Voltage independent braking circuit	Chapter 20	Adjustable with potentiometer
LED status indicators Service manual	Green Red Yellow	24 VDC power Error codes Service interval
Program and Exit Only switches	Chapter 9	Auto, Close, Open Exit only; Off, On
User interface	Chapter 9	4 button keypad, 2 digit display
Slot for dormakaba upgrade cards	Chapter 31	Extension of range of functions
Interface update	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

6.2 Operating specifications

6.2.1 ED100

Maximum power consumption	120 watt	
Automatic closing torque, lbf-ft, Note 3	Minimum 14.8	Maximum F.E. 110.6 L.E. 49
Manual closing torque, lbf-ft, Note 3	Minimum 9.6	Maximum 27.3
Maximum door weight	FE: 250 lb [113kg], depending on specific door application.	
	LE: 600 lb [272kg], depending on specific door application.	
Door width	Minimum 28"	Maximum 48"
Maximum opening speed, %s, Note 2	F.E. 50 L.E. 27	
Maximum closing speed, %s, Note 2	F.E. 50 L.E. 27	
Axle extensions	[20 mm] 13/16" [30 mm] 1 3/16" [60 mm] 2 3/8"	
Reveal depth for pull arm with track	1 3/16"	
Maximum reveal depth for pull arm with CPD lever and track	2 1/4"	
Reveal depth for standard push arm	0 to 11 13/16"	
Reveal depth for deep push arm	8" minimum to 19 11/16"	

Note 1

Full energy / low energy

- F.E.: ED100 configured for full energy
- L.E.: ED100 configured for low energy

Note 2

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

Note 3

In push version of slide channel with track installation type, forces are reduced by approximately 33%.

6.2.2 ED250

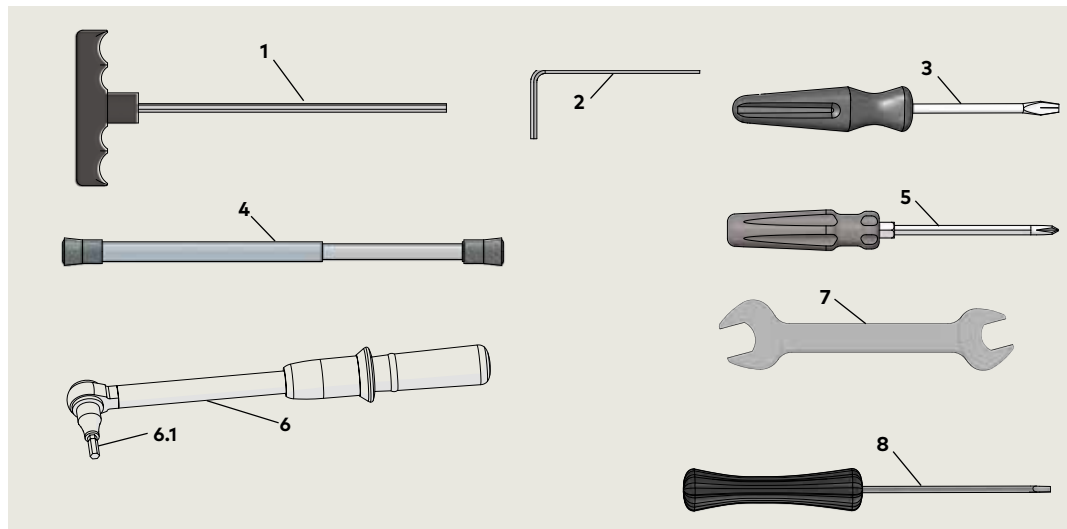
Maximum power consumption	240 watt	
Automatic closing torque, lbf · ft, Note 3	Minimum 14.8	Maximum 110.6
Manual closing torque, lbf · ft, Note 3	Minimum 9.6	Maximum 27.3
Maximum door weight	FE: 320 lb [145 kg] depending on specific door application.	
	LE: 700 lb [318 kg] depending on specific door application.	
Door width	Minimum 28"	Maximum 48"
Door width for fire protection	27 9/16" to 55"	
Maximum opening speed, %s	60	
Maximum closing speed, %s	60	
Axle extensions	[20 mm] 13/16" [30 mm] 1 3/16" [60 mm] 2 3/8" [90 mm] 3 9/16"	
Reveal depth for pull arm with track	1 3/16"	
Maximum reveal depth for pull arm with CPD lever and track	2 1/4"	
Reveal depth for standard push arm	0 to 11 13/16"	
Reveal depth for deep push arm	8" minimum to 19 11/16"	

7 Recommended tools and torque chart

7.1 Recommended tools

- 1 T-handle hex key, 5 mm
- 2 Hex keys, 2.5 mm, 3 mm, 6 mm
- 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. 7.1.1 Recommended tools



7.2 Standard tightening torque

7.2.1 Standard tightening torque

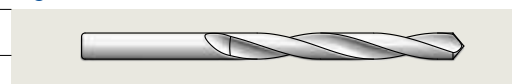
Fastener size	ft lb
M5	3.7
M6	7
M8	17
M10	34
M12	58

7.3 Drill bits

7.3.1 Drill bit sizes for fasteners

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

Fig. 7.3.1 Drill bit



8 Operational mode overview

8.1 ED100/ED250 door closer modes

8.1.1 Automatic mode.

Door closer mode parameter **hd**=0.

Designed for automatic access following pulse generation by a motion detector or pushbutton.

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 21; Parameters.

8.2 Low energy product

8.2.1 ANSI/BHMA 156.19.

ED100 operator is configured to meet requirements of a low energy application per ANSI/BHMA A156.19, U.S. Standard for Power Assist and Low Energy Power Operated Doors.

ED100 operator can be configured for full energy operation using a full energy upgrade card.

8.2.2 Low energy power operated door

A door with a power mechanism that opens the door upon receipt of a knowing act activating signal, does not generate more kinetic energy than specified in ANSI 156.19, and is closed by a power mechanism or by other means.

Required system safety, as a low energy application, is achieved utilizing the following design factors:

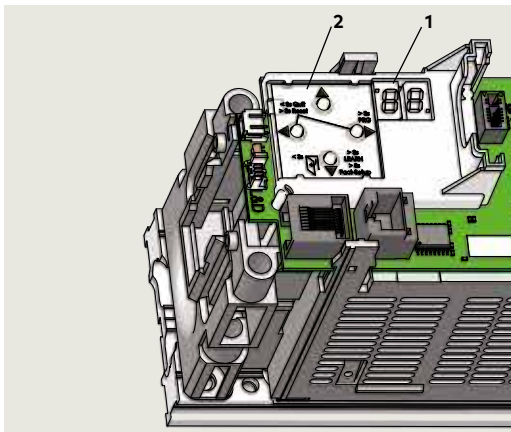
- Reduced dynamic door panel contact forces
- Reduced static door panel contact forces
- Low driving speeds
- Force limitation

9 User interface

9.1 Overview

- 1 2 digit display
- 2 4 button keypad

Fig. 9.1.1 Operator keypad and display



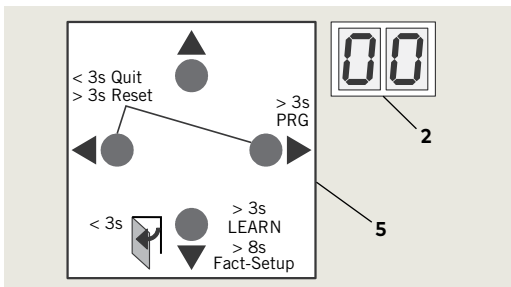
9.1.1 Operator user interfaces.

1. 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.

9.2 4 button keypad and display

- 2 2 digit display
- 5 Button legend

Fig. 9.2.1 Door hinge side on right



9.2.1 4 button keypad.

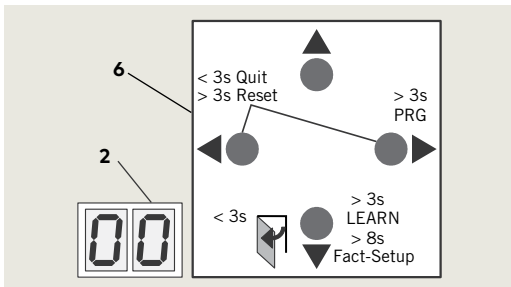
4 button legend is orientated so buttons have same function and position regardless of operator orientation. Button legend can be removed and rotated.

9.2.2 4 button keypad functions.

▶	Right button	<ol style="list-style-type: none"> 1. Access parameter menu, press button > 3 seconds. 2. Edit selected parameter. 3. Save changed value.
◀	Left button	<ol style="list-style-type: none"> 1. <3 s; Quit 2. < 3 s; Reset
◀▶	Both buttons together	<ol style="list-style-type: none"> 1. Acknowledge errors, press both buttons < 3 s. 2. Reset, press both buttons > 3 s.
▲	Up button	<ol style="list-style-type: none"> 1. Scroll through parameters and error messages. 2. Increase parameter value.
▼	Down button	<ol style="list-style-type: none"> 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 switches off). 6. Identify operator orientation for display

- 2 2 digit display
- 6 Button legend rotated 180°

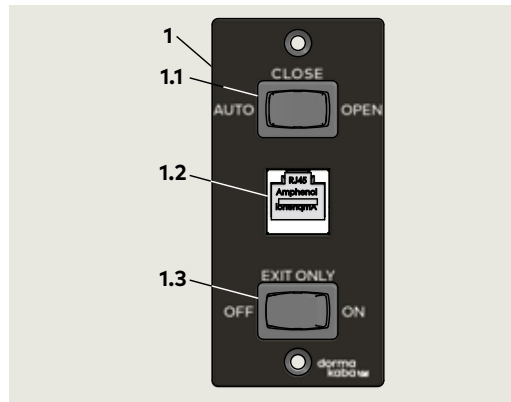
Fig. 9.2.2 Door hinge side on left



9.3 Program switch panel, optional key switch panels

Fig. 9.3.1 Program switch panel

- 1 Program switch panel
- 2 Program switch, 3 position
- 3 Exit Only switch, 2 position
- 4 Comm port for dormakaba handheld



9.3.1 Program switch control modes.

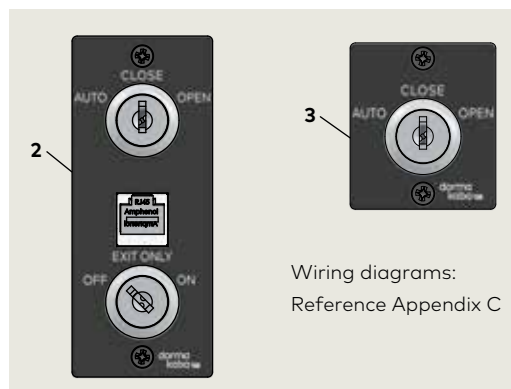
- Auto, door opens automatically when one of the activators is actuated or triggered and closes on expiration of adjustable hold open time with no activators or actuators triggered.
- Close, door closes automatically, or remains closed until program switch position changed.
- Open, door opens automatically and remains open until program switch position changed.

9.3.2 Exit only switch modes.

- Off, Interior and exterior activation sensors both active.
- On, exterior activation sensor disabled when door fully closed. Only interior activation sensor will enable door opening.

Fig. 9.3.2 Optional key switch panels

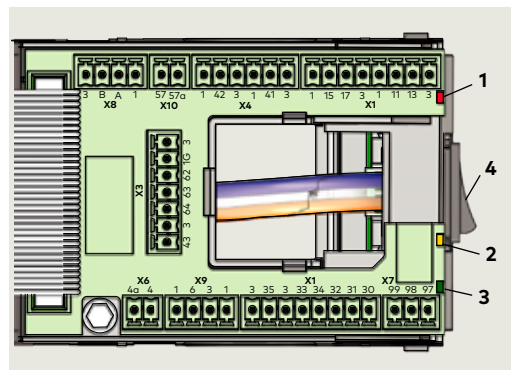
- 2 Key switch panel, RJ45, DX4604-21C
- 3 Key switch panel DX4604-11C



9.4 Operator status LEDs

Fig. 9.4.1 Operator status LEDs

- 1 Red LED
- 2 Yellow LED
- 3 Green LED
- 4 Power switch



9.4.1 Operator status LEDs.

Header 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

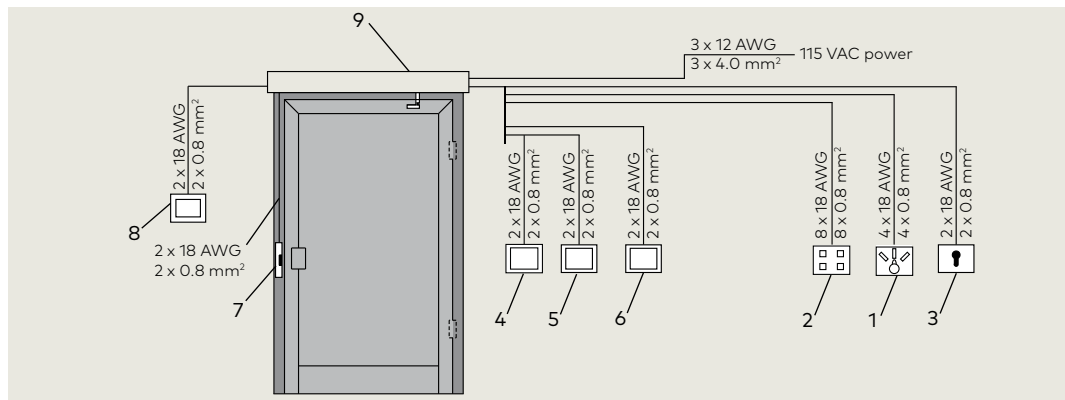
Details on LED status codes and maintenance intervals can be found in Appendix B, Troubleshooting.

10 System accessories

10.1 System accessory electrical connections.

Fig. 10.1.1 Electrical connections, single door

- 1 External program switch, mechanical
- 2 External program switch, electronic
- 3 Key switch
- 4 Pushbutton, night / bank
- 5 Pushbutton, interior
- 6 Pushbutton, exterior
- 7 Door locking device
- 8 Manual release switch
- 9 ED100/ED250 header



10.2 System accessories

10.2.1 Overview

ED100 / ED250 operators are normally used with system accessories available from dormakaba or other manufacturers.

10.2.2 Accessory electrical installation.

Electrical interfaces from system accessories used with operator must be planned for. This includes routing of wiring from accessories to operator.

10.2.3 System accessories, other manufacturers.

dormakaba 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 accessories may not function properly.



WARNING

Damage to operator or to connected device is also possible!

10.2.4 Power for accessories.

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

10.2.5 Miscellaneous accessories.

1. Door status display, red, green.

10.2.6 Activators

Typical activators:

1. Motion detectors
2. Infrared safety sensors
3. Pushbuttons, key switches
4. Radio systems
5. Smoke detectors
6. Access control systems
7. Telephone systems
8. Intercoms



TIPS AND RECOMMENDATIONS

Refer to Paragraph 6, Technical data for electrical interface requirements.

10.2.7 Locking devices.

Typical locking devices:

1. Electric strike plates
2. Electromagnetic locks
3. Electric locks

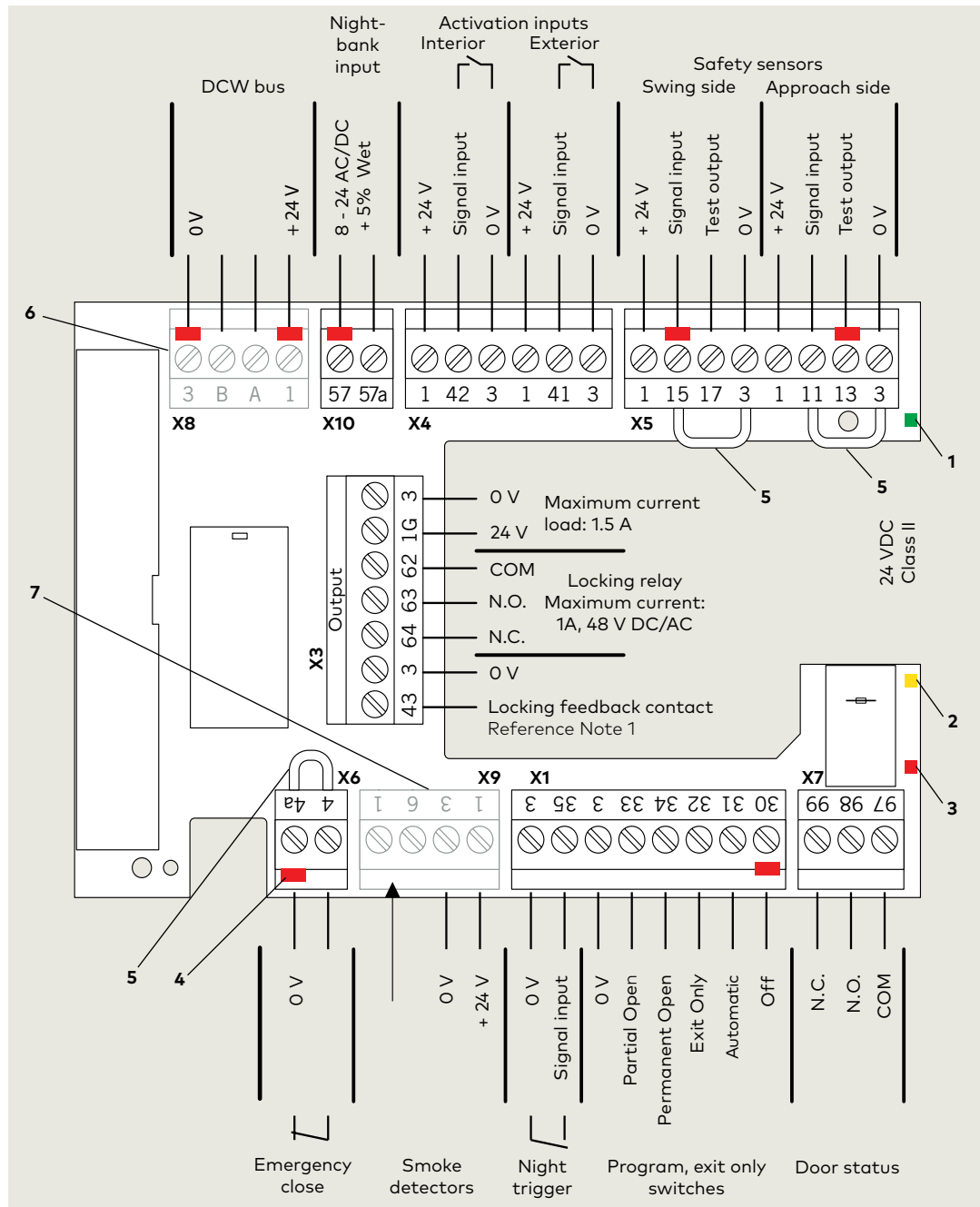
To insure that operator and locking device work safely when connected together, locking device must comply with following:

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%.

10.3 ED100/ED250 terminal board interfaces.

Fig. 10.3.1 Terminal board electrical connections

- 1 Green LED (Para. 9.4)
- 2 Yellow LED (Para. 9.4)
- 3 Red LED (Para. 9.4)
- 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.



WARNING

ED100/ED250 115 Vac branch circuit disconnect must be Off while making accessory connections!

Note 1: Terminals 3 and 43 are also used for swing side overhead presence sensor input when Parameter ST is set to 7 or 8. Reference Appendix A, Driving parameter detail.



TIPS AND RECOMMENDATIONS

- Use documentation provided with each device for electrical installation.
- Do not connect system accessories to board until operator has been commissioned and learning cycle performed (Chapter 22).

10 ED100/ED250 door signage

10.1 Full energy operator

10.1.1 Overview

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

10.1.2 Door, one way traffic.

1. Arrow and AUTOMATIC DOOR, one side of decal (Fig. 10.1.1).
 - 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.

10.1.3 Door, two way traffic.

1. Arrow and AUTOMATIC DOOR, one side of decal (Fig. 10.1.2).
 - 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.

10.2 Low energy operator

10.2.1 Overview

Signage and warnings are specified in ANSI /BHMA A156.19, American National Standard for Power Assist and Low Energy Power Operated Doors.

10.2.2 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.

10.2.3 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".

10.2.4 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. 10.1.1 One decal, approach, non-approach

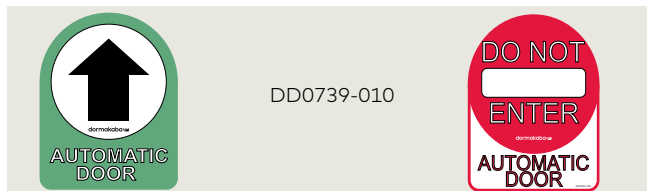


Fig. 10.1.2 One decal, non-swing side, swing side

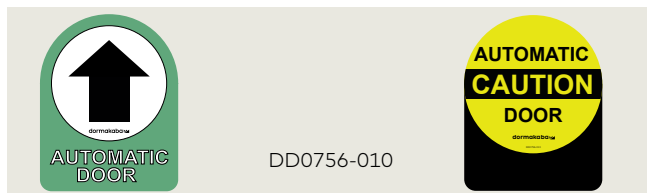
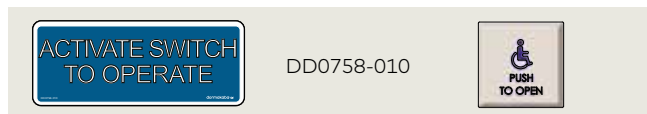


Fig. 10.1.3 ACTIVATE SWITCH TO OPERATE decal



10.1.4 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. 10.2.1 AUTOMATIC CAUTION DOOR decal

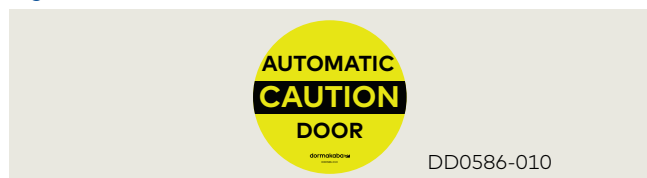
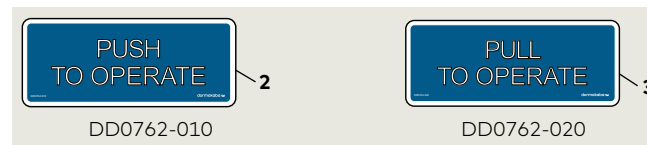


Fig. 10.2.2 ACTIVATE SWITCH TO OPERATE decal



- 1 Activate Switch to Operate DD0758-010

Fig. 10.2.3 PUSH TO OPERATE, PULL TO OPERATE decals



- 2 Push to Operate DD0762-010
- 3 Pull to Operate DD0762-020

11.3 Door signage, full energy single swing door

Fig. 11.3.1 One decal, one way traffic
Approach Non-approach

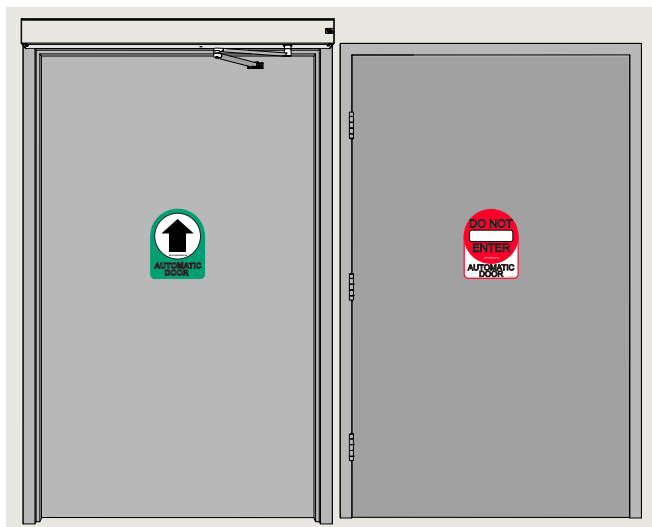


Fig. 11.3.2 One decal, two way traffic
Non-swing side Swing side



11.4 Door signage, low energy single swing doors, initiation of door operation

Fig. 11.4.1 Knowing act device



- 1 Activate Switch to Operate DD0758-010

Fig. 11.4.2 Push/Pull
Push To Operate Pull To Operate



- 2 Push to Operate DD0762-010
- 3 Pull to Operate DD0762-020

11.5 Door signage, full energy double swing doors

Fig. 11.5.1 One way traffic, approach side

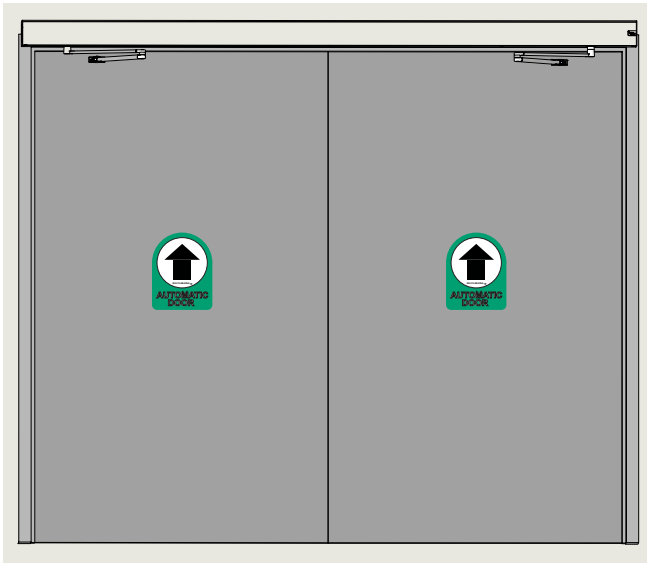


Fig. 11.5.2 One way traffic, non-approach side

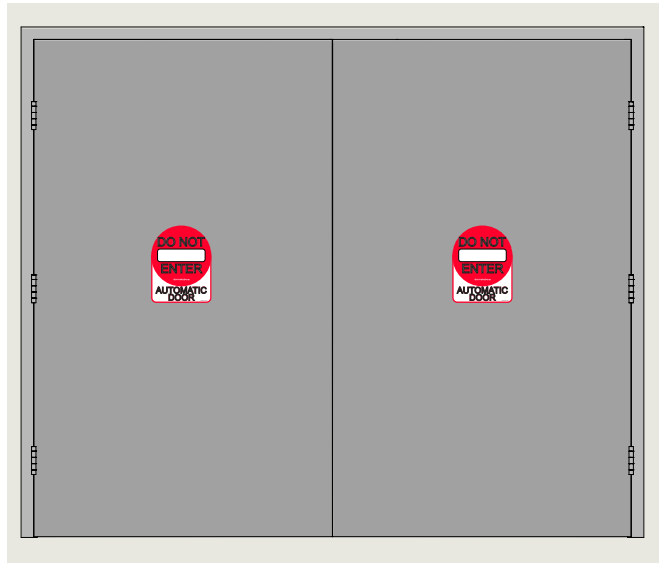


Fig. 11.5.3 Two way traffic, non-swing side

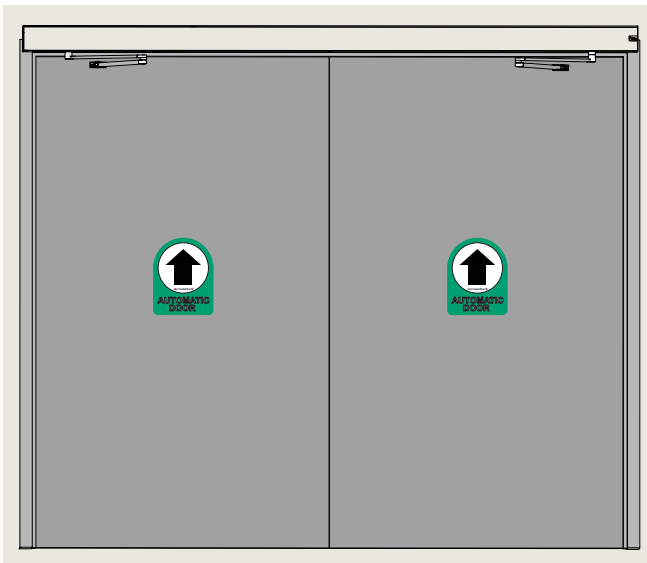


Fig. 11.5.4 Two way traffic, swing side

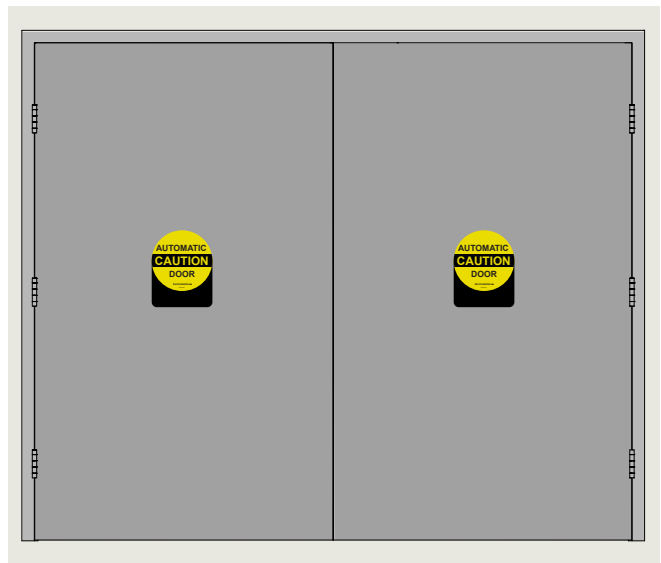


Fig. 11.5.5 One way traffic, knowing act, approach side

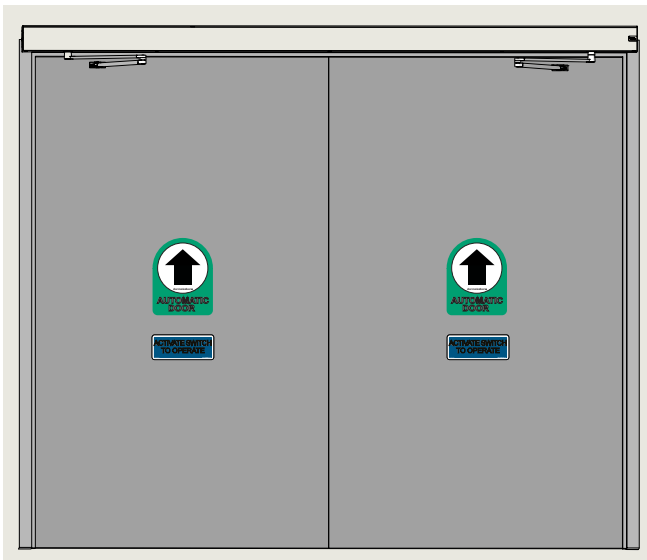


Fig. 11.5.6 One way traffic, knowing act, non-approach side

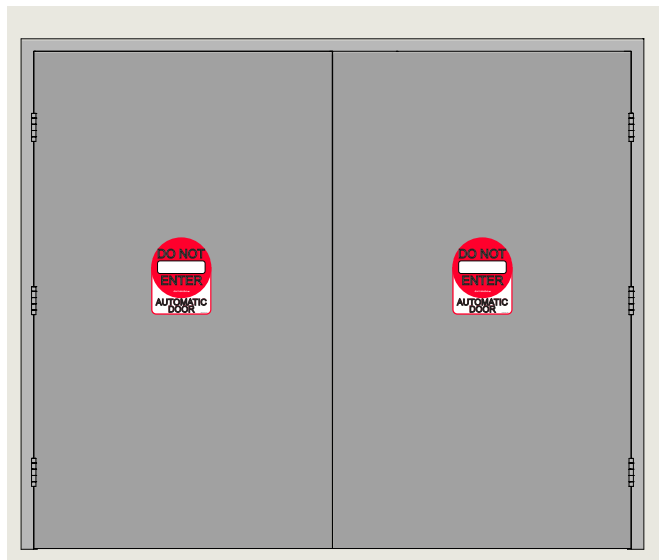


Fig. 11.5.7 Double egress, RH, one way traffic, interior

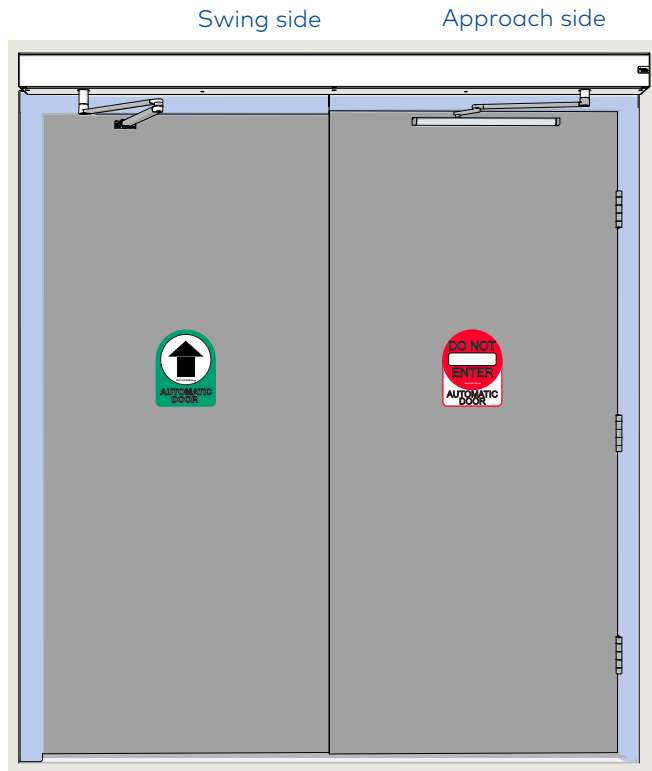


Fig. 11.5.8 Double egress, RH, one way traffic, exterior

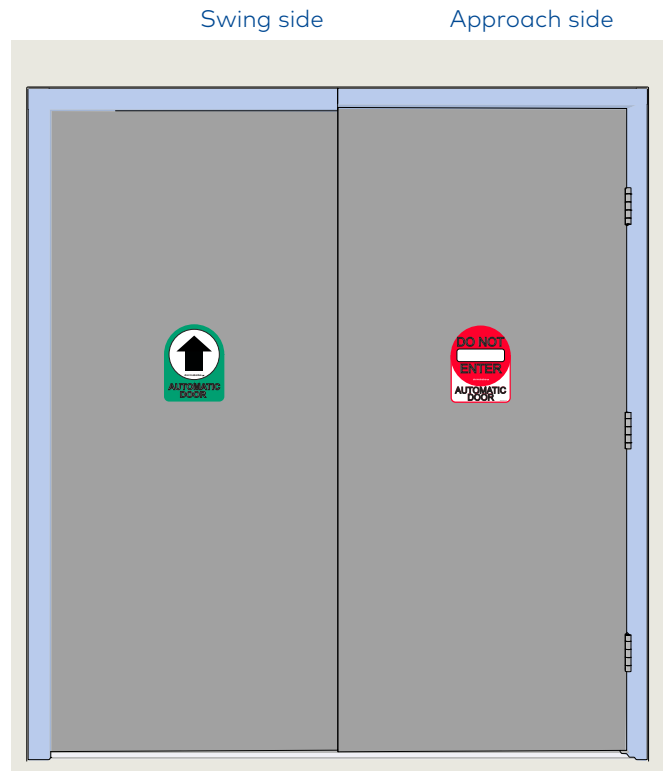


Fig. 11.5.9 Double egress, LH, two way traffic, interior

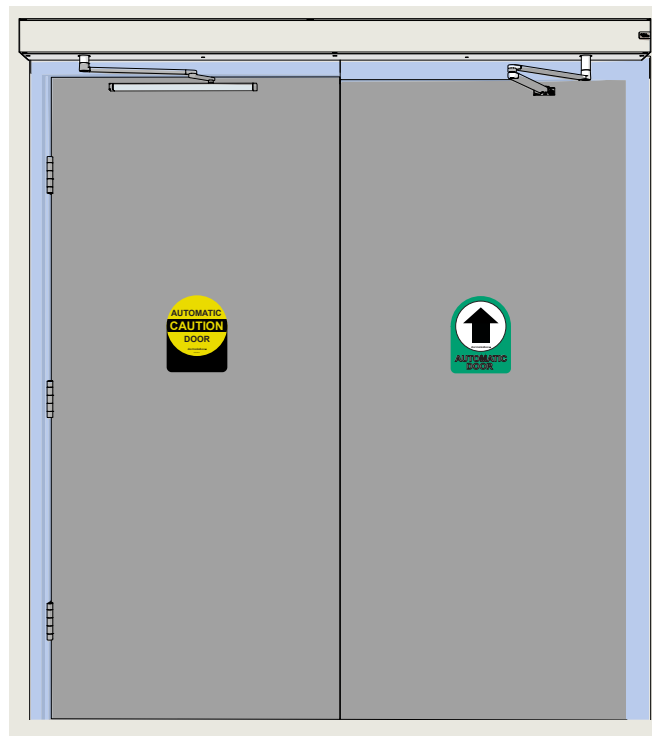
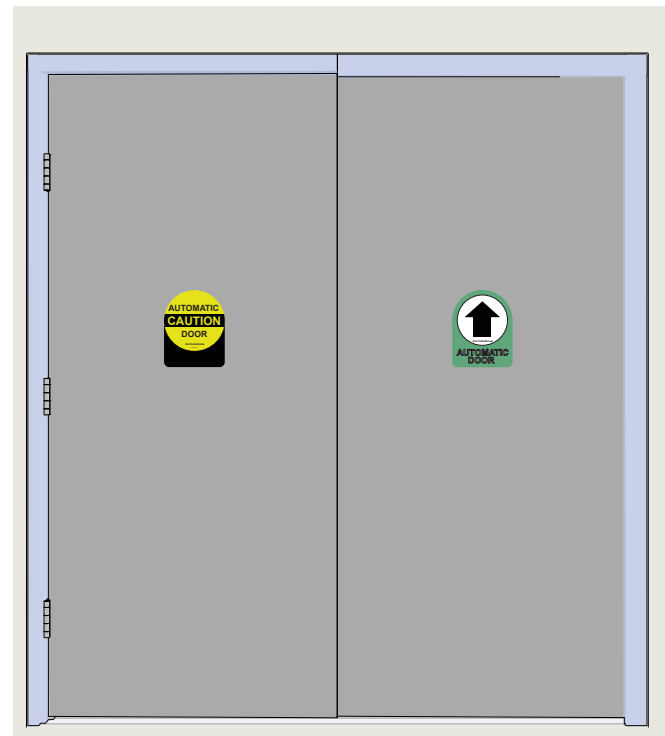


Fig. 11.5.10 Double egress, LH, two way traffic, exterior



11.6 Door signage, low energy double swing doors

Fig. 11.6.1 Knowing act, SA header side



Fig. 11.6.2 Knowing act, hinge side

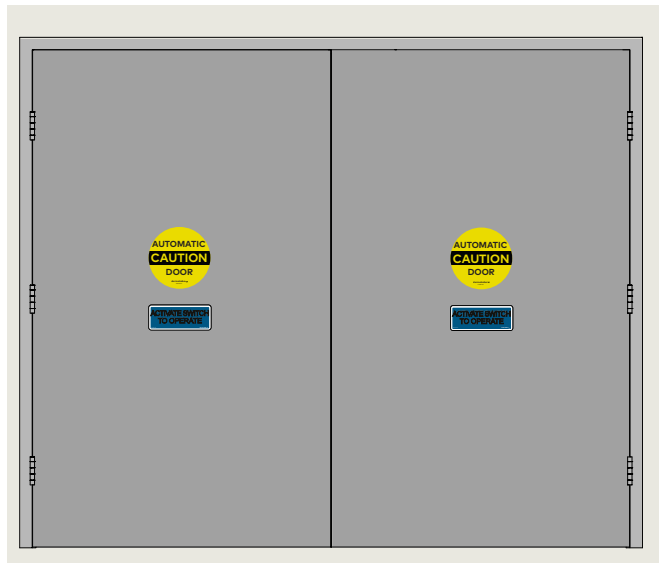


Fig. 11.6.3 Push/Pull, push to operate

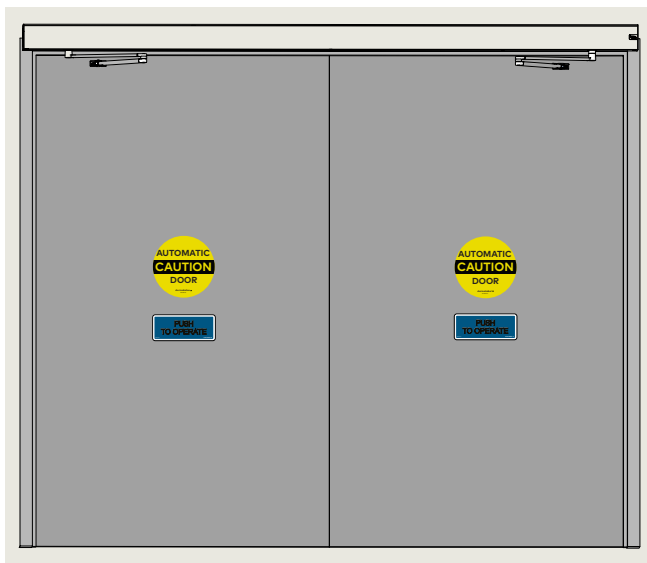
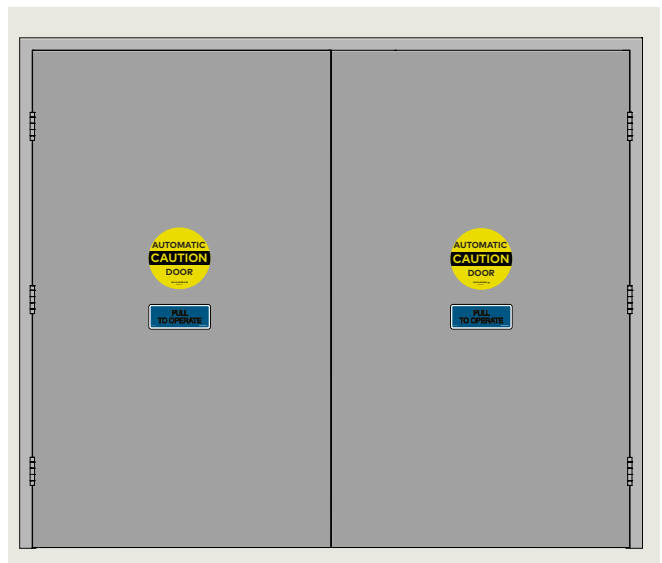


Fig. 11.6.4 Push/Pull, pull to operate



11.7 Safety label, automatic swing doors

11.7.1 Automatic swinging door safety information label.

This AAADM label outlines safety checks that should be performed daily on automatic swinging door controlled by an ED100 or ED250 operator configured for full energy mode.

11.7.2 Safety information label location.

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

11.7.3 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.

11.7.4 Additional annual compliance inspection labels.

Place additional labels over annual compliance inspection section of safety information label.

11.8 Safety label, low energy swing doors

11.8.1 Low energy swinging door safety information label.

This AAADM label outlines safety checks that should be performed daily on low energy swinging door controlled by an ED100 or ED250 operator configured for the low energy mode.

11.8.2 Safety information label location.

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

11.8.3 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 an AAADM certified dormakaba USA, Inc. technician.

11.8.4 Additional annual compliance inspection labels.

Place additional labels over annual compliance inspection section of safety information label.

Fig. 11.7.1 Safety information labels

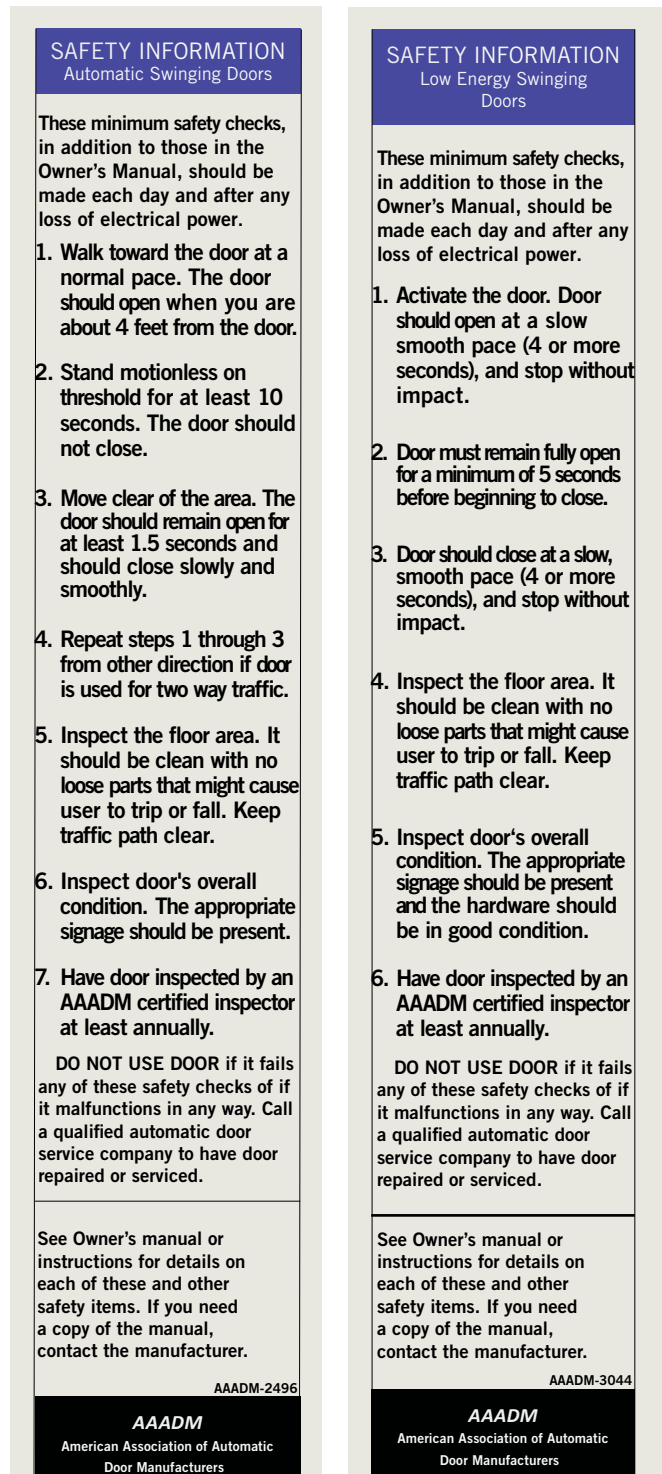
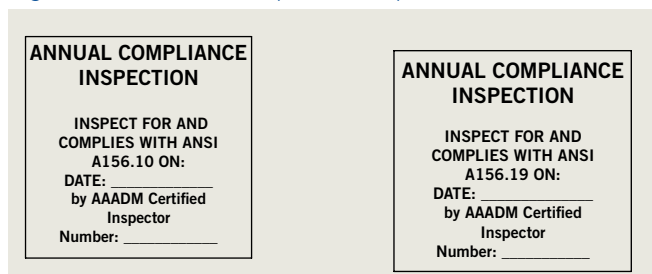


Fig. 11.7.2 Annual compliance inspection labels



12 ED100/ED250 SA arm configurations

12.1 Single swing door right hand arm configurations

Fig. 12.1.1 RH pull

- 1 Pull arm
- 2 Track

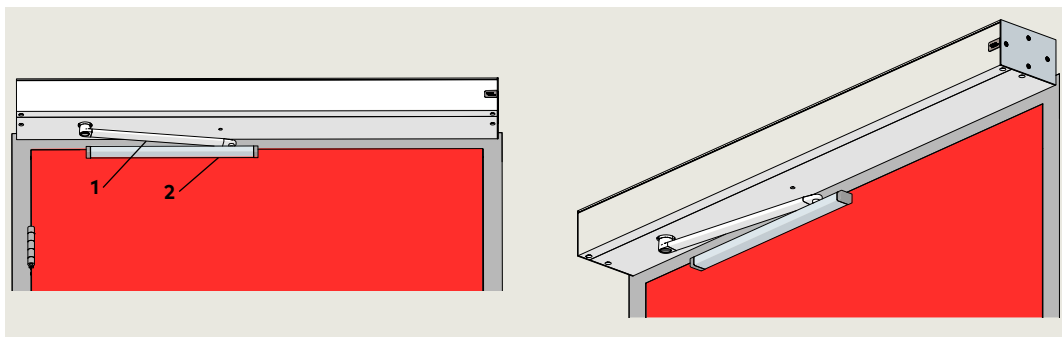


Fig. 12.1.2 RH deep pull

- 2 Track
- 3 Pull arm with CPD lever

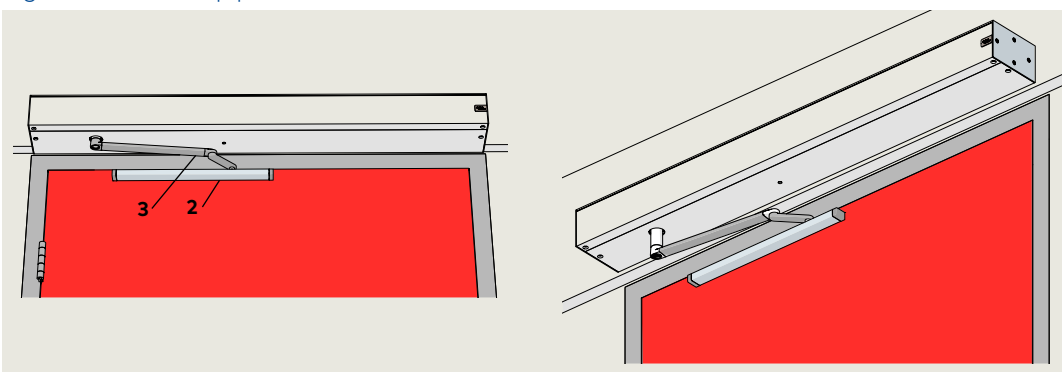


Fig. 12.1.3 RH pull as a push

- 2 Track
- 6 Pull arm with CPD lever as a push

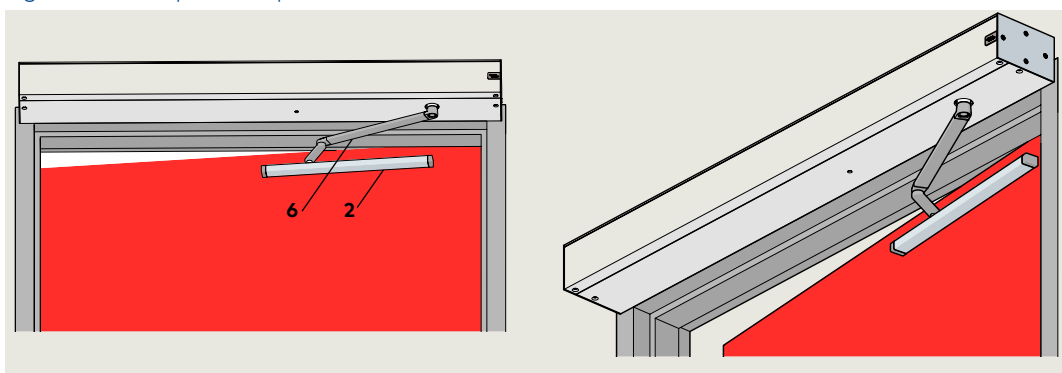
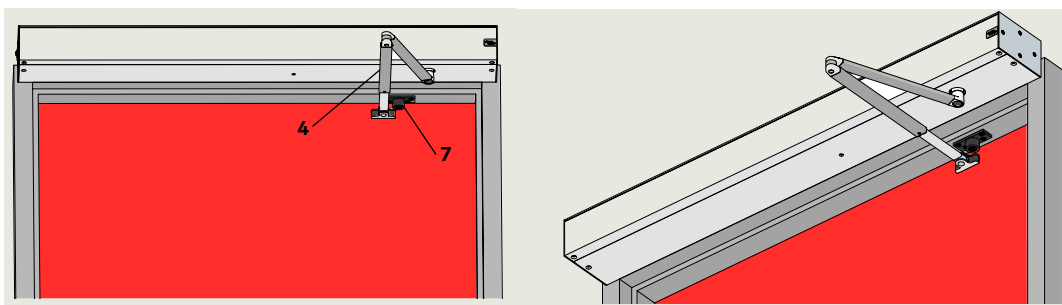


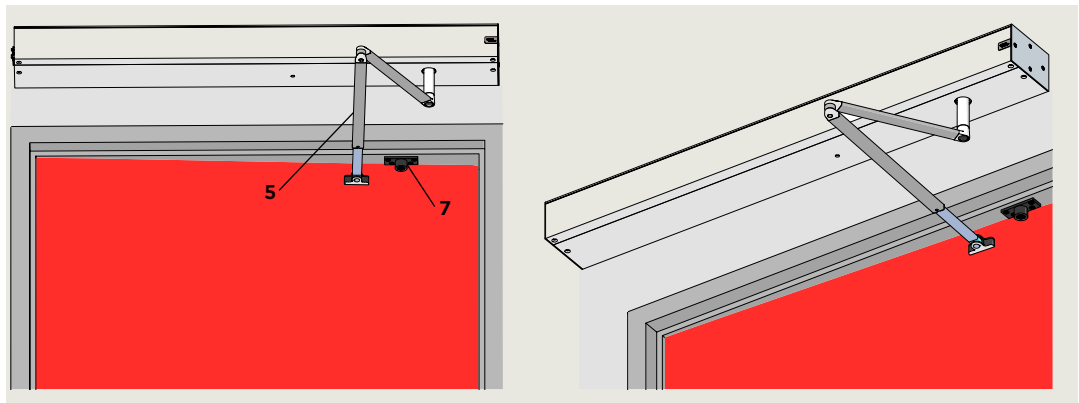
Fig. 12.1.4 RH push

- 4 Push arm
- 7 Door stop (optional)



- 5 Deep push arm
- 7 Door stop (optional)

Fig. 12.1.5 RH deep push



12.2 Single swing door left hand arm configurations

Fig. 12.2.1 LH pull

- 1 Pull arm
- 2 Track

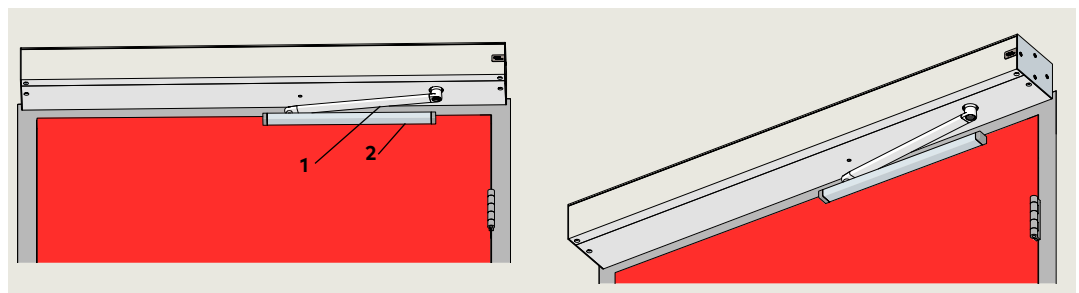


Fig. 12.2.2 LH deep pull

- 2 Track
- 3 Pull arm with CPD lever

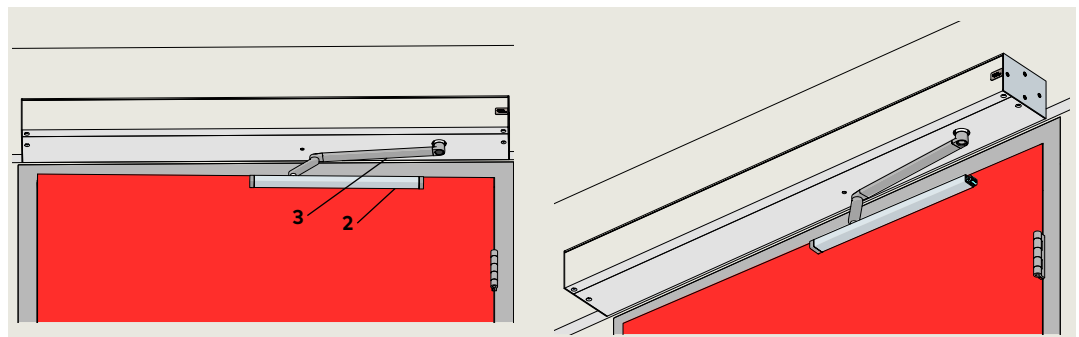
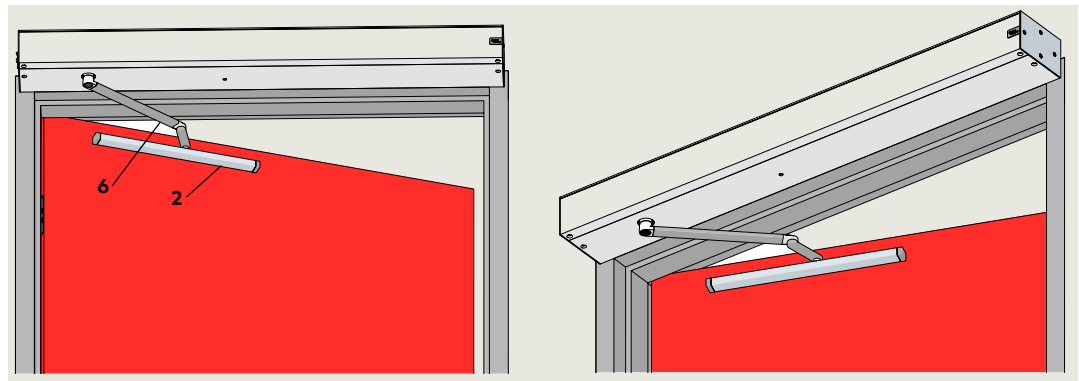


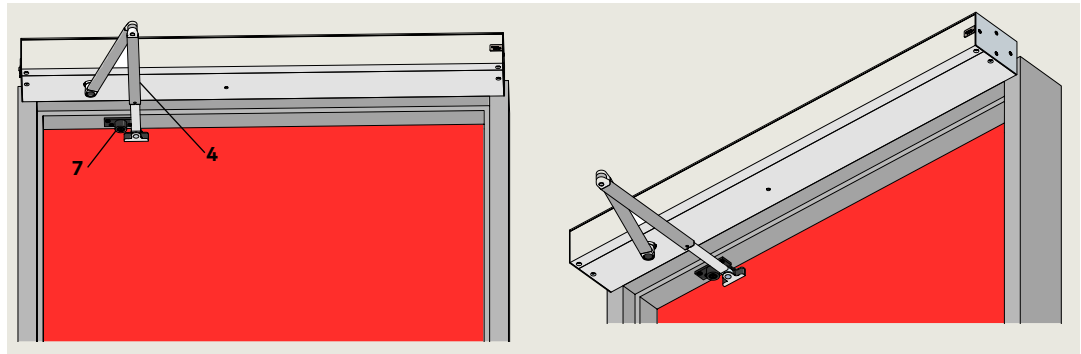
Fig. 12.2.3 LH pull as a push

- 2 Track
- 6 Pull arm as a push with CPD lever



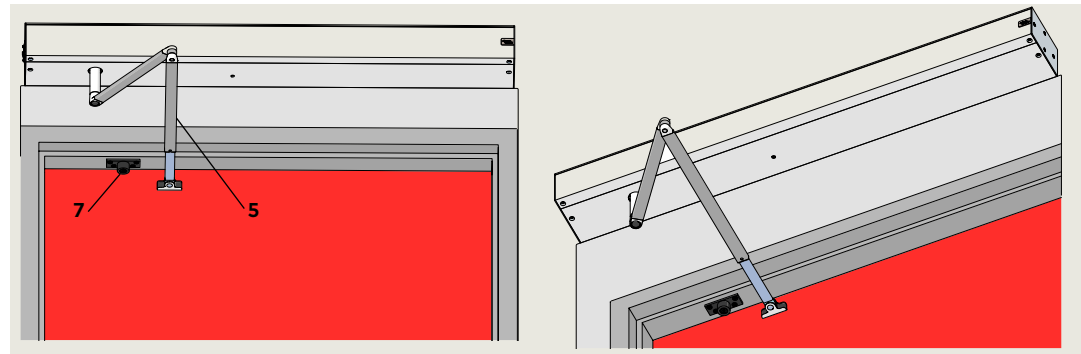
- 4 Push arm
- 7 Door stop (optional)

Fig. 12.2.4 LH push



- 5 Deep push arm
- 7 Door stop (optional)

Fig. 12.2.5 LH deep push



12.3 Single swing door center hung door arm configurations

- 4 Push arm
- 7 Door stop (optional)
- 8 Bottom pivot assembly (by others)

Fig. 12.3.1 Center hung door, RH push arm

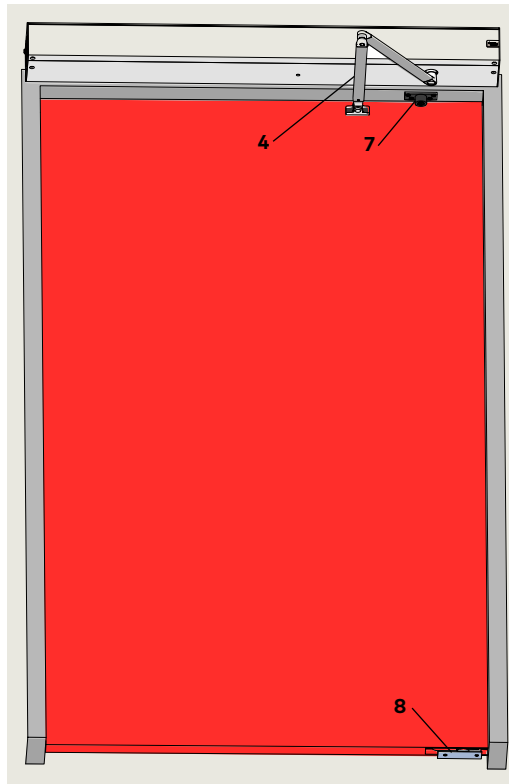
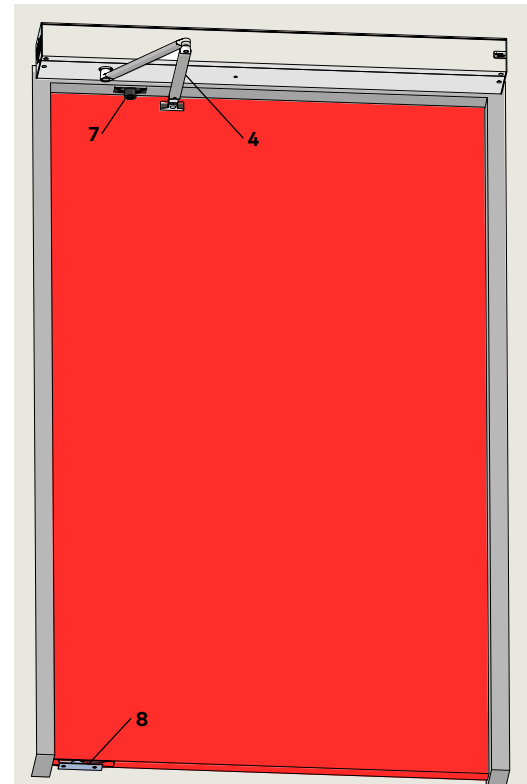


Fig. 12.3.2 Center hung door, LH push arm



- 2 Track
- 3 Pull arm with CPD lever
- 8 Bottom pivot assembly (by others)

Fig. 12.3.3 Center hung door, RH pull arm

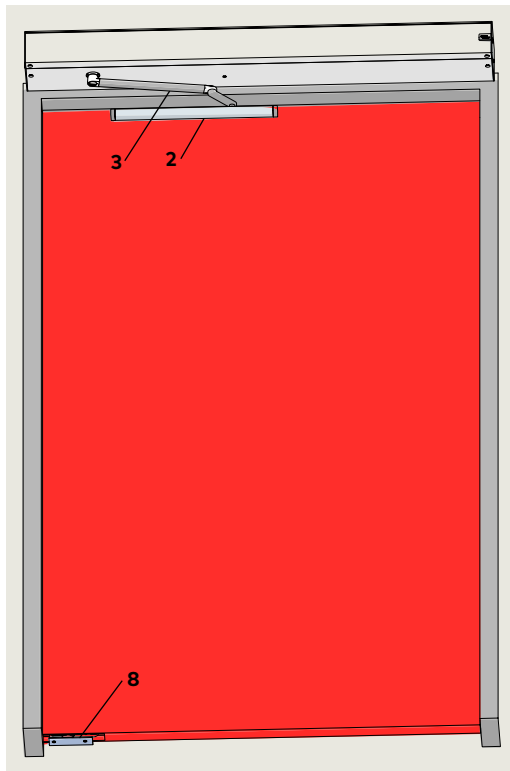
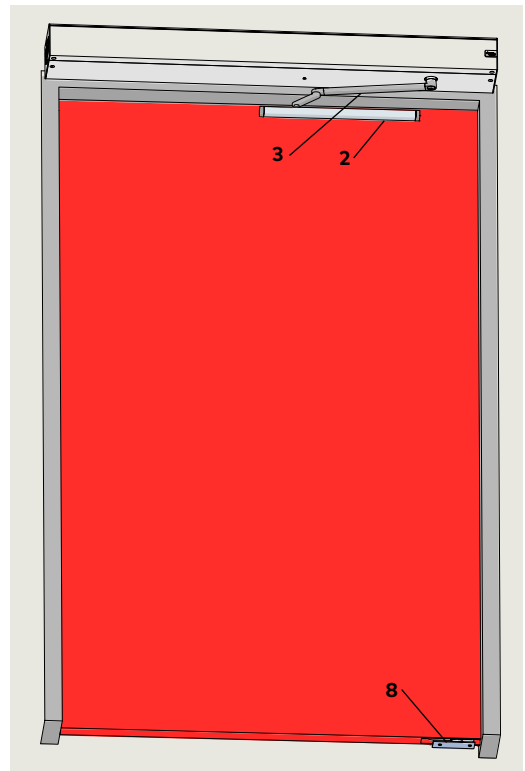


Fig. 12.3.5 Center hung door, LH pull arm



- 2 Track
- 8 Bottom pivot assembly (by others)
- 9 Pull arm with CPD lever as push

Fig. 12.3.4 Center hung door, pull as push LH

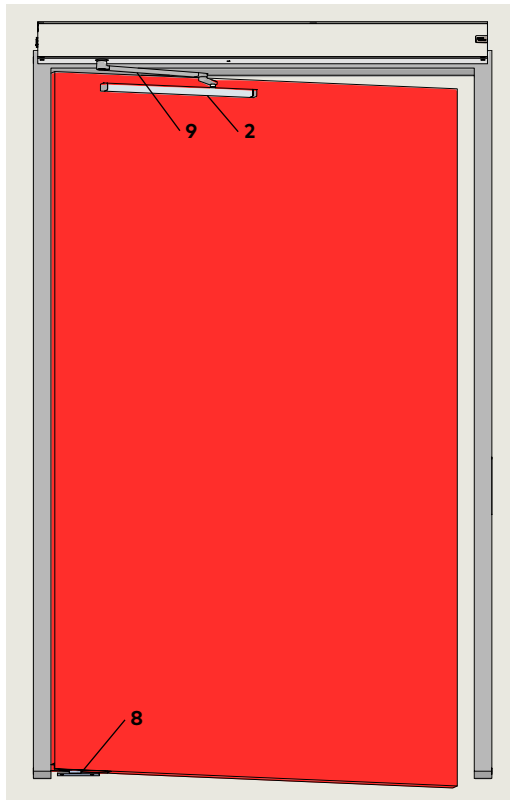
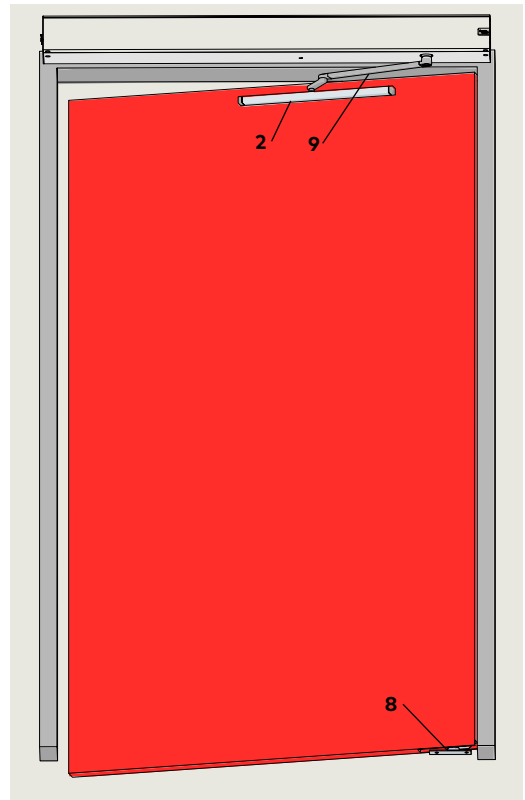


Fig. 12.3.6 Center hung door, pull as push RH



12.4 Double door arm configurations

- 1 Pull arm
- 2 Track

Fig. 12.4.1 Double door pull



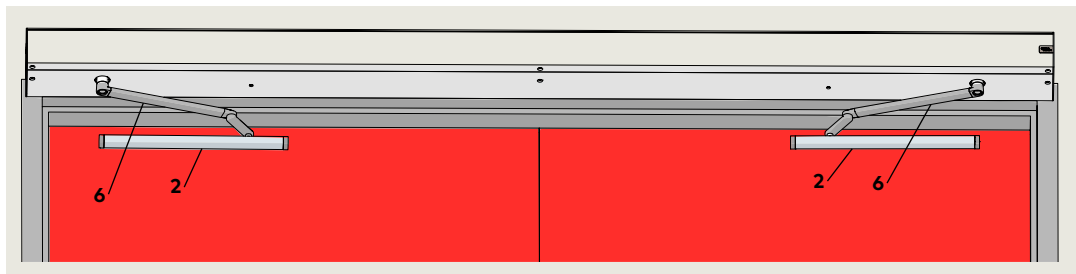
- 2 Track
- 3 Pull arm with CPD lever

Fig. 12.4.2 Double door deep pull



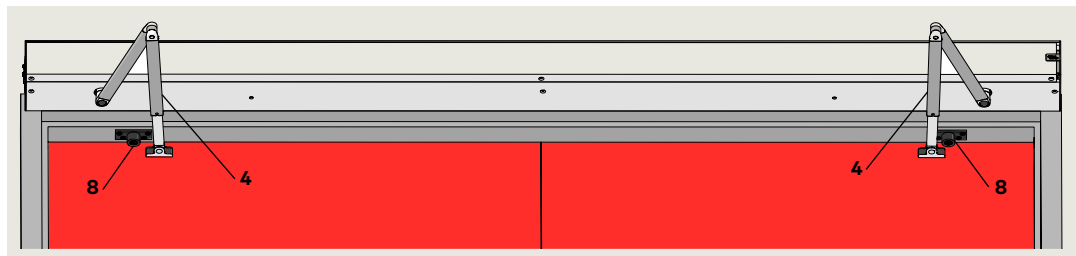
- 2 Track
- 6 Pull arm with CPD lever as a push

Fig. 12.4.3 Double door pull as a push



- 4 Push arm
- 8 Door stop (optional)

Fig. 12.4.4 Double door push



- 5 Deep push arm
- 8 Door stop (optional)

Fig. 12.4.5 Double door deep push



12.5 Double egress arm configurations

Fig. 12.5.1 Double egress LH

- 2 Track
- 3 Pull arm with CPD lever
- 4 Push arm

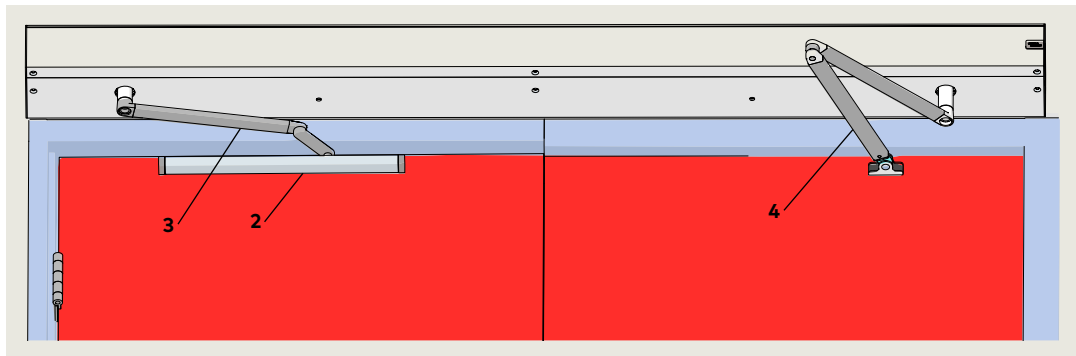


Fig. 12.5.2 Double egress RH

- 2 Track
- 3 Pull arm with CPD lever
- 4 Push arm



12.6 Double door center hung arm configurations

Fig. 12.6.1 Center hung door, double door pull

- 2 Track
- 3 Pull arm with CPD lever
- 8 Bottom pivot assembly (by others)
- 10 Top pivot assembly (by others) not shown

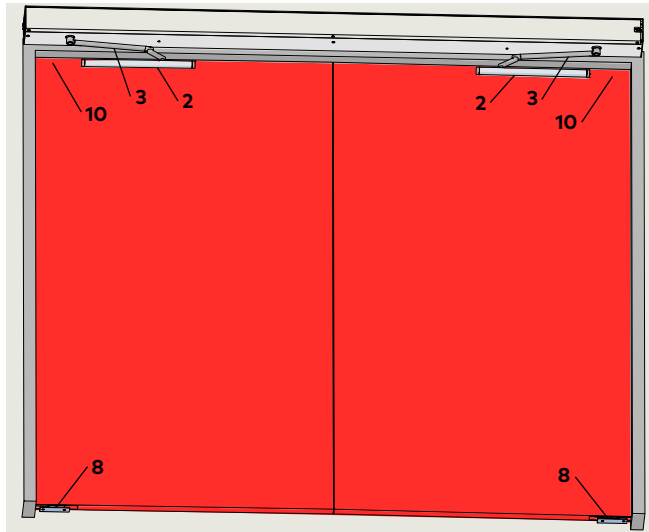


Fig. 12.6.2 Center hung door, double door push

- 4 Push arm
- 7 Door stop (optional)
- 8 Bottom pivot assembly (by others)
- 10 Top pivot assembly (by others) not shown

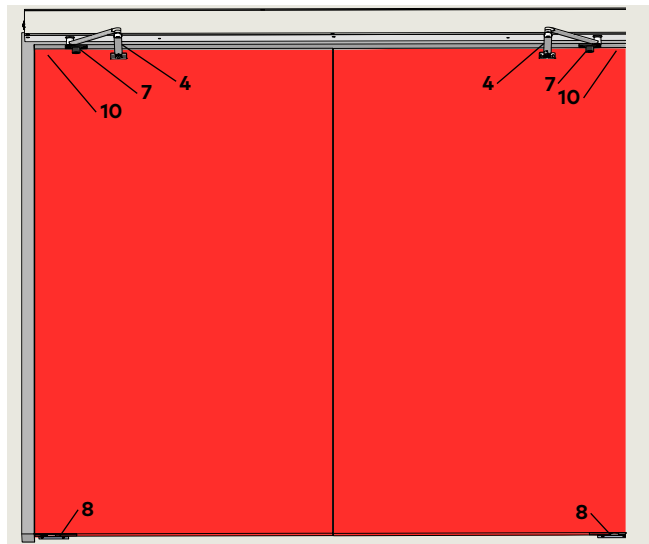
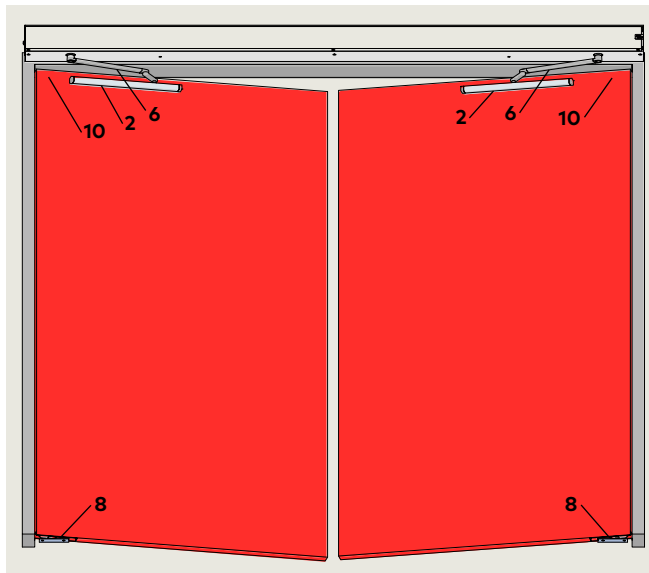


Fig. 12.6.3 Center hung door, double door pull as push

- 2 Track
- 6 Pull arm with CPD lever as a push
- 8 Bottom pivot assembly (by others)
- 10 Top pivot assembly (by others) not shown



13 Header installation

13.1 Installation preparation

NOTICE

Installation steps listed in Chapter 13 are a recommendation. Structural, local conditions, available tools, or other factors or circumstances may require modification to these steps.



WARNING

Review safety information in Chapter 3!



WARNING

ED100 / ED250 header assembly should be installed by trained and knowledgeable installers experienced in installation and commissioning of automatic door closers. The installer should be familiar with all applicable local and national building code requirements, and with requirements of current ANSI/BHMA standards:

- A156.10, Power Operated Pedestrian Doors
- A156.19, Power Assist and Low Energy Power Operated Doors



WARNING

Operator 115 Vac branch circuit disconnect must be OFF at start of installation!

NOTICE

Installation templates: Refer to paragraphs starting with 13.7.

13.1.1 dormakaba USA, Inc. hardware.

Locate shipping containers for header assembly and ED100/ED250 operator.

13.1.2 Door frame and door.

1. Insure area around door frame, adjacent walls and door is readily accessible and free of objects and debris.

13.1.3 Accessories

1. Verify accessories planned for or in place for the door. Chapter 10, accessories, list typical accessory types for ED100 /ED250 operators.



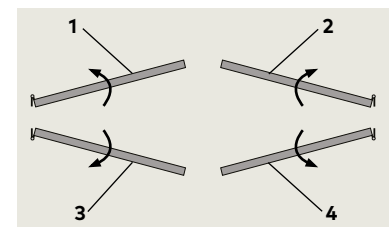
TIPS AND RECOMMENDATIONS

Accessory wiring to header should be planned for prior to header installation.

13.1.4 Handing of door.

- 1 Left hand in, push
- 2 Right hand in, push
- 3 Right hand out, pull (Left hand reverse)
- 4 Left hand out, pull (Right hand reverse)

Fig. 13.1.1 Handing of door



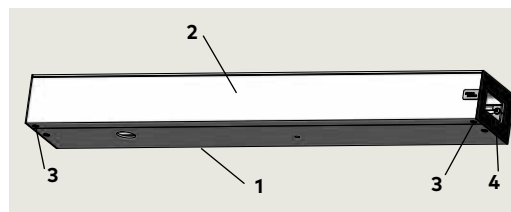
TIPS AND RECOMMENDATIONS

Handing of door, with back to door frame.

13.2 Unpack header assembly

- 1 ED100/ED250 4" x 6" single door header
- 2 Header cover
- 3 Cover screws
- 4 Program switch panel mounting surface

Fig. 13.2.1 Single door header



13.2.1 Unpack contents from header.

1. Remove header assembly from package.
2. Open cover secured by two screws (three for double door header) and remove cover.
3. Remove contents from header.

13.2.2 Single door header contents.

- Accessory installation kit, either low energy or full energy (Chapter 5).
- Program switch panel assembly (Chapter 5).
- Box containing pull arm or push arm kit.

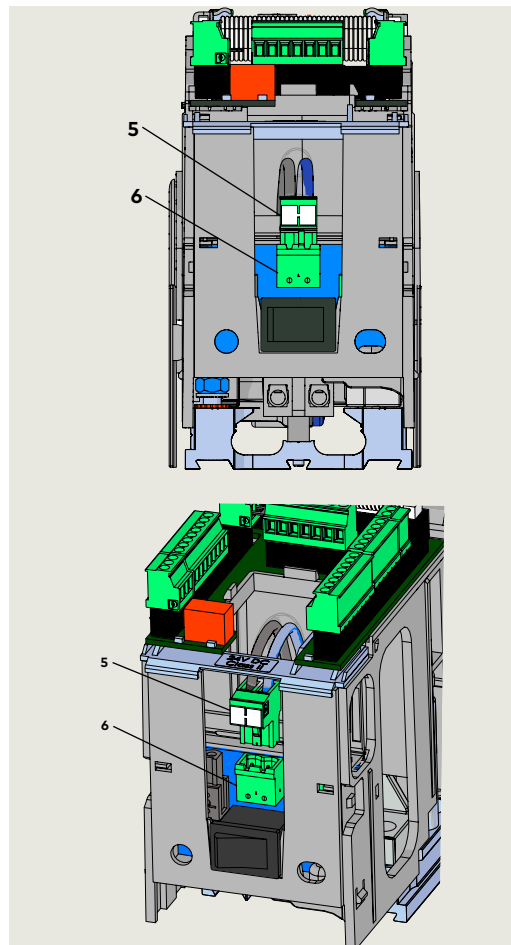
13.2.3 Double door header content additions to Para. 13.2.2.

- Accessory installation kit, either low energy or full energy.
- Box containing pull arm or push arm kit.
- 115 Vac power connecting cable (Para. 5.5).
- Communication cable (Para. 5.5).

13.3 Remove mounting plate from ED150 / ED250 operator

Fig. 13.3.1 115 Vac plug removal

- 5 115 Vac plug
- 6 115 Vac socket



13.3.1 Remove 115 Vac plug from receptacle.

1. Remove 115 Vac plug (5) from its receptacle (6).

13.3.2 Remove mounting plate from operator.

1. Loosen all eight captive ED100 / ED250 M6 socket head cap screws (SHCS) using a 5 mm hex T-handle.



TIPS AND RECOMMENDATIONS

Insure all eight fasteners are free of the mounting plate.

2. Remove operator from mounting plate.



TIPS AND RECOMMENDATIONS

Guide pin resistance may require screwdriver to start operator removal from end of mounting plate (Fig. 13.3.3).

Fig. 13.3.2 Mounting plate removed from ED150 / ED250 operator

- 1 ED100 / ED250 operator
- 2 Mounting plate
- 5 115 Vac plug
- 3 M6 X 20 SHCS
- 4 M6 X 10 SHCS
- 5 Guide pin
- 6 115 Vac plug

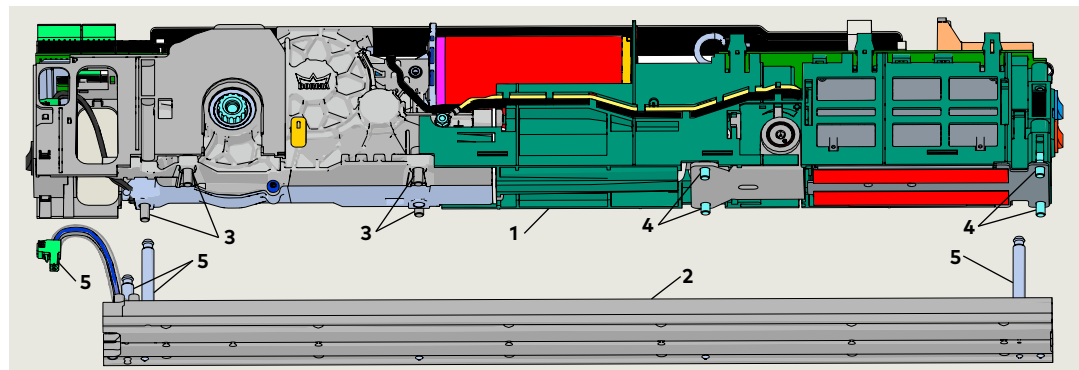


Fig. 13.3.3 Mounting plate removal

- 5 Guide pin

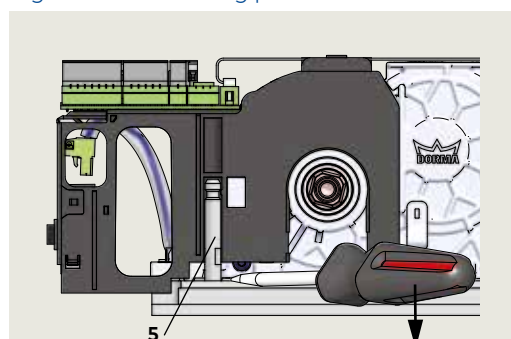
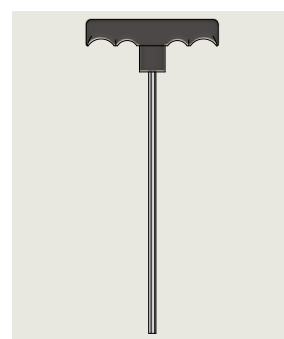


Fig. 13.3.4 5 mm T-handle hex key



13.4 Single header installation

13.4.1 Single header installation preparation.

1. Door frame installed.
2. Confirm header width.
 - Header width equals door frame width plus three inches.
3. Confirm handing of door with header.
4. Determine type of door frame or header mounting surface.
5. Determine type and location of studs, or wall material, above door frame.
6. Mark stud locations on wall above door frame.
7. Select header mounting screws (Chapter 5, Accessory kits).

Fig. 13.4.1 Door frame width

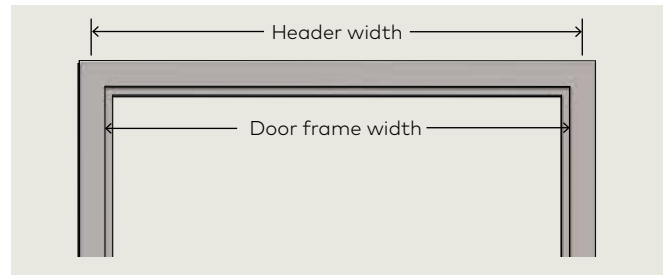


Fig. 13.4.2 Header width

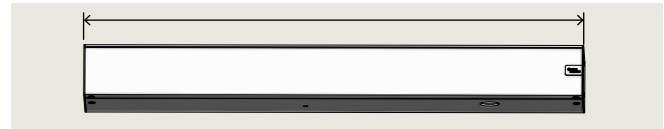
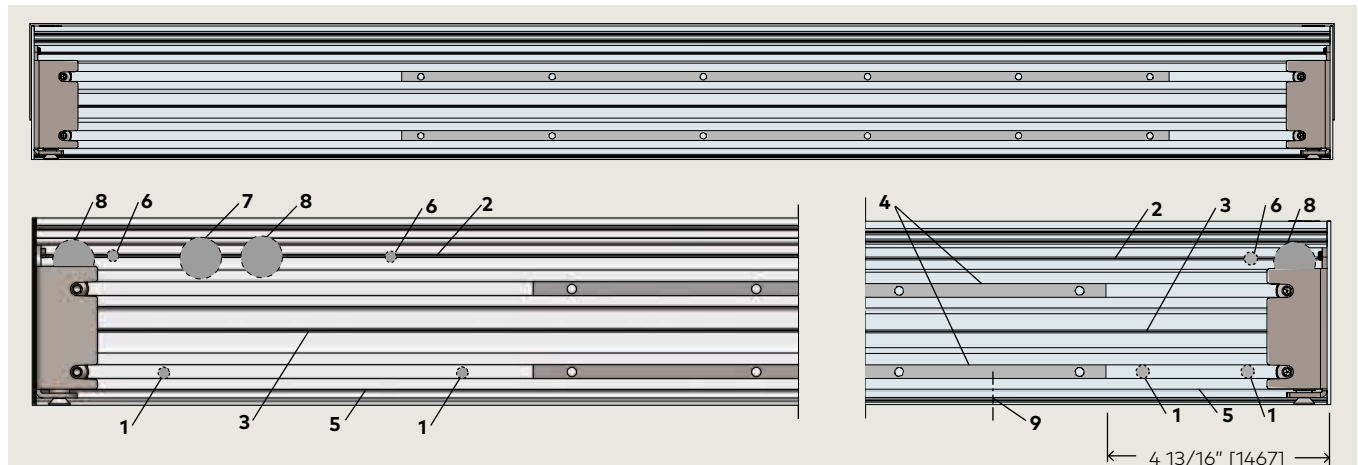


Fig. 13.4.3 Single header mounting holes, conduit holes



- 1 Bottom mounting hole
- 2 Top V-groove
- 3 Bottom V-groove in header center channel
- 4 Header track
- 5 Bottom slide channel
- 6 Top mounting hole, locate on stud centerline (locations shown are for illustration only)
- 7 Low voltage wiring
- 8 115 VAC wiring
- 9 Operator axle centerline

13.4.2 Drill holes in header.

1. Drill four 1/4" holes in header bottom slide channel, two on header axle side and two on header door strike side.
2. Drill two holes in header on door strike side for 115 Vac and low voltage wiring.



TIPS AND RECOMMENDATIONS

If 115 Vac wiring is located on door swing side, drill hole for wiring on header axle side.

13.4.3 Install program switch panel.

1. Install program switch panel in header (Para. 13.5).

13.4.4 Mount header to door frame.

1. Using applicable installation template for reference, locate header on door frame.
2. Drill holes into door frame using header bottom slide channel 1/4" hole locations.
3. Fasten header to wall.
 - Use shims as required to make header square to door frame.

CAUTION

Header must be square to door frame!

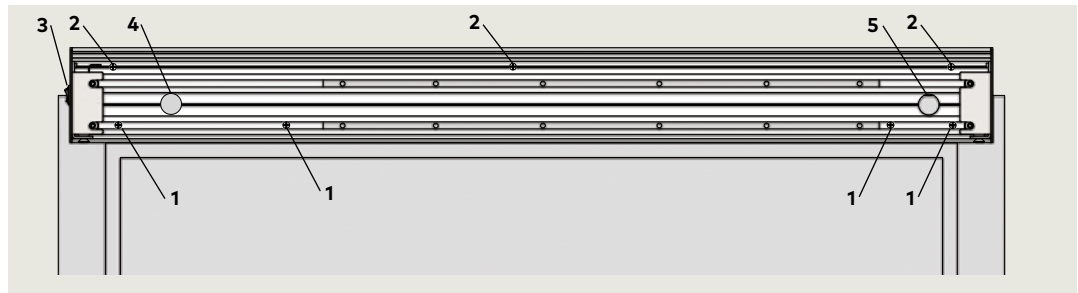
4. Drill 1/4" holes in header top V-groove on centerline of marked stud locations and secure header to wall with selected screw.

CAUTION

After drilling holes, clean all metal debris from header!

Fig. 13.4.4 Header located on door frame

- 1 Screws in bottom slide channel
- 2 Screws in top V-groove (located on stud centerlines)
- 3 Program switch panel (may be in different location)
- 4 Low voltage wiring
- 5 115 VAC wiring (may be in different location)



13.5 Install program switch panel in header

Fig. 13.5.1 Program switch panel installed in header

- 1 Program switch panel
- 2 1/8-32 x 1/4 FHMS
- 3 Hole for operator axle

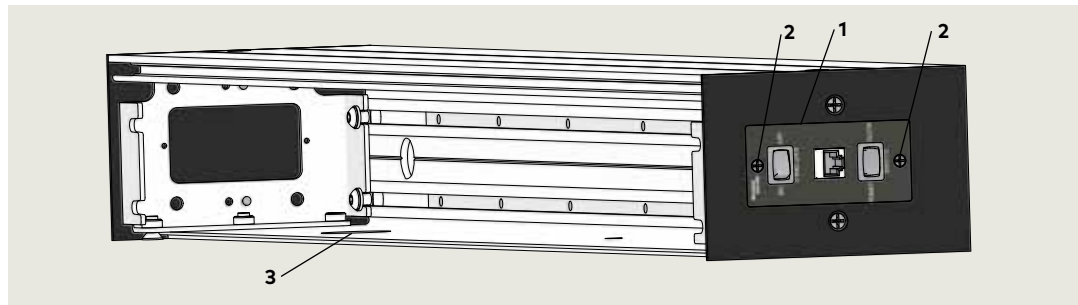
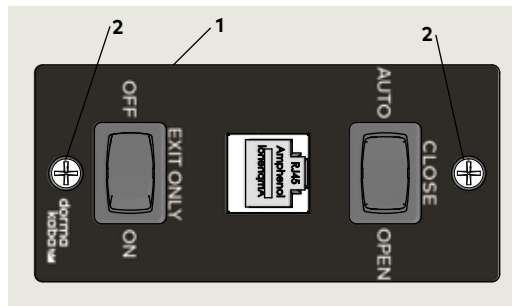


Fig. 13.5.2 Program switch panel

- 1 Program switch panel
- 2 1/8-32 x 1/4 FHMS



13.5.1 Fasten program switch panel to header door strike side.

1. Fasten program switch panel to header using two 1/8-32 x 1/4 FHMS supplied with program switch panel assembly.



TIPS AND RECOMMENDATIONS

Lack of adequate space between side of header and door frame may require program switch panel to be installed at another location on header or door frame.

- Program switch panel cable length is 36". Refer to Para. 14.7.

13.6 Double header installation

13.6.1 Double header installation preparation.

1. Door frame installed.
2. Confirm header width.
 - Header width equals door frame width plus three inches.
3. Determine type and location of studs, or wall material, above door frame.
4. Mark stud locations on wall above door frame.
5. Select header mounting screws (Chapter 5, Accessory kits).

Fig. 13.6.1 Header and door frame width

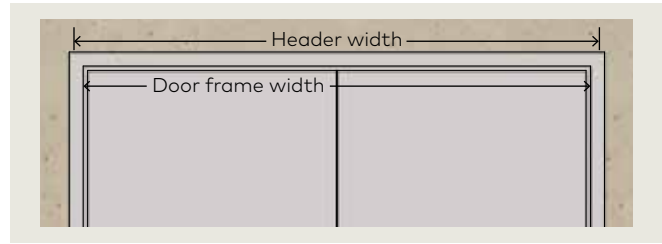
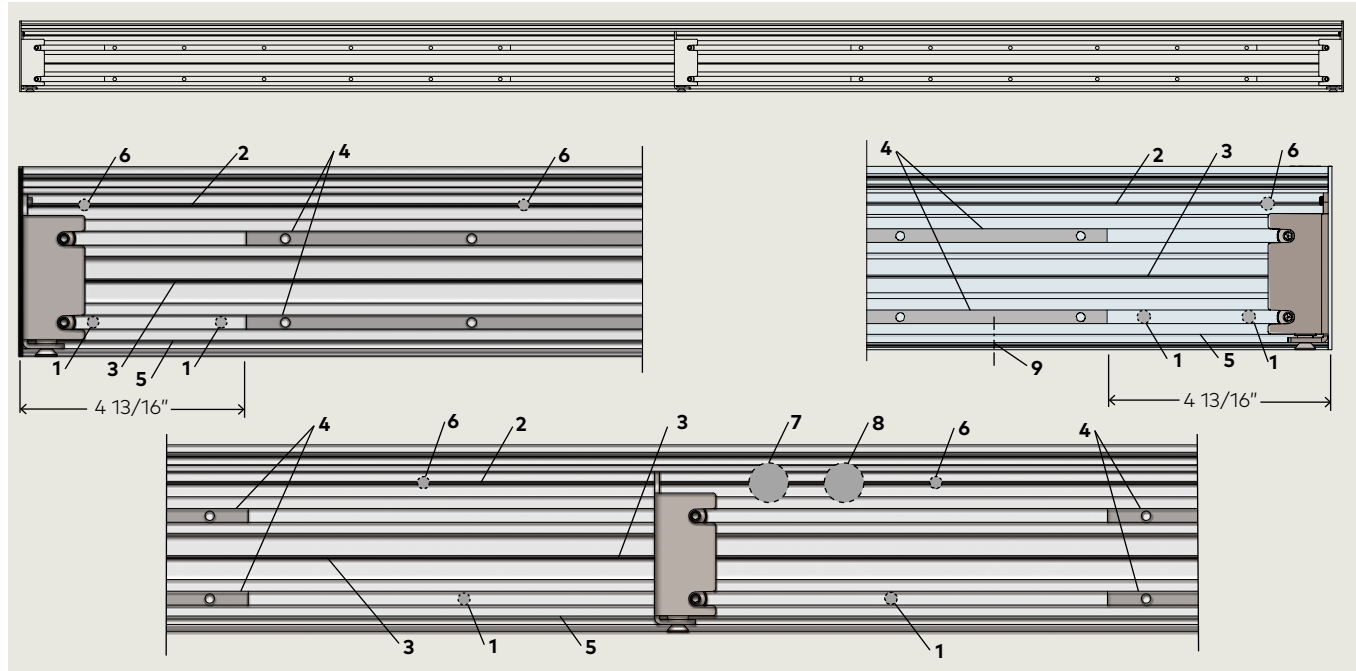


Fig. 13.6.2 Double header mounting holes, conduit holes



- 1 Bottom mounting hole
- 2 Top V-groove
- 3 Bottom V-groove
- 4 Header track
- 5 Bottom slide channel
- 6 Top mounting hole located on stud centerline
- 7 Low voltage wiring (location may change)
- 8 115 Vac wiring (Location may change)

13.6.2 Drill holes in header.

1. Drill six 1/4" holes in header bottom slide channel, two on each side and two in middle of header.
2. Drill two holes in middle of header for 115 VAC and low voltage wiring.



TIPS AND RECOMMENDATIONS

If 115 Vac wiring is located on a door swing side, drill hole for wiring on that side.

13.6.3 Install program switch panel.

1. Install program switch panel in header (Para. 13.5) on active door side.

13.6.4 Mount header to door frame.

1. Using applicable installation template for reference, locate header on door frame.

2. Drill holes into door frame using header bottom slide channel 1/4" hole locations.
3. Fasten header to wall.
 - Use shims as required to make header square to door frame.

CAUTION

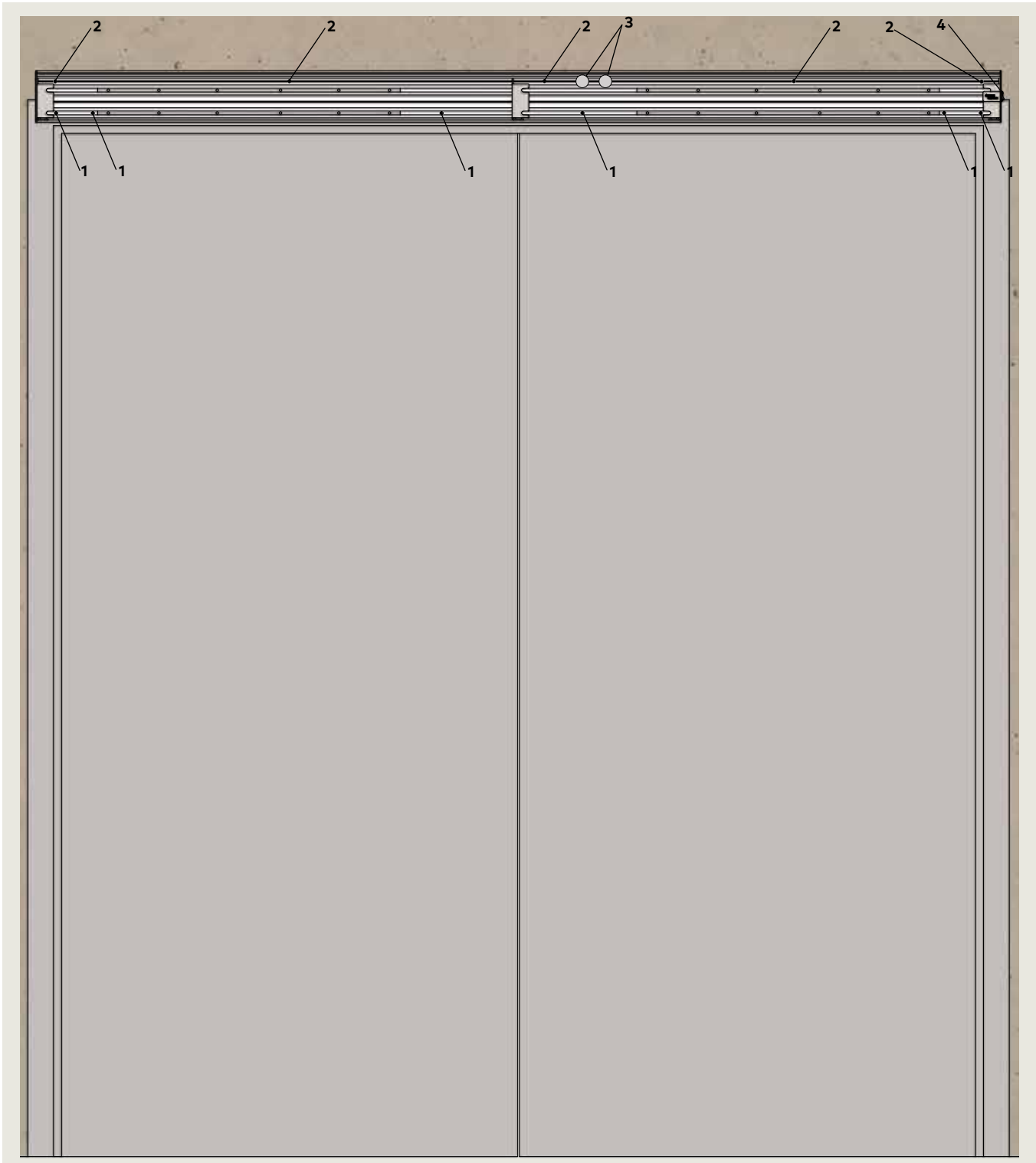
Header must be plumb and level to door frame!

4. Drill 1/4" holes in header top V-groove on centerline of marked stud locations and secure header to wall using selected screw.

CAUTION

After drilling holes, clean all metal debris from header!

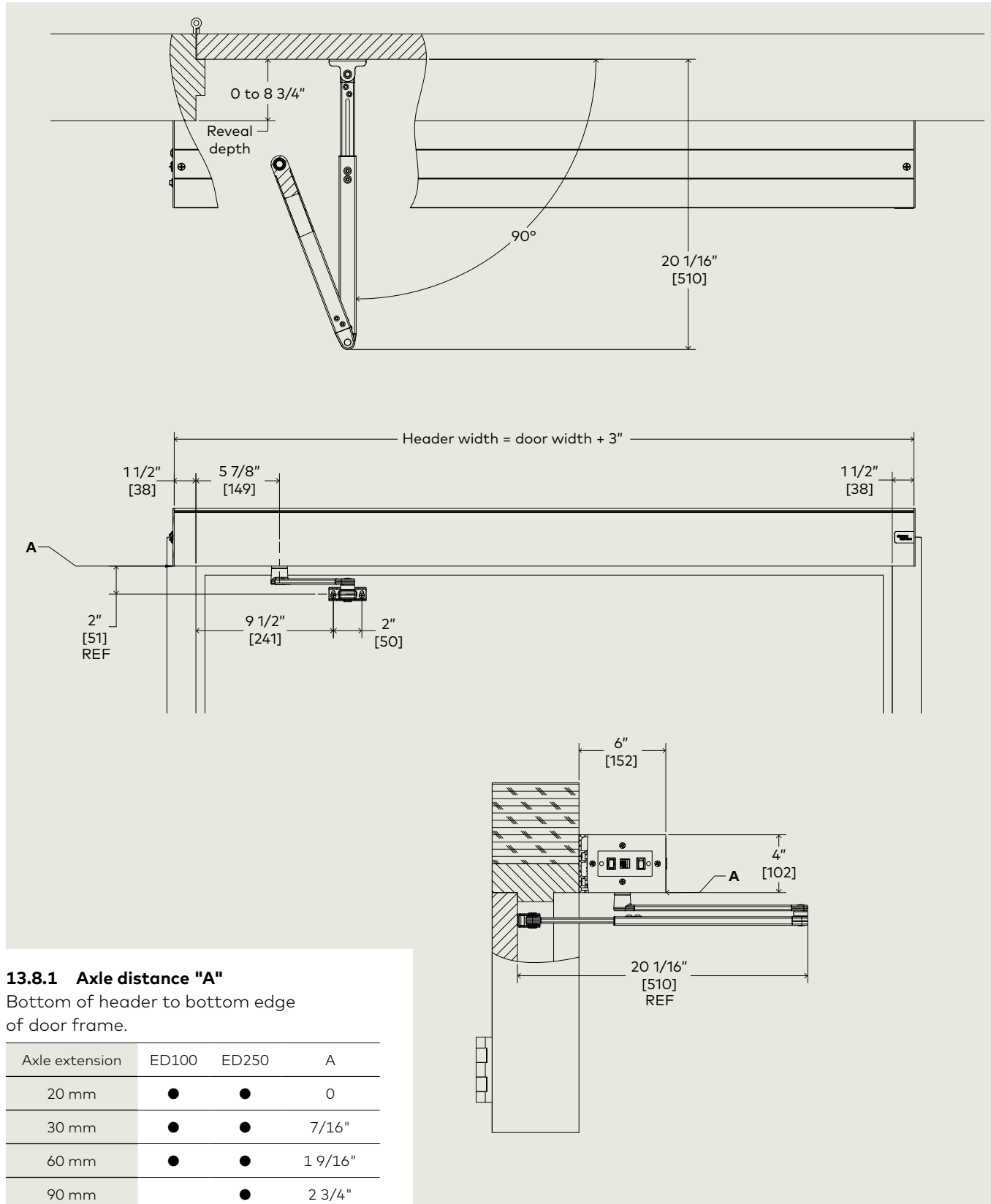
Fig. 13.6.3 Header located on door frame/wall



- | | |
|---|---|
| <p>1 Screws in bottom slide channel</p> <p>2 Screws in top V-groove (located on stud centerlines)</p> | <p>3 Low voltage and 115 VAC wiring (may be in different location)</p> <p>4 Program switch panel (may be in different location)</p> |
|---|---|

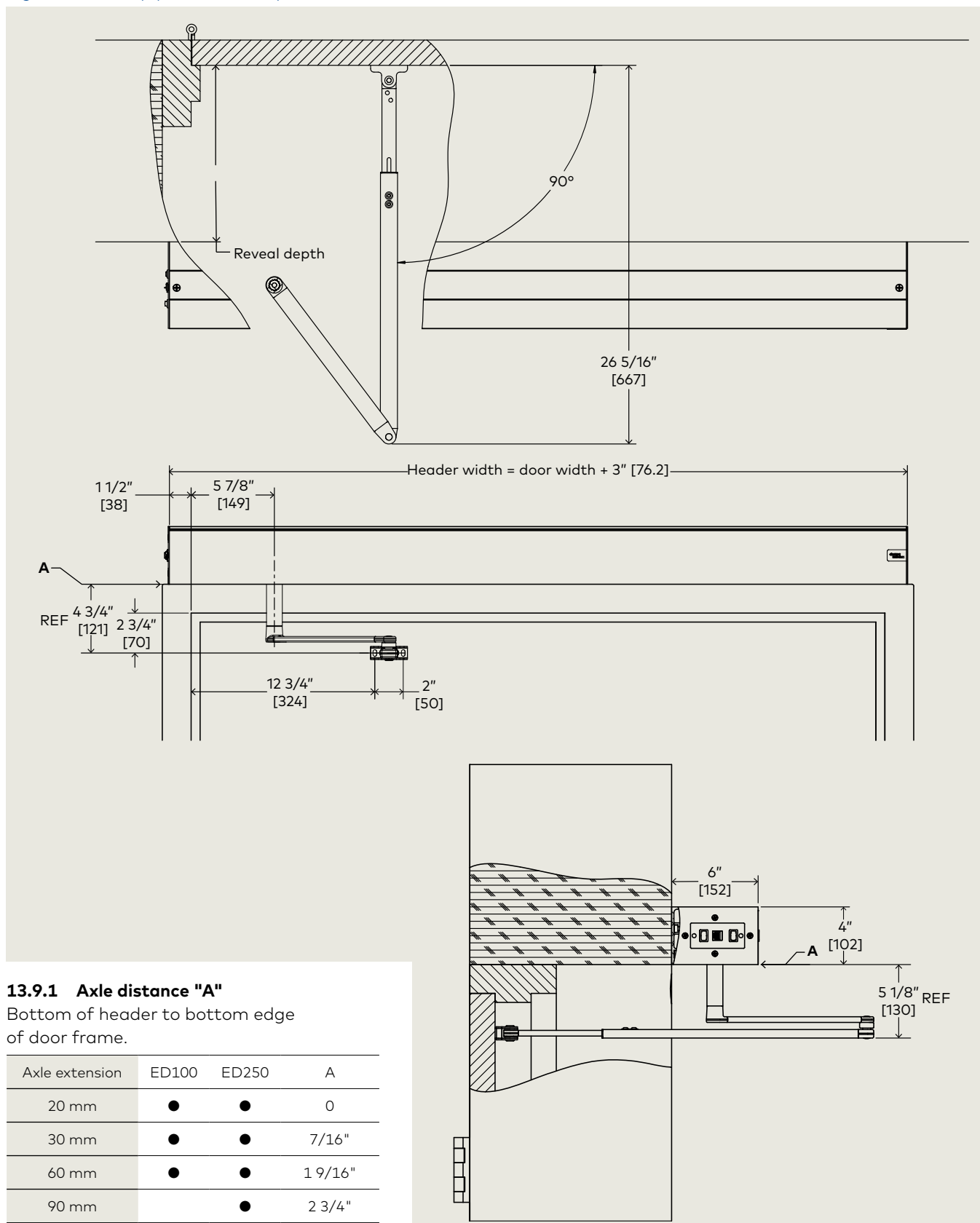
13.7 SA narrow header (4 x 6") – push arm template

Fig. 13.7.1 Standard push arm template



13.8 SA narrow header (4 x 6") – deep push arm installation template

Fig. 13.8.1 Deep push arm template



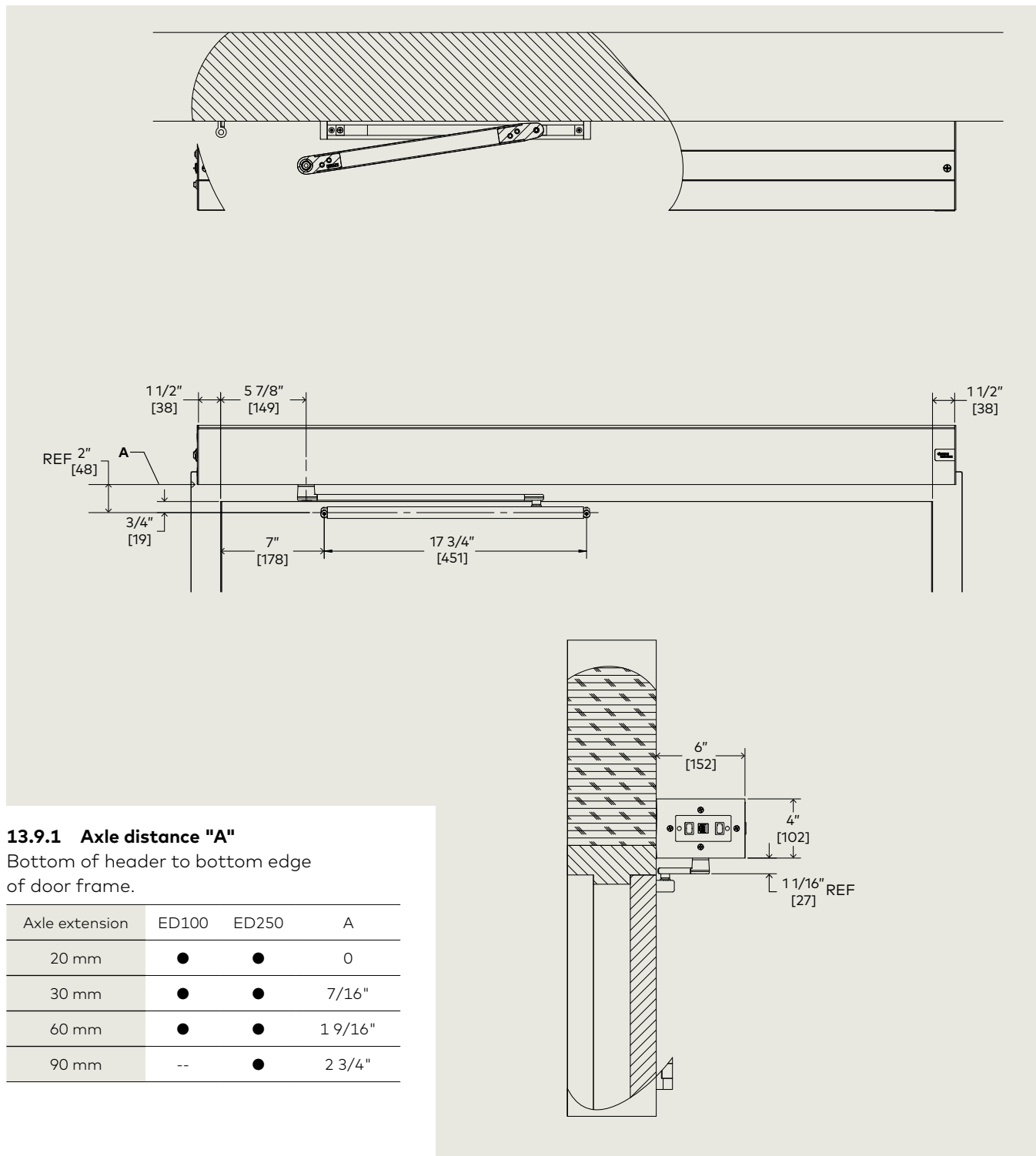
13.9.1 Axle distance "A"

Bottom of header to bottom edge of door frame.

Axle extension	ED100	ED250	A
20 mm	●	●	0
30 mm	●	●	7/16"
60 mm	●	●	1 9/16"
90 mm		●	2 3/4"

13.9 SA narrow header (4 x 6") – pull arm template

Fig. 13.9.1 Deep pull arm template



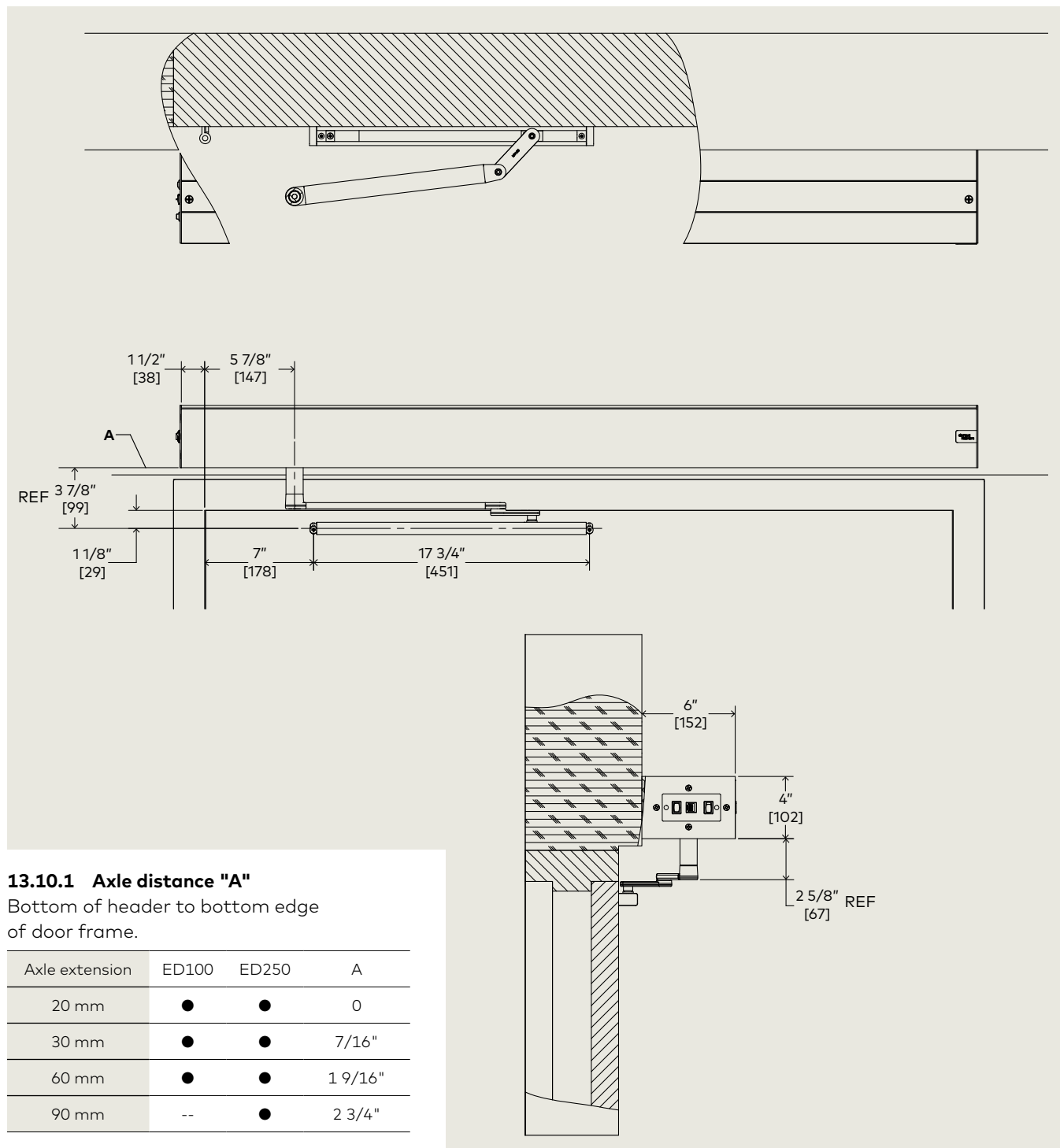
13.9.1 Axle distance "A"

Bottom of header to bottom edge of door frame.

Axle extension	ED100	ED250	A
20 mm	●	●	0
30 mm	●	●	7/16"
60 mm	●	●	1 9/16"
90 mm	--	●	2 3/4"

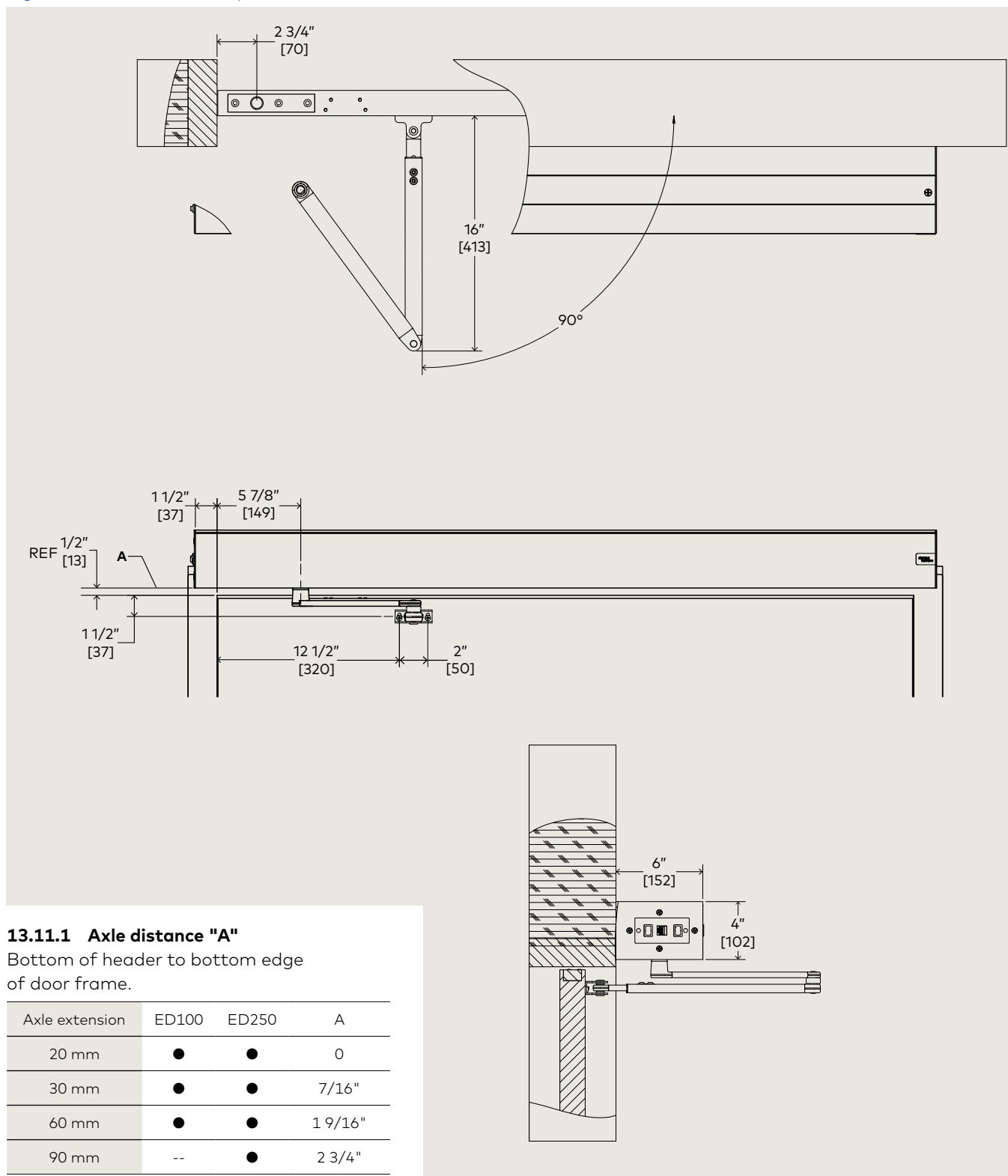
13.10 SA narrow header (4 x 6") – deep pull arm template

Fig. 13.10.1 Deep pull arm template



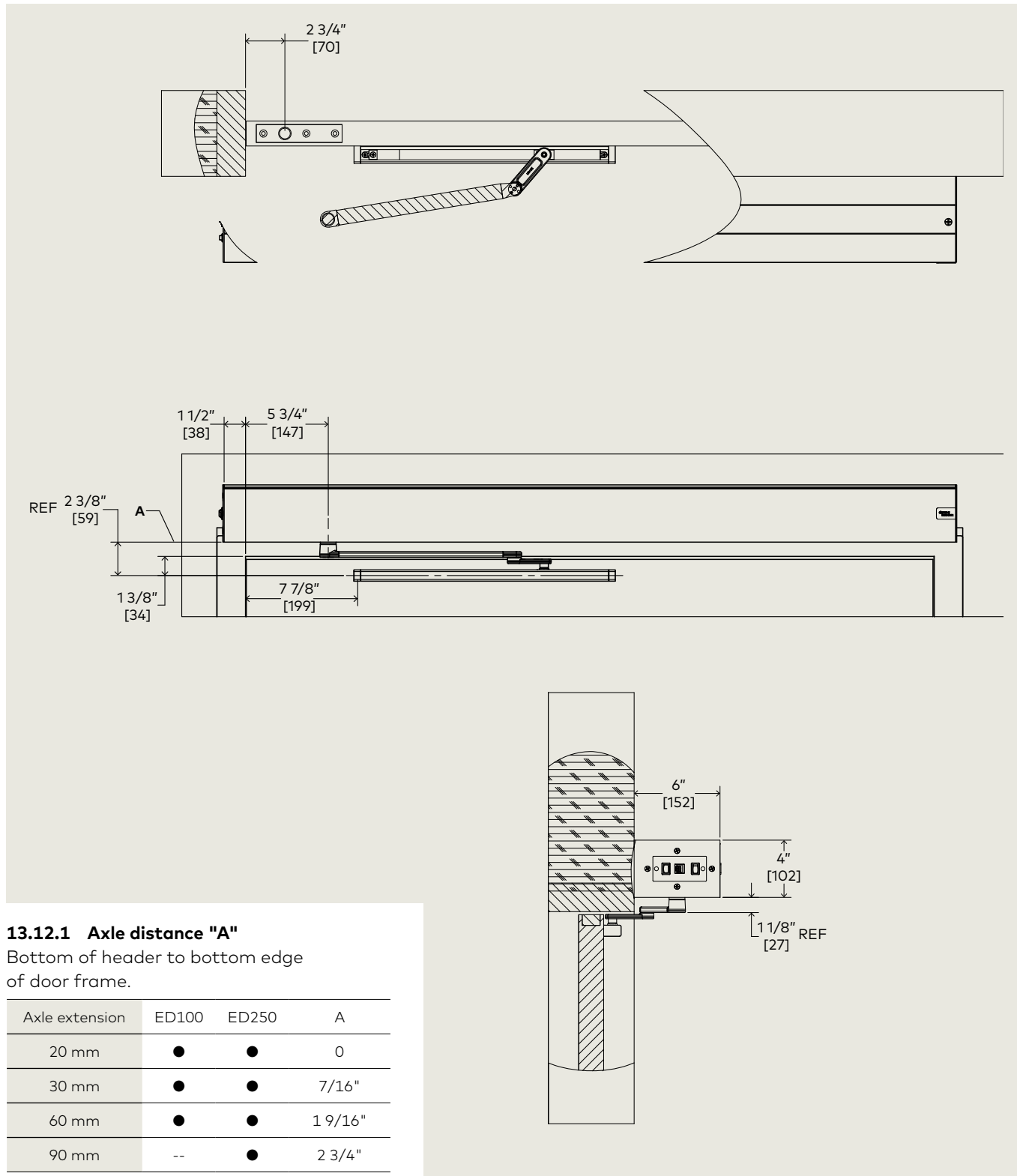
13.11 SA narrow header (4 x 6") – center hung door, push arm template

Fig. 13.11.1 Push arm template



13.12 Offset pivot door, surface applied header, push arm template

Fig. 13.12.1 Offset pivot door, surface applied header, push arm template



This page left intentionally blank.

This page left intentionally blank.

14 ED100/ED250 operator installation

14.1 Single header mounting plate installation

- 4 Header track
- 9 Operator axle hole
- 12 Program switch panel

Fig. 14.1.1 Header with header tracks

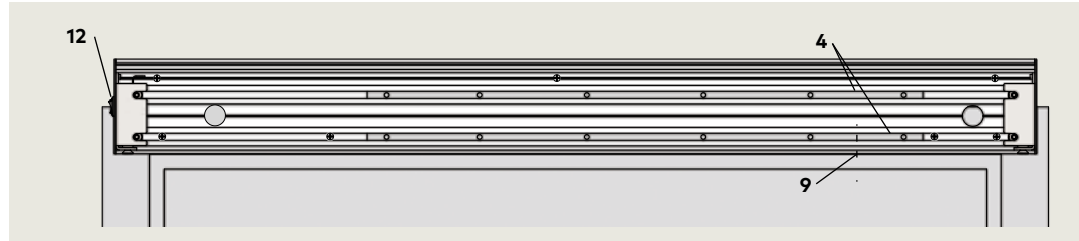


Fig. 14.1.2 Mounting plate

- 1 Mounting plate
- 2 1/4 x 20 UNC hole
- 3 115 VAC terminal block
- 11 1/4-20 x 1" PHFS DK4617-010

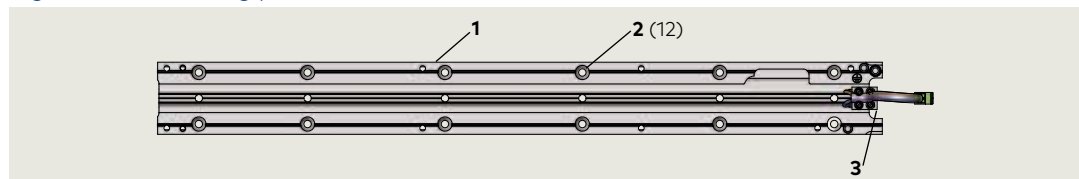


Fig. 14.1.3 Header with mounting plate installed

- 3 115 VAC terminal block
- 5 Guide pin
- 6 Third guide pin
- 7 1/4-20 x 1" FHMSF
- 9 Operator axle centerline

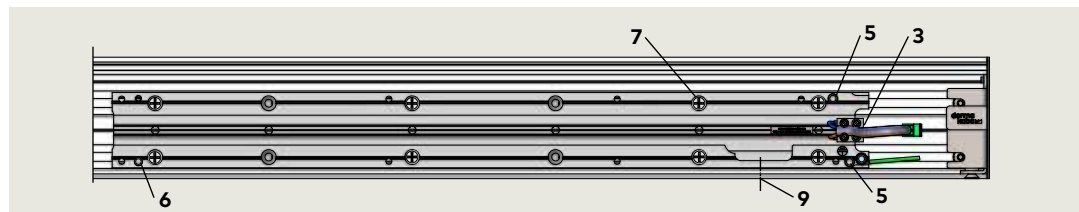


Fig. 14.1.4 Mounting plate location in header

- 1 Inside edge of jamb bracket
- 2 Edge of mounting base

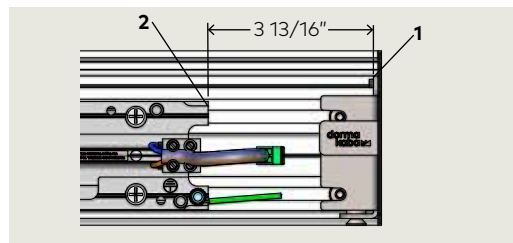


Fig. 14.1.5 1/4-20 x 1" PHFS

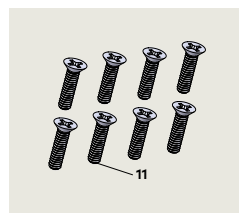
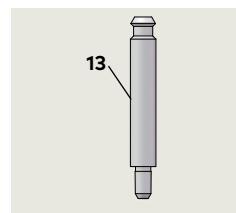


Fig. 14.1.6 Guide pin



14.1.1 Position header tracks.

1. Slide header tracks (7) to side of header with operator axle hole.

14.1.2 Fasten mounting plate to header tracks.

1. Place mounting plate on header tracks, aligning holes in header track with 1/4 x 20 UNC mounting plate holes.
2. Thread eight 1/4-20 x FSMSP into mounting plate hole locations (Fig. 14.1.3). Do not tighten screws.

14.1.3 Fix location of mounting plate in and secure to header.

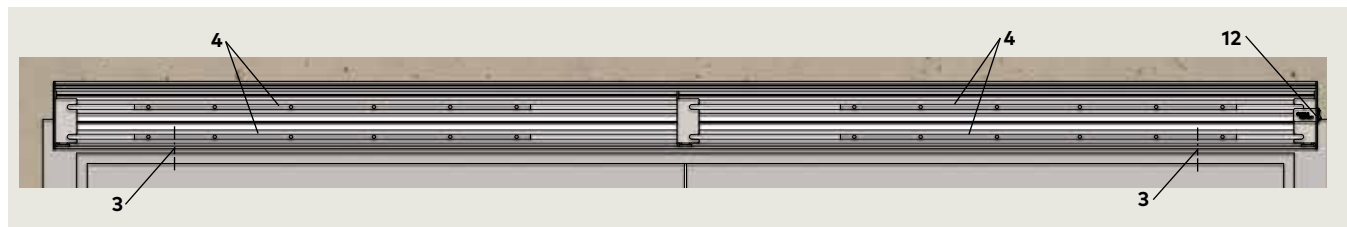
1. Slide mounting plate to dimension shown between inside edge of jamb bracket and edge of mounting plate (Fig. 14.1.4).
2. Tighten all eight screws using No. 3 Phillips screwdriver. Recheck dimension in step 1.

14.1.4 Install third guide pin.

1. Install third guide pin (6).

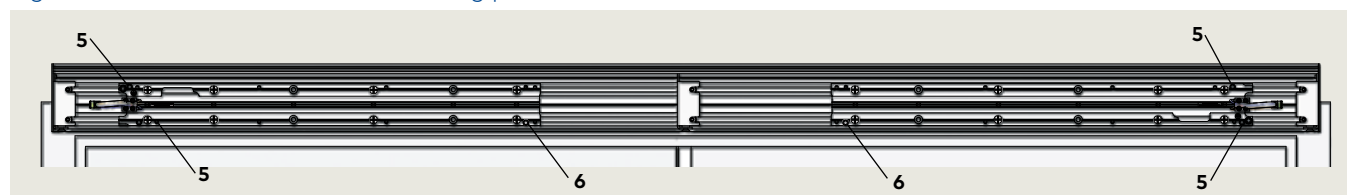
14.2 Double header mounting plate installation

Fig. 14.2.1 Double header with header tracks



- 3 Axle centerline
- 4 Header track
- 12 Program switch panel

Fig. 14.2.2 Double header with mounting plates installed



- 5 Guide pin
- 6 Third guide pin

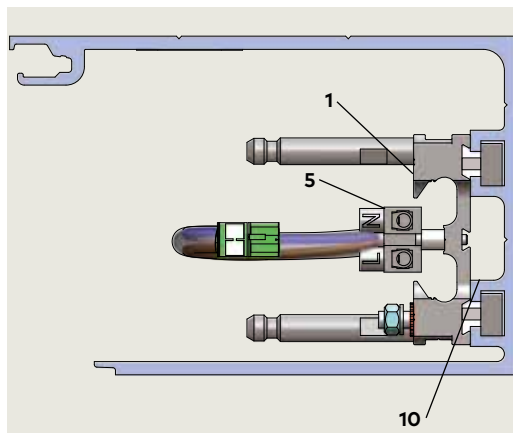
- 8 115 Vac power cable
DX3484-010, 5.8 ft.
DX3484-020, 7.9 ft.
DX3484-030, 11 ft..

Fig. 14.2.3 115 Vac power cable



Fig. 14.2.4 Header and mounting plate wiring channels

- 1 Mounting plate channel
- 5 115 Vac terminal block
- 10 Header center channel



14.2.1 Install mounting plates in double header.

1. Refer to Para. 14.1, install mounting plates in header.

14.2.2 Install 115 Vac power cable.

1. Route 115 Vac power cable through both mounting plate channels.



TIPS AND RECOMMENDATIONS

Cable will connect 115 Vac between the two operators (Ref. Para. 14.6).

14.2.3 Install third guide pin.

1. Install third guide pin in each mounting plate (Fig. 14.2.2).



TIPS AND RECOMMENDATIONS

Use header center channel for low voltage wiring.

14.3 Customer 115 Vac connection to mounting plate terminal block

Fig. 14.3.1 Mounting plate power connection side

- 1 115 Vac terminal block
- 2 Ground terminal
- 3 Terminal block screw torque label
- 4 Preferred 115 Vac wiring entry point

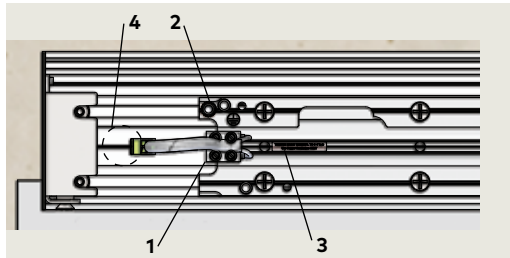


Fig. 14.3.2 115 Vac connections

- 1 115 Vac terminal block
- 2 Ground terminal
- 3 Mains terminal torque and wire label
- 5 M3.5 screw
- 6 115 Vac plug to operator
- L 115 Vac
- N Neutral
- G Ground

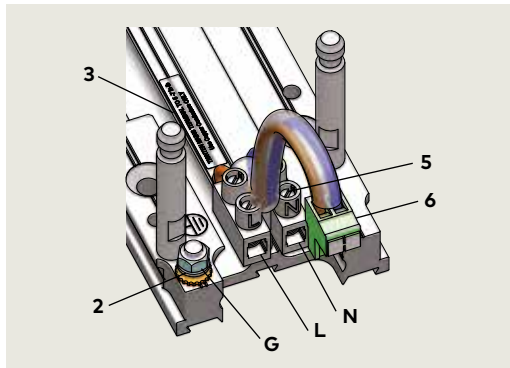


Fig. 14.3.3 Mains terminal torque and wire label

TIGHTEN MAINS TERMINAL TO 5-7 in-lb
Use Copper Conductors ONLY



TIPS AND RECOMMENDATIONS

Install label in header with panelboard and circuit breaker number supplying 115 Vac to header.

14.3.1 Connect 115 VAC wiring.



WARNING

Routing and connection of 115 Vac wiring to ED100 / ED250 must be performed by a qualified person!



WARNING

115 Vac branch circuit disconnect or circuit breaker must be OFF!

1. Route wiring into header, use appropriate fitting to secure conduit or wiring to header, and route wiring to 115 Vac terminal block.

CAUTION

Use copper conductors only!

2. Terminate 115 Vac wiring at terminal block.



TIPS AND RECOMMENDATIONS

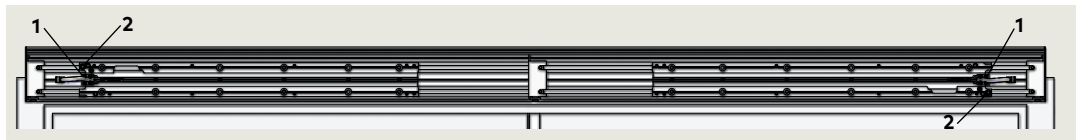
- Maximum wire strip length, 1/4".
- Tighten terminal screws to torque referenced in Fig. 14.3.3.
- Leave service loop in wiring at terminal block for maintenance.

3. Terminate ground wire at ground terminal. Remove nut and washer on ground terminal, bend ground wire around terminal, replace washer and nut and tighten. Leave service loop in ground wire.
 - Use 5/16" [8 mm] socket for nut.

14.4 Double door header 115 Vac mounting plate connection

Fig. 14.4.1 Double door header 115 VAC connection

- 1 115 Vac terminal block
- 2 Ground stud



NOTICE

A 115 Vac power cable connects the two operators together (Para. 14.6).

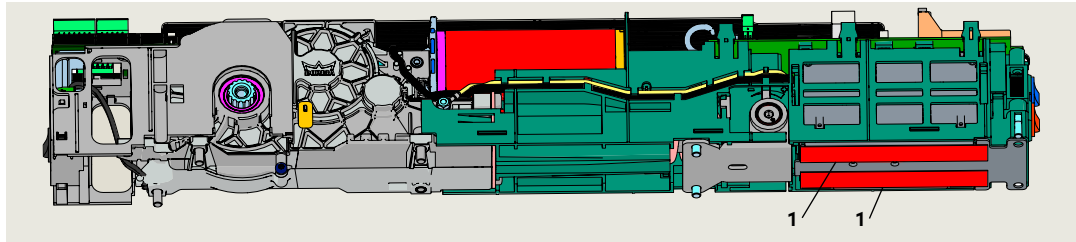
14.4.1 115 Vac connection to double door header.

1. Customer 115 Vac can connect to either mounting plate 115 Vac terminal block and ground stud.

14.4 Remove protective film strips from operator

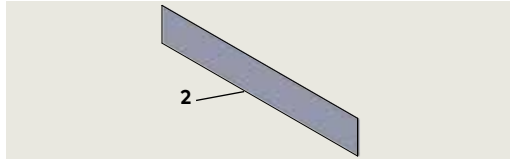
1 Heat conductive pad

Fig. 14.4.1 Operator heat conductive pads



2 Protective film strip

Fig. 14.4.2 Protective film strip



14.4.1 Remove protective film strips.

1. Remove two protective film strips from operator heat conductive pads.

CAUTION

Heat conductive pads must remain clean once protective film strips are removed!

14.5 Install ED100/ED250 operator on mounting plate in header

Fig. 14.5.1 Header with mounting plate installed

- 3 Guide pin
- 4 115 Vac plug and cable to mounting plate 115 Vac terminal block
- 5 M6 SHCS mounting hole

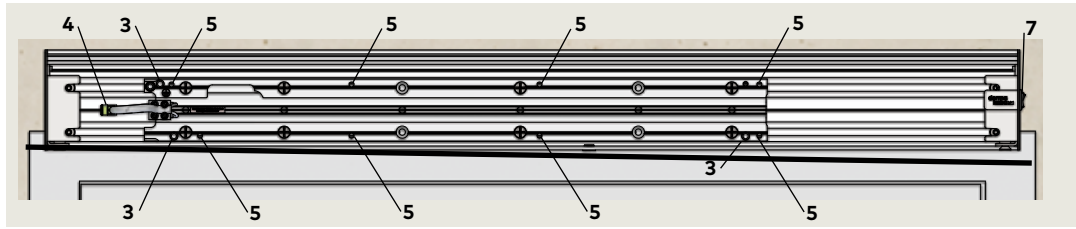


Fig. 14.5.2 Installing operator on mounting plate

- 1 M6 x 10 SHCS
- 1.1 M6 x 20 SHCS
- 3 Guide pin
- 4 115 VAC plug and cable to mounting plate 115 Vac terminal block
- 6 115 VAC terminal block

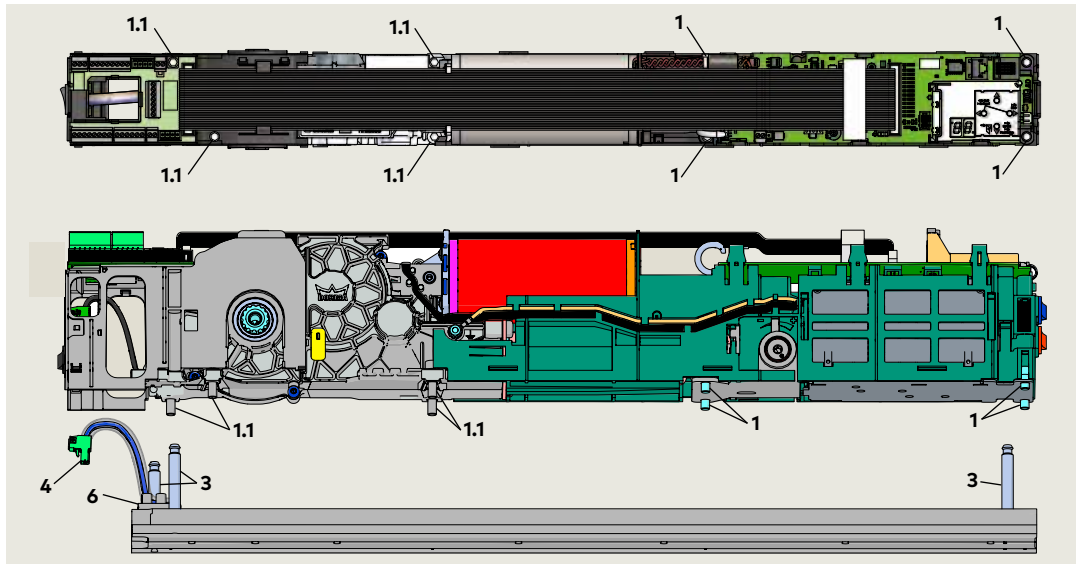
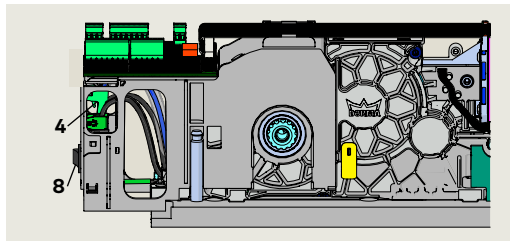


Fig. 14.5.3 115 Vac plug connection

- 4 115 VAC plug and cable to mounting plate 115 Vac terminal block
- 8 Power on switch



NOTICE

Customer 115 Vac wiring (Para. 14.3) not shown for clarity.

14.5.1 Install operator on mounting plate.

CAUTION

Insure protective film strips have been removed from heat conductive pads (Para. 14.4).

1. Place operator over the three mounting plate guide pins.
2. Move operator in toward mounting plate, guiding all wiring into operator housing.
3. Once operator is placed flush against mounting plate, use a 5 mm T handle hex key to thread eight M6 SHCS into mounting plate.
4. Tighten all eight SHCS.
5. Insert 115 Vac mounting plate plug into operator 115 Vac socket.

Fig. 14.5.4 Operator and mounting plate assembly

- 2 Operator housing
- 3 Guide pin
- 4 Mounting plate 115 Vac plug
- 8 Power switch

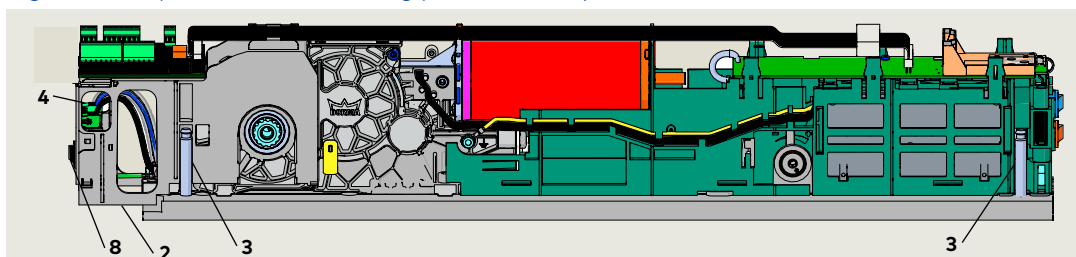


Fig. 14.5.5 Header with operator installed



14.6 Double header ED100/ED250 operator installation

Fig. 14.6.1 Double header with operators installed

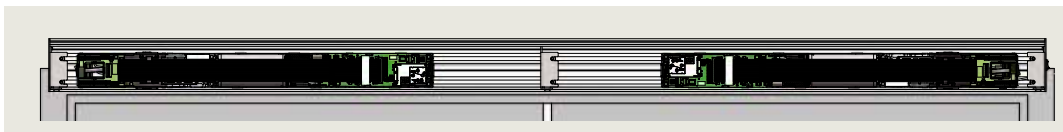


Fig. 14.6.2 115 Vac power cable installed on operator with 115 Vac customer connection

- 1 Power switch
- 2 Power cable 115 VAC plug
- 3 115 VAC cable to terminal block
- 4 Power cable ground wire and ring terminal
- 5 Customer 115 Vac power
- 6 Power switch board
- 7 Ground stud nut

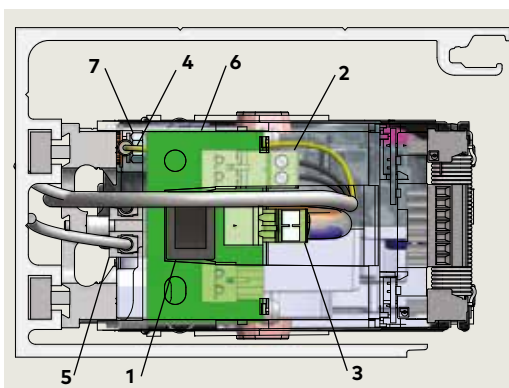


Fig. 14.6.3 115 Vac power cable installed on second operator

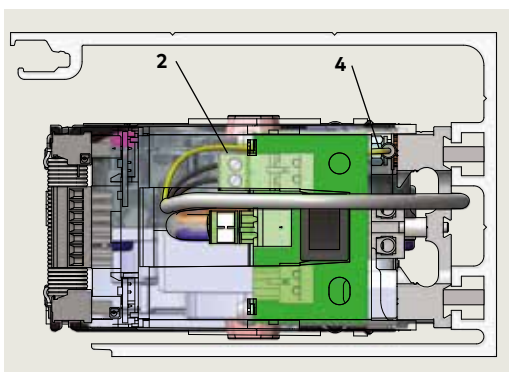


Fig. 14.6.4 115 Vac power cable

- 8 115 VAC power cable DX3484-0x0
- 9 Ground wire ring terminal



14.6.1 Install operators on mounting plates.

1. Refer to Para. 14.5 for installation of ED100 / ED250 operators.

14.6.2 Connect 115 Vac power cable to both operators.

Refer to Para. 14.2.1 for installation of power cable in mounting plates.

1. Insert power cable 115 Vac plug into socket on power switch board.
 - Remove ground stud nut (5/16" [8 mm] socket) and washer.
2. Insert power cable ground wire ring terminal on ground stud.
3. Replace washer, install ground stud nut and tighten.

i TIPS AND RECOMMENDATIONS

Customer 115 Vac power connection may be on opposite operator.

14.7 Connect cables to ED100/ED250 operator

- 1 Program switch panel
- 3 Header for program switch cable
- 5 COM 1 service connector

Fig. 14.7.1 Header with ED100/ED250 operator

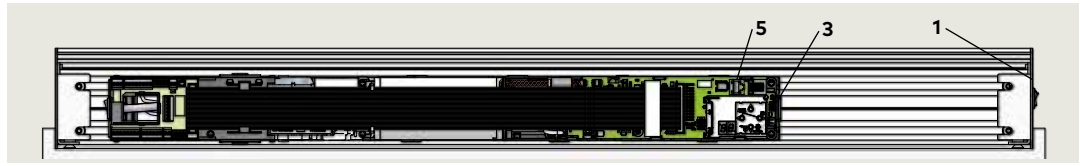


Fig. 14.7.2 Cable installation on operator

- 1 Program switch panel
- 2 Program switch cable with connector 36" long
- 3 Header for program switch cable
- 4 RJ 45 connector, double door synchronization
- 5 COM 1 service connector
- 6 RJ 45 connector for program switch panel cable

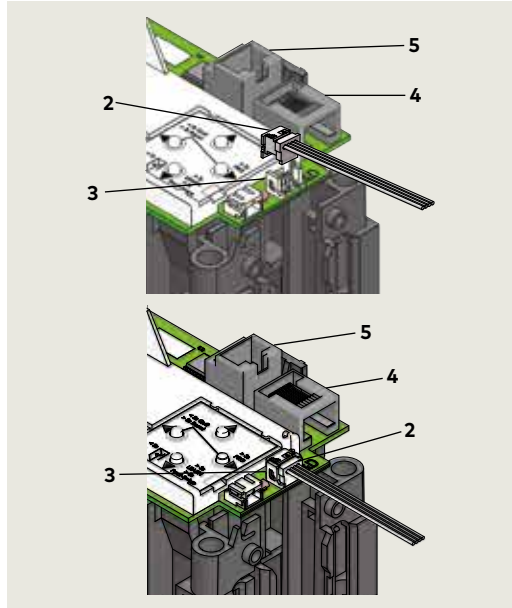


Fig. 14.7.4 RJ45 comm cable

- 6 RJ45 comm cable, 36" long DX4607

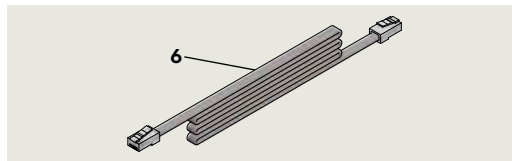
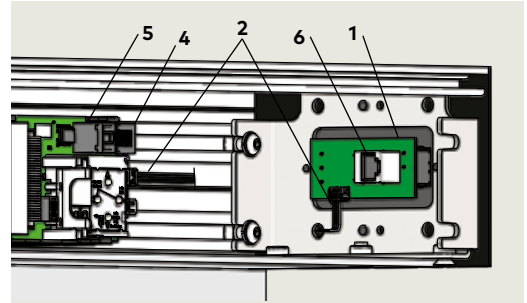


Fig. 14.7.3 Program switch panel



14.7.1 Connect program switch cable to operator.

1. Carefully insert cable connector into header connector on operator.

CAUTION

Connector inserts vertically into header connector.

14.7.2 Install RJ45 program switch comm cable.

1. Connect one end of cable to program switch panel RJ45 connector.
2. Connect other end of cable to COM 1 service connector on operator.

14.8 Double header operator legend plate

- 1 Program switch panel
- 3 Header for program switch cable
- 5 COM 1 connector
- 7 User interface legend plate

Fig. 14.8.1 Double header with operators installed

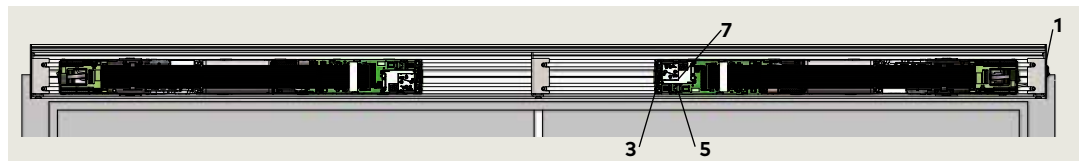
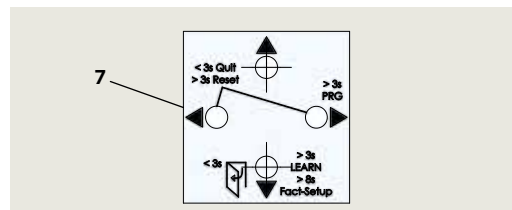


Fig. 14.8.2 Operator legend plate



14.8.1 Reverse legend plate orientation.

1. Remove and reverse orientation of legend plate on RH operator so that letters face upward.
2. Reinstall legend plate.

15 Arm with track mount installation

15.1 Arm with track installation

NOTICE

Reference Para. 12.2 (single door) and Para. 12.3 (double door) installation templates.

15.2 Splined arm and track assemblies

Fig. 15.2.1 Splined arm with CPD lever and track assembly, LH

- 1 Drive arm
- 2 CPD
- 3 Track

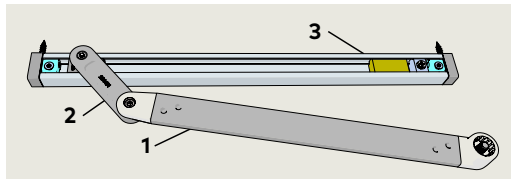


Fig. 15.2.3 Splined arm and track assembly

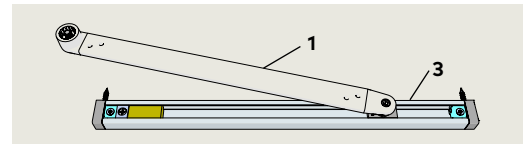
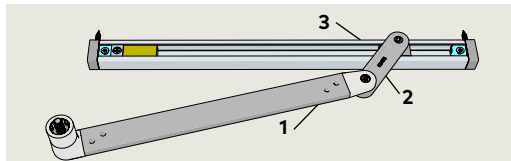


Fig. 15.2.2 Splined arm with CPD lever and track assembly, RH

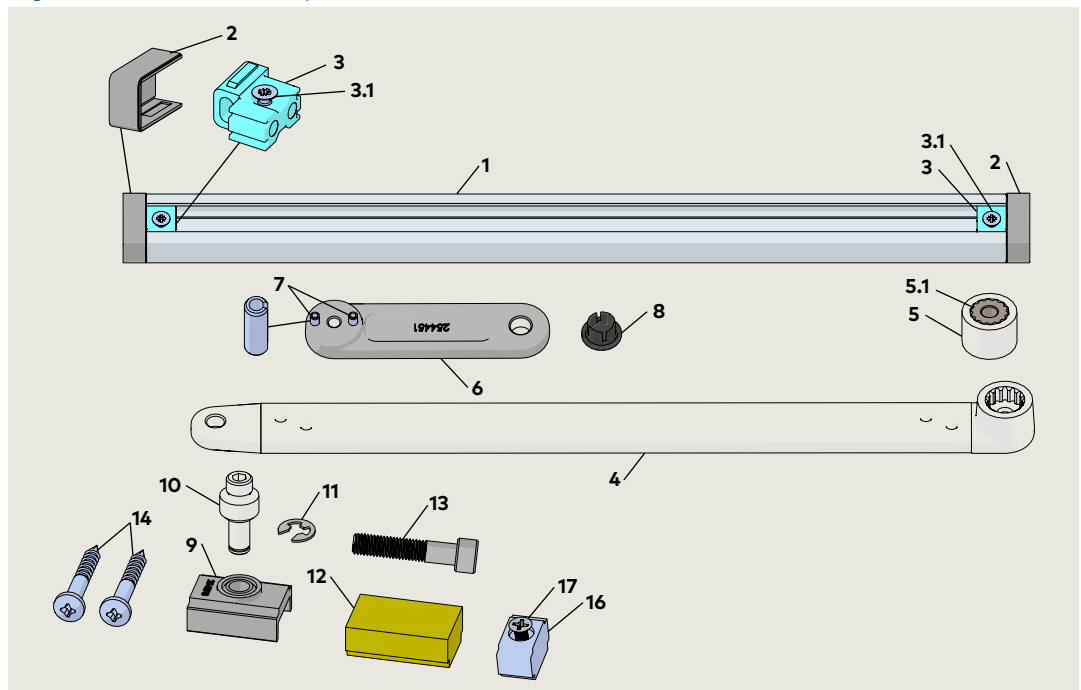
- 1 Drive arm
- 2 CPD
- 3 Track



15.3 Splined arm and track hardware

Fig. 15.3.1 Track assembly

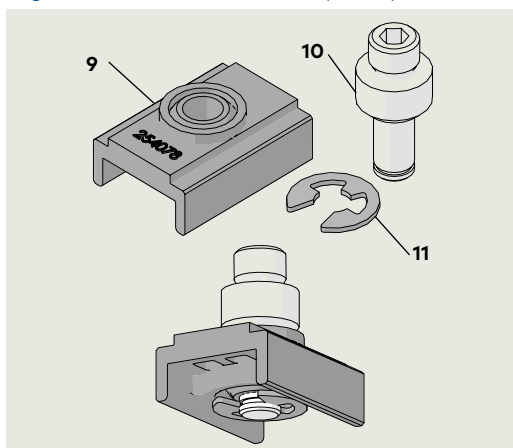
- 1 Track
- 2 End cap
- 3 Fixing piece
- 3.1 M5 x 15 Phillips FHS
- 4 Pull arm
- 5 20 mm axle extension
- 5.1 Splined
- 6 CPD lever
- 6.1 M6 x 10 SHCS
- 7 Slotted spring pin
- 8 Pull arm cap
- 9 Slide shoe
- 10 Pivot pin
- 11 Retaining ring
- 12 Bumper
- 13 M8 x 1.25 x 40 SHCS
- 14 Wood screws
- 15 Machine screws
- 16 Bumper stop
- 17 M5 x 13 FHMS cross recessed



15.4 Slide shoe assembly

- 9 Slide shoe
- 10 Pivot pin
- 11 Retaining ring

Fig. 15.4.1 Slide shoe and pivot pin

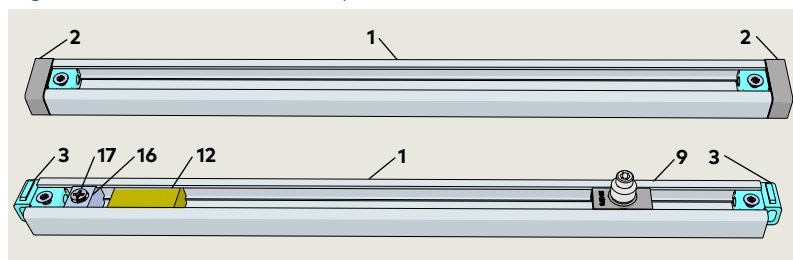


15.4.1 Install pivot pin into slide shoe.

1. Insert pivot pin into slide shoe.
2. Install spring clip into pivot pin slot.

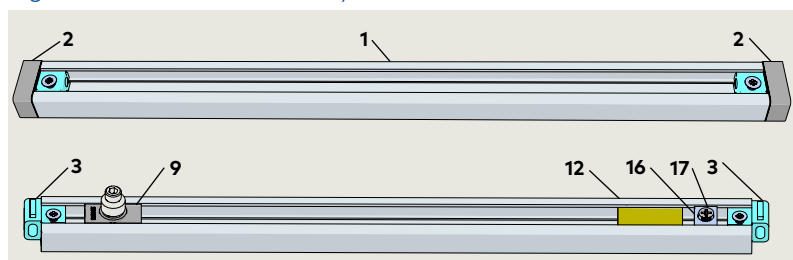
15.5 Install hardware into track

Fig. 15.5.1 RH track assembly



- | | | |
|----------------|--------------|--------------------------------|
| 1 Track | 9 Slide shoe | 16 Bumper stop |
| 3 Fixing piece | 12 Bumper | 17 M5 x 13 FHMS cross recessed |

Fig. 15.5.2 LH track assembly



- | | | |
|----------------|--------------|--------------------------------|
| 1 Track | 9 Slide shoe | 16 Bumper stop |
| 3 Fixing piece | 12 Bumper | 17 M5 x 13 FHMS cross recessed |

15.5.1 Track assembly.

CAUTION

Assemble track hardware based on RH or LH installation.

1. Remove both end caps (2) and one fixing piece (3) from track.
1. Slide bumper stop (16), bumper (12) and slide shoe assembly (9) into track.
 - Do not tighten bumper stop M5 screw (17).
2. Secure fixing piece to end of track with M5 x 15 screw (3.1).
 - Use No. 2 Phillips, do not over-tighten.

15.5 Fasten track assembly to door

Fig. 15.5.1 Track assembly

- 1 Track
- 2 Fixing piece
- 9 Slide shoe
- 12 Bumper
- 14 Wood screw
- 16 Bumper stop

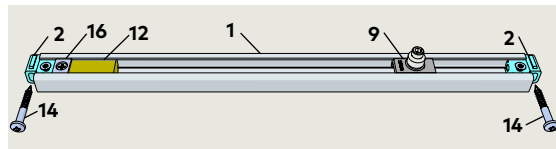
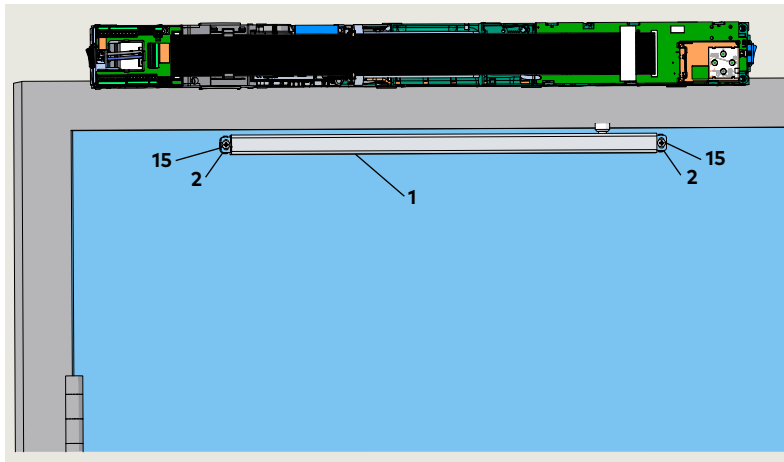


Fig. 15.5.2 Track installation



- 2 Fixing piece
- 15 Fastener
- 3 Track

15.5.1 Mount track assembly on door.

CAUTION

Insure track hardware is assembled for hand of door.

1. Use applicable template (Chapter 13) to locate two track mounting holes on door.

CAUTION

Fastener type:

Fig. 15.5.1 shows wood screws.

- Select fastener based on door material.

2. Drill holes in door, hole size based on selected screw or fastener (Ref. Chapter 5, Accessory kits).
3. Mount track to door; thread fasteners through fixing pieces (2) into door and tighten.

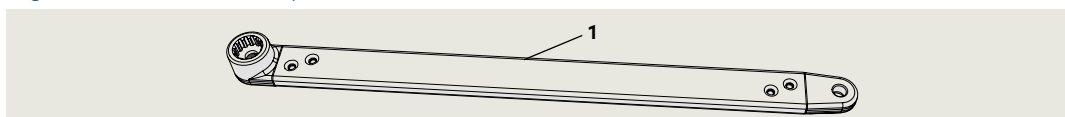
CAUTION

Check track for level when tightening fasteners.

15.6 Arm assembly

- 1 Arm

Fig. 15.6.1 Arm assembly



15.7 Arm assembly with CPD lever

- 6.1 M6 x 10 SHCS
- 11 Slotted spring pin

Fig. 15.7.1 Slotted spring pin

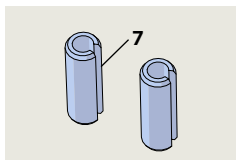
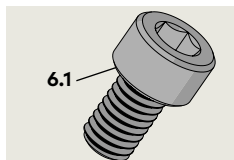


Fig. 15.7.2 M6 x 10 SHCS for CPD



15.7.1 Arm with CPD lever assembly.

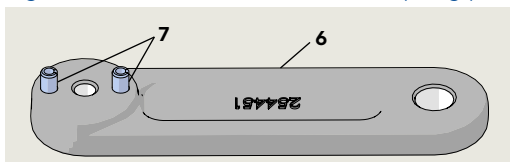
CAUTION

Assemble arm and CPD lever based on RH or LH pull or push.

1. Press CPD lever slotted spring pins into corresponding holes in arm.
2. Secure CPD lever to arm with M6 x 10 SHCS.

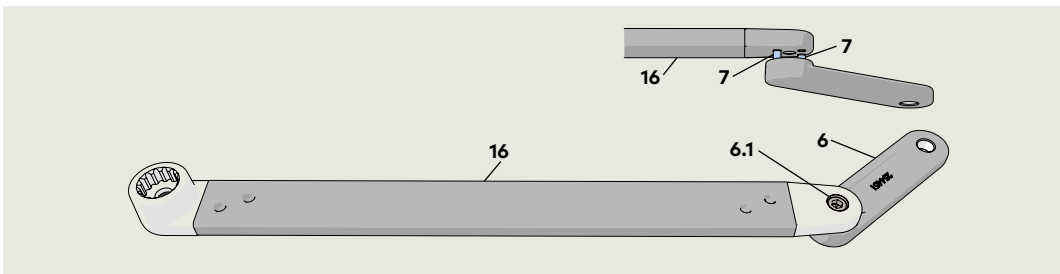
- 6 CPD lever
- 7 Slotted spring pin

Fig. 15.7.3 CPD lever and slotted spring pins



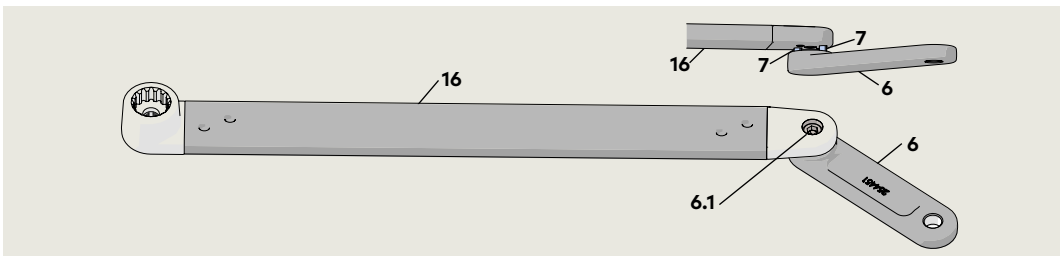
- 6 CPD lever
- 6.1 M6 x 10 SHCS
- 7 Slotted spring pin
- 16 Arm

Fig. 15.7.4 Arm assembly, RH pull, LH push



- 6 CPD lever
- 6.1 M6 x 10 SHCS
- 7 Slotted spring pin
- 16 Arm

Fig. 15.7.5 Arm assembly, LH pull, RH push



15.8 Mount drive arm to operator

Fig. 15.8.1 Mount drive arm to operator at 12 degrees

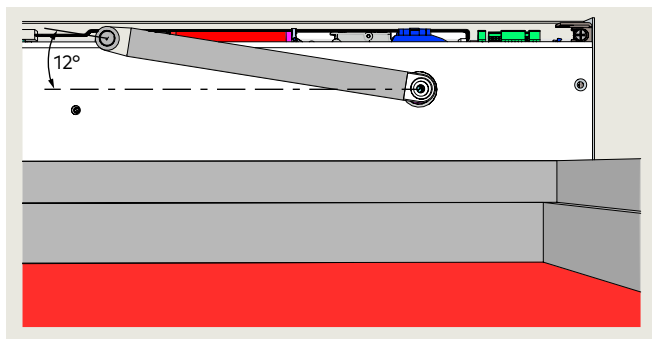


Fig. 15.8.2 Rotate drive arm 10 degrees in door opening direction

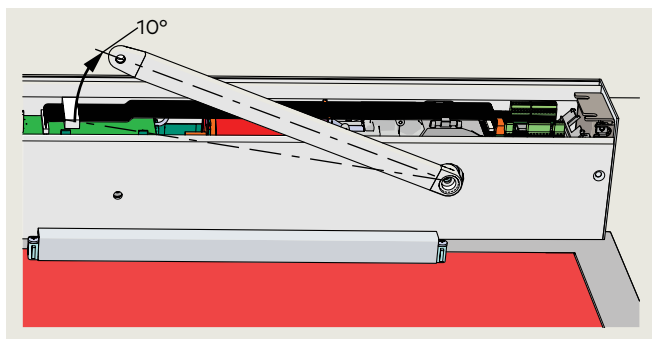


Fig. 15.8.3 Remove drive arm

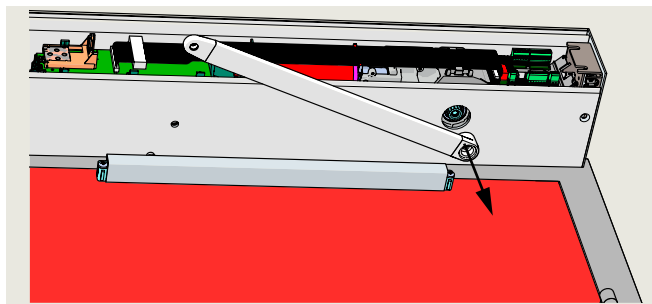
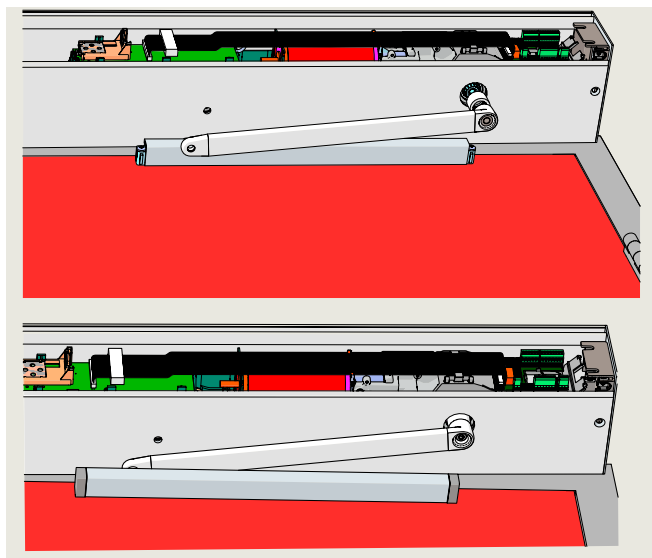


Fig. 15.8.4 Install drive arm and axle extension



15.8.1 Mount drive arm to operator.



WARNING

Use caution when working in proximity of door and drive arm!.

CAUTION

ED operator spindle zero position.

In order to mount the drive arm in the correct position, the spindle must be brought to the zero position.

1. Set ED operator spring preload to approximately ten clockwise rotations.
- Spindle rotates to the zero position.



TIPS AND RECOMMENDATIONS

Reference Chapter 19, Operator spring tension.

2. Turn spring preload back to zero rotations (fully CCW).
3. Push drive arm onto spindle at an angle of approximately 12° to ED operator (Fig. 15.8.1).
4. Rotate drive arm approximately 10° in door's opening direction (Fig.15.8.2).
5. Remove drive arm from spindle (Fig. 15.8.3)
6. Position drive arm one tooth in the door's closing direction (Fig. 15.8.4)
7. Push drive arm and axle extension onto spindle.
8. Thread M8 x ___ mm SHCS into spindle and tighten M8 SHCS.

CAUTION

Use torque wrench with hex key socket to tighten M8 screw to 17 ft-lb [23 Nm].

Fig. 15.8.5 Torque wrench, 5 mm hex key

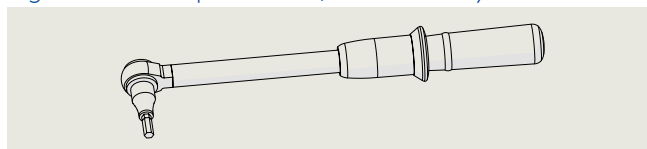
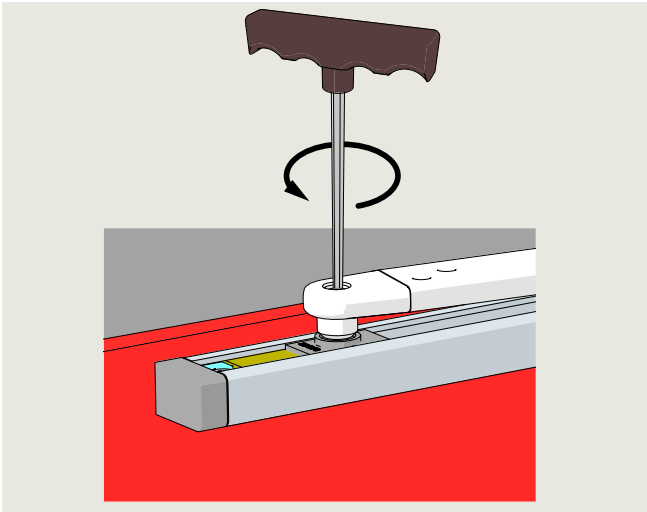


Fig. 15.8.6 Fastening drive arm to pivot pin

**15.8.2 Attach drive arm to pivot pin.**

1. Use 6 mm T handle hex key to rotate pivot pin M8 socket head into drive arm and tighten.

CAUTION

Use torque wrench with hex key socket to tighten M8 screw to 5.9 - 7.4 ft-lb [8 - 10 Nm].

15.8.3 Set operator spring tension.**CAUTION**

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

- Reference Chapter 19 for spring tension adjustment procedure.

Fig. 15.8.7 Fastening drive arm with CPD lever to pivot pin

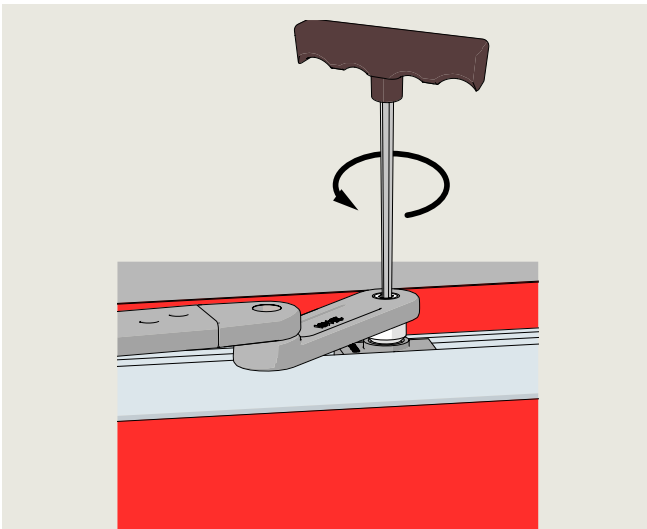
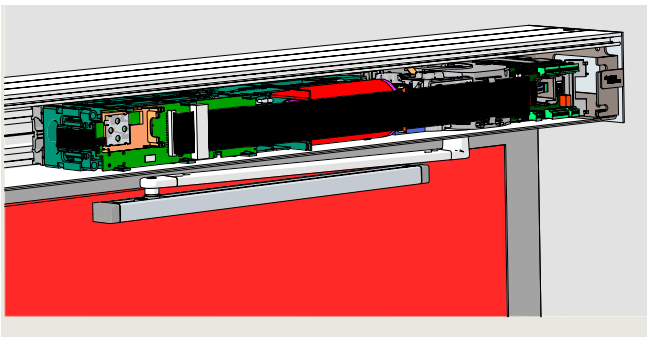


Fig. 15.8.8 Drive arm fastened to track



16 Push arm installation

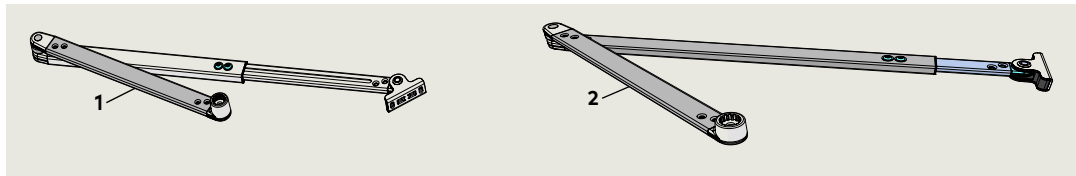
16.1 Push arm installation templates

NOTICE

Reference Chapter 13 for installation templates.

- 1 Standard push arm, reveal depths 0 - 8" maximum
- 2 Deep push arm reveal depths 8 - 12" maximum

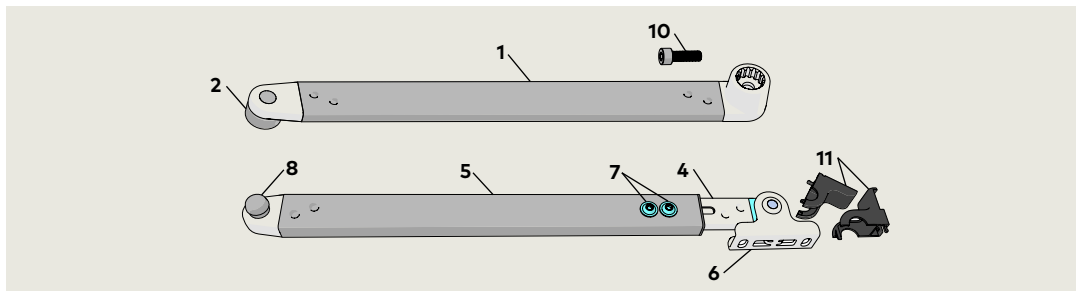
Fig. 16.1.1 Push arm assemblies



16.2 Hardware

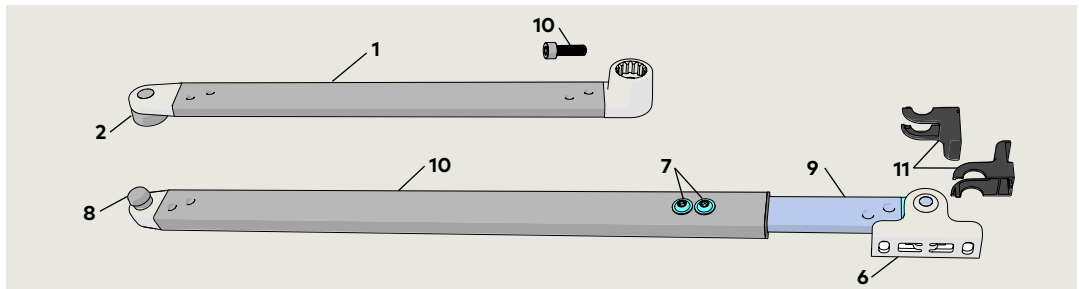
- 1 Splined drive arm
- 2 Socket
- 4 Adjustment arm 11 1/4" [285]
- 5 Adjustment arm tube 12 1/4" [311]
- 6 Shoe
- 7 M6 x 10 mm flanged button head screw
- 8 Ball head
- 11 Shoe screw cover
- 12 M8 x ___ SHCS
- 13 Cap

Fig. 16.2.1 Push arm assembly, 8 7/8" [225]



- 1 Splined drive arm
- 2 Socket
- 6 Shoe
- 7 M6 x 10 mm flanged button head screw
- 8 Ball head
- 9 Adjustment arm, 17 3/4" [450]
- 10 Adjustment arm tube, 17 3/4" [450]
- 11 Shoe screw cover
- 12 M8 x 1.25 x 40 mm SHCS
- 13 Cap

Fig. 16.2.2 Push arm assembly, 19 11/16" [500]



16.3 Install push arm assembly

Fig. 16.3.1 Drive arm installation, LH push

- 1 Splined drive arm
- 2 Axle extension
- 3 M8 x 1.25 x 40 SHCS

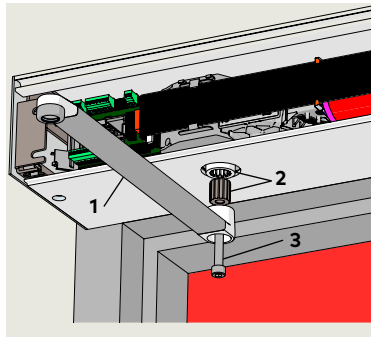
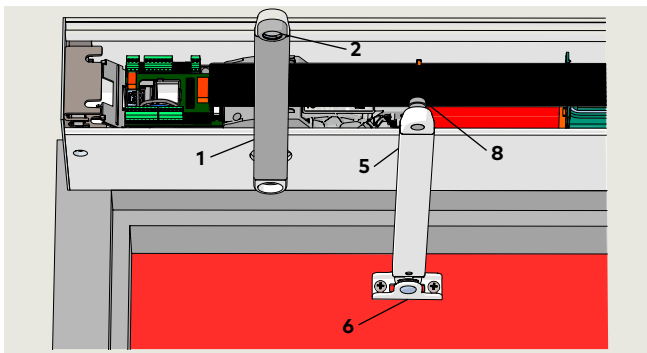


Fig. 16.3.2 Drive arm and adjustment arm installed



- 1 Splined drive arm
- 2 Socket
- 5 Adjustment arm
- 6 Shoe
- 8 Ball head

Fig. 16.3.3 Adjustment arm at 90 degrees

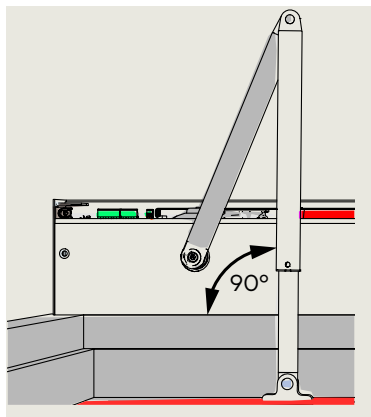
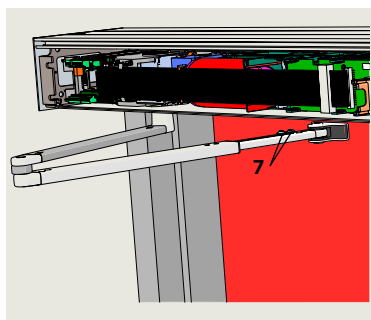


Fig. 16.3.4 Adjustment arm M6 screws

- 7 M6 x 10 mm flanged button head screw



16.3.1 Mount drive arm to operator.



WARNING

Use caution when working in proximity of door and push arm!.

CAUTION

ED operator axle zero position.

In order to mount the drive arm in the correct position, the spindle must be brought to the zero position.

1. Set ED operator spring preload to approximately ten clockwise rotations.
 - Spindle rotates to the zero position.



TIPS AND RECOMMENDATIONS

Reference Chapter 19, Operator spring tension.

2. Push drive arm and axle extension onto spindle at an angle of approximately 90° to the ED operator.
3. Thread M8 x __ mm SHCS into spindle and tighten M8 SHCS.

CAUTION

Use torque wrench with hex key socket to tighten M8 screw to 17 ft-lb [23 Nm].

16.3.2 Mount adjustment arm to door.

1. Locate and drill holes for adjustment arm shoe.
 - Select fasteners based on door material.

CAUTION

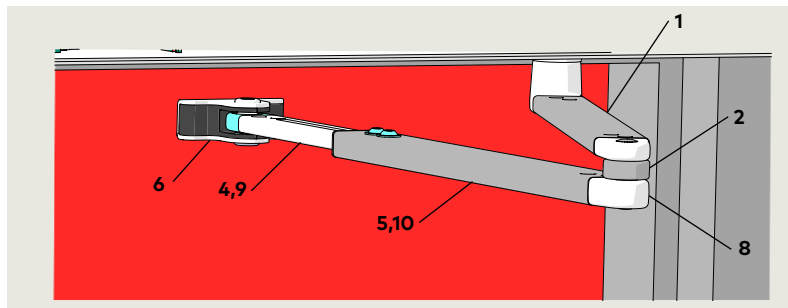
Use selected Installation template to locate mounting holes for adjustment arm shoe.

2. Fasten adjustment arm to door (Fig. 16.3.2).

16.3.3 Fasten adjustment arm to drive arm.

1. Loosen two M6 x 10 flanged button head screws on adjustment arm.
2. Align adjustment arm ball head with drive arm socket.
3. Push ball head into socket.
 - Spring in socket will retain ball head.
4. Rotate drive arm until adjustment arm is at a 90° angle to door.
5. Tighten two M6 x 10 flanged button head screws.

Fig. 16.3.5 Arm assemblies attached to door and ED50



- | | | |
|--------------------------------|--|---------------------------------------|
| 1 Drive Arm | 5 Adjustment arm tube 12 1/4" [311] | 8 Ball head |
| 2 Socket | 6 Shoe | 9 Adjustment arm, 17 3/4" [450] |
| 4 Adjustment arm 11 1/4" [285] | 7 M6 x 10 mm flanged button head screw | 10 Adjustment arm tube, 17 3/4" [450] |

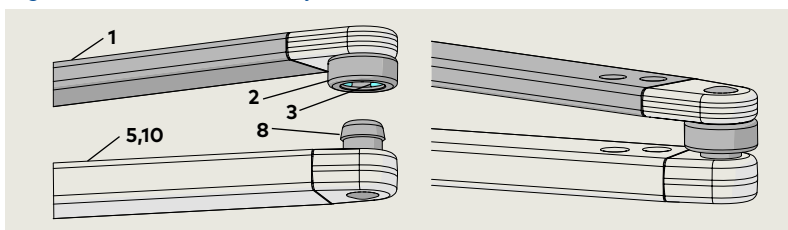
16.3.4 Connect adjustment arm to drive arm.

- Loosen the two adjustment M6 x 10 mm flanged button head screws (Fig. 16.3.5).
- Using square, position adjustment arm assembly at 90° angle to door (Fig. 16.3.8).
- Rotate drive arm and adjust length of adjustment arm until drive arm ball head (8) is aligned with adjustment arm socket (2).

CAUTION

Maintain adjustment arm assembly at a 90° angle to door.

Fig. 16.3.6 Drive arm, adjustment arm connection



- | | | |
|-------------|---------------------------------------|-------------|
| 1 Drive arm | 5 Adjustment arm tube 12 1/4" [311] | 8 Ball head |
| 2 Socket | 10 Adjustment arm tube, 17 3/4" [450] | |
| 3 Spring | | |

- Insert adjustment arm ball head (8) into drive arm socket (2).
 - Spring in socket will retain ball head in socket.
- Secure adjustment arm position by tightening the two M6 x 10 mm flanged button head screws.

CAUTION

Recheck that adjustment arm is at 90° angle to door.

- M6 x 10 mm flanged button head screw

Fig. 16.3.7 Adjustment arm M6 x 10 screws

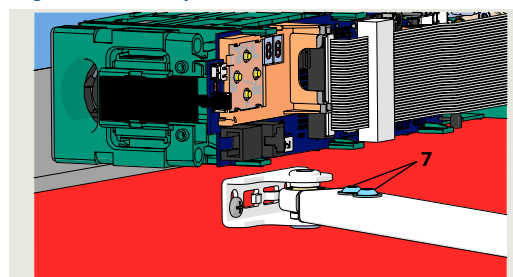
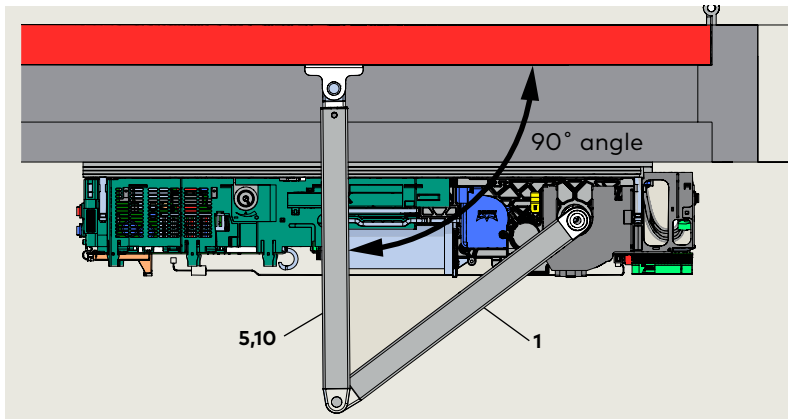




Fig. 16.3.8 Adjustment arm at 90° angle to door



- | | | |
|-------------|-------------------------------------|---------------------------------------|
| 1 Drive Arm | 5 Adjustment arm tube 12 1/4" [311] | 10 Adjustment arm tube, 17 3/4" [450] |
|-------------|-------------------------------------|---------------------------------------|

17 Measure reveal depth, door width

17.1 Reveal depth parameter rd

Parameter	Description	Reference paragraph
2  	Reveal depth	Para. 20.1.9

17.1.1 Reveal depth parameter.

1. Reveal depth is set in increments of 10 mm (approximately 3/8").
2. Measured reveal depth of 30 mm (approximately 1 3/16") equals **rd** parameter value of 3.

17.2 Record reveal depth measurement, rd value

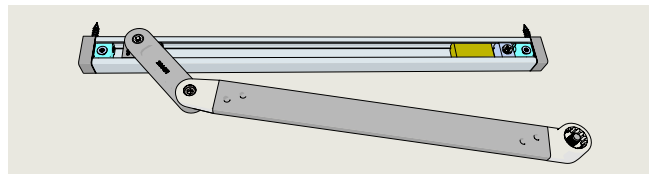
Parameter rd value	Reveal measurement

17.3 rd parameter values

17.3.1 ED100/ED250 reveal depths, rd parameter

Reveal measurement			Reveal measurement		
ED100/ED250			ED100/ED250		
Inches	[mm]	rd	Inches	[mm]	rd
-1 3/16	-30	-3	5 1/2	140	14
-3/4	-20	-2	5 7/8	150	15
-3/8	-10	-1	6 5/16	160	16
0	0*	0	6 11/16	170	17
3/8	10	1	7	180	18
3/4	20	2	7 1/2	190	19
1 1/8	30	3	7 7/8	200	20
1 9/16	40	4	8 1/4	210	21
1 15/16	50	5	8 5/8	220	22
2 3/8	60	6	9	230	23
2 3/4	70	7	9 7/16	240	24
3 1/8	80	8	9 13/16	250	25
3 1/2	90	9	10 1/4	260	26
3 15/16	100	10	10 5/8	270	27
4 5/16	110	11	11	280	28
4 3/4	120	12	11 7/16	290	29
5 1/8	130	13	11 13/16	300	30

Fig. 17.1.1 Arm with CPD lever with track



TIPS AND RECOMMENDATIONS

Use of arm and CPD lever (Fig. 17.1.1): Value of parameter **rd** must be reduced by 3/16" [30].

- Example: ED250 with CPD pull arm and lever in pull installation with reveal of 30 mm (1 1/8"). Parameter **rd** setting = 0 (Reveal of 30 mm - 30 mm).

17.3.2 ED250 additional reveal depths, rd parameter

Reveal measurement			Reveal measurement		
ED250			ED250		
Inches	[mm]	rd	Inches	[mm]	rd
12 3/16	310	31	16 1/8	410	41
12 5/8	320	32	16 9/16	420	42
13	330	33	16 15/16	430	43
13 3/8	340	34	17 5/16	440	44
13 3/4	350	35	17 3/4	450	45
14 3/16	360	36	18 1/8	460	46
14 9/16	370	37	18 1/2	470	47
15	380	38	18 7/8	480	48
15 3/8	390	39	19 1/4	490	49
15 3/4	400	40	19 11/16	500	50

*Factory setting

Fig. 17.1.2 Positive reveal

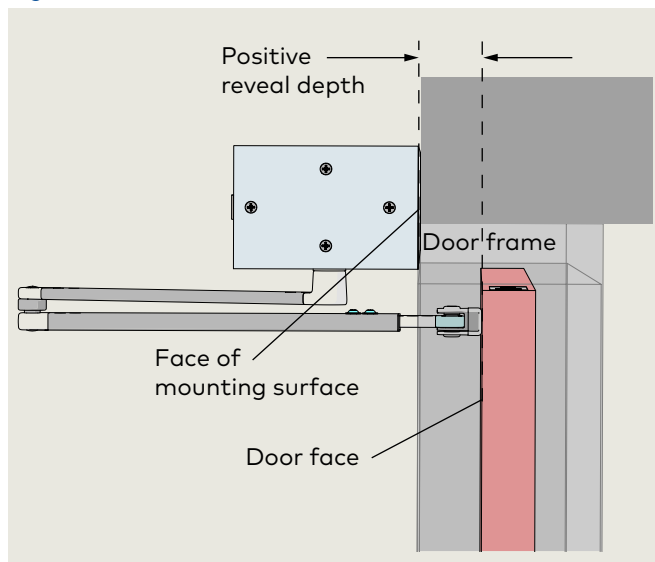
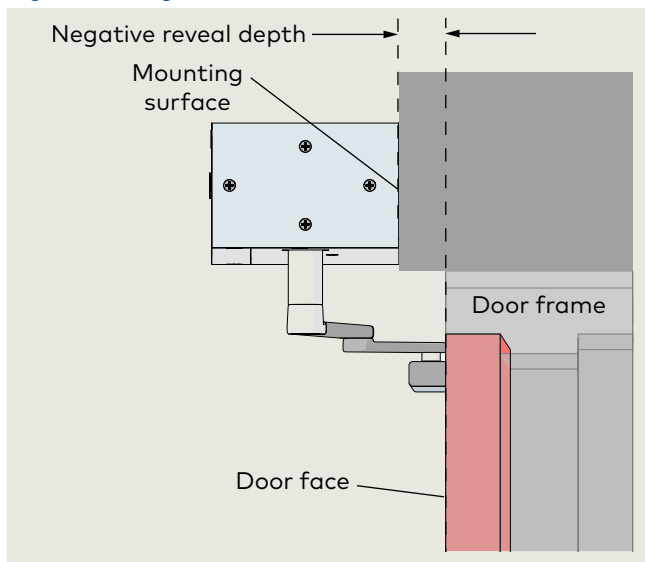


Fig. 17.1.3 Negative reveal



17.4 Door width parameter Tb

Parameter	Description	Reference paragraph, parameters
2 Tb	Door width	Para. 20.1.9

17.4.1 Door width parameter

Door width is set in increments of 100 mm (4"),
 Measured width of 1000 mm (39.4") = **Tb** value of "10".
 ED100: [700-1219 mm] 28" -48"
 ED250: [700-1219 mm] 28" -48"

17.5 Record door width measurement, Tb value

Parameter Tb value	Door width measurement

17.6 Tb parameter values

17.6.1 ED100/ED250 door widths

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

18 Braking circuit plug

18.1 Braking circuit plug position

Fig. 18.1.1 Braking circuit socket and plug, plug factory installed in pull installation location

- 1 Braking circuit plug
- 2 Braking circuit 3 pin socket
- 3 User interface

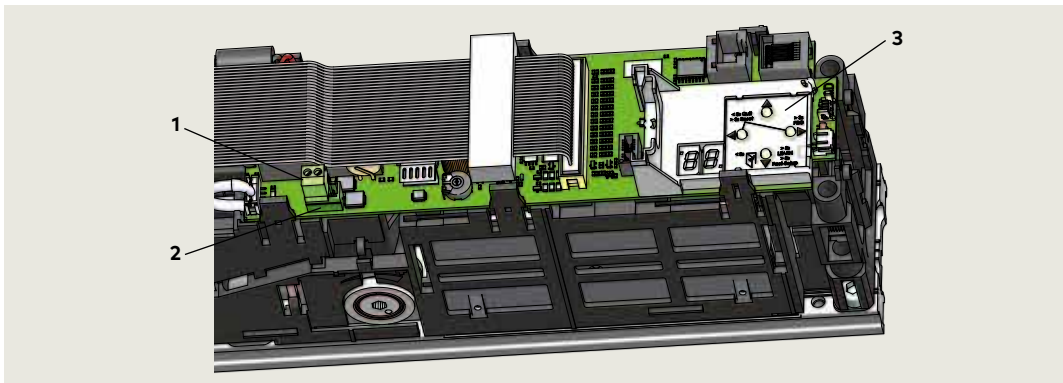


Fig. 18.1.2 Plug position, pull installation

- 1 Braking circuit plug
- 2 Braking circuit 3 pin socket

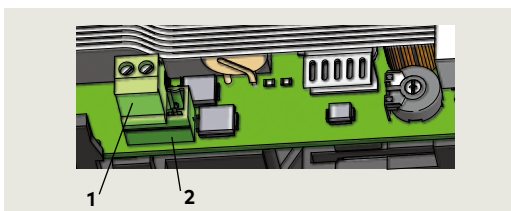


Fig. 18.1.3 Power switch

- 4 Power switch (shown ON)

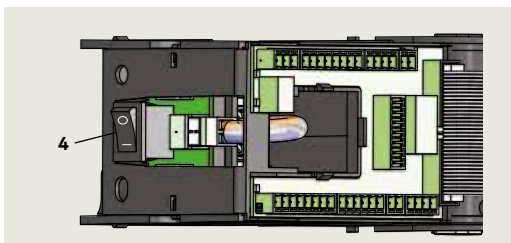


Fig. 18.1.4 Plug position, push installation

- 1 Braking circuit plug
- 2 Braking circuit 3 pin socket

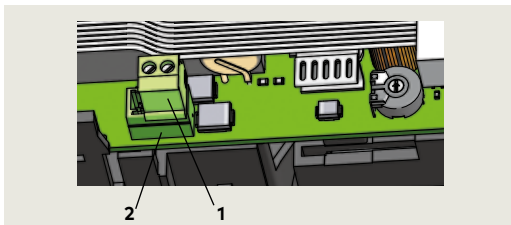
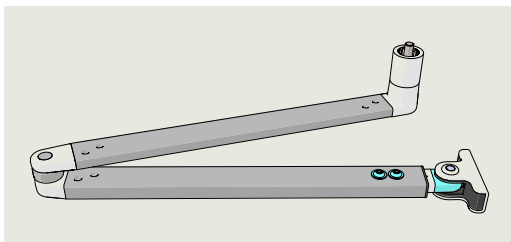


Fig. 18.1.5 Standard push arm



18.1.1 Braking circuit plug.

Operator braking circuit plug is positioned in its 3 pin socket for a push or pull installation.



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!

18.1.2 Factory-installed plug position.

Braking circuit plug is factory installed in the left two pins, the pull installation position (Fig. 18.1.1 and Fig. 18.1.2).

18.1.3 Change braking circuit plug position to push installation.

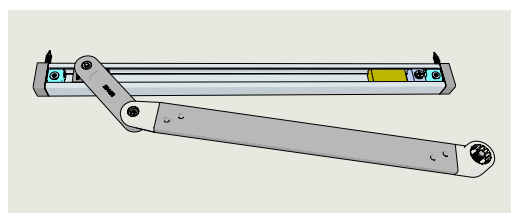
To change plug position for push installation, install plug in right two pins, toward user interface (Fig. 18.1.4).



WARNING

Insure power switch is OFF before changing plug position!

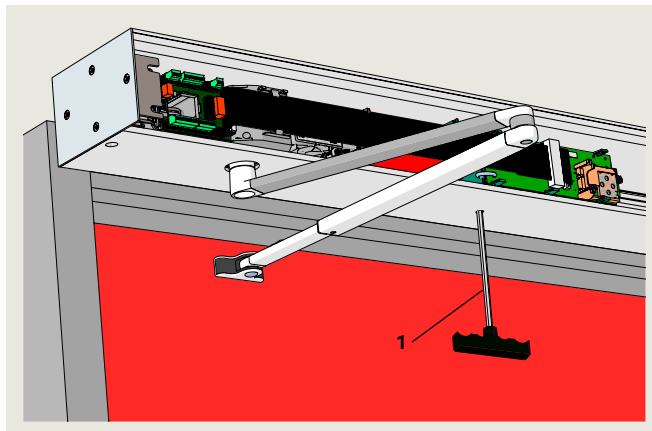
Fig. 18.1.6 Arm and CPD lever and track, pull or push installation



19 Operator spring tension

19.1 Set operator spring tension

Fig. 19.1.1 Spring tension adjustment



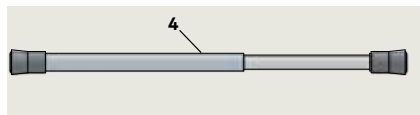
- 1 T handle hex key for spring tension adjustment

19.1.1 Spring tension setting revolutions.

Door width				
Inches	32	36	42	48
mm	813	914	1067	1219
Spring setting revolutions				
ED100	10	14	16	18
ED250	10	10	14	18

Fig. 19.1.2 Door pressure gauge

- 5 Door pressure gauge



19.1.2 Operator spring tension function.

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

19.1.3 Spring tension adjustment factory setting.

1. Spring tension adjustment is factory set fully CCW, no spring tension.
2. Pretension spring per Para. 19.1.1.

CAUTION

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

CAUTION

Any change to spring tension setting requires a new learning cycle (Chapter 22)!

19.1.4 Check door closing force.

1. Table 19.1.1 lists approximate spring tension settings.
2. Use pressure gauge to check door closing force at 2° and adjust tension setting if necessary.
3. For reveals greater than 11 5/16" [300 mm] check minimum closing force between 88° and 92°.



TIPS AND RECOMMENDATIONS

Reference Chapter 29, ANSI/BHMA standards for closing forces.



TIPS AND RECOMMENDATIONS

System checks spring tension during learning cycle (Chapter 22). Learning cycle will be canceled if spring is insufficiently tensioned; door will stop and display will show a rotating "0" and an "F".

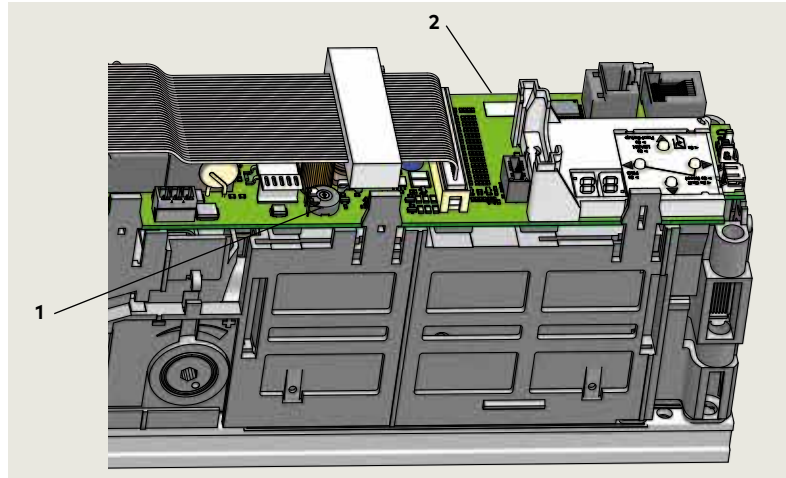


20 Power fail closing speed

20.1 Set power fail closing speed

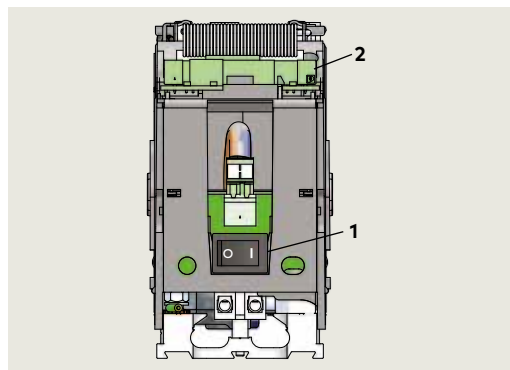
- 1 Power fail closing speed potentiometer
- 2 Control board

Fig. 20.1.1 Power fail closing speed potentiometer



- 1 Power on switch
- 2 Terminal board

Fig. 20.1.2 Power on switch



20.1.1 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.

20.1.2 Setting door closing speed upon power failure.

1. Turn ED100 / 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.

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.



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.

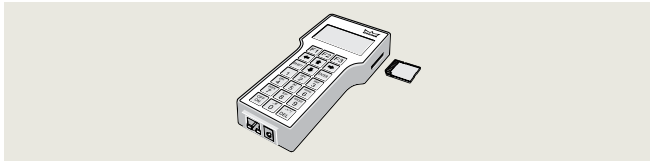
21 Parameters

21.1 Parameters

21.1.1 Firmware version and updates.

- Operator firmware version is displayed during first commissioning. Reference Chapter 22.
- 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. 21.1.1 dormakaba handheld terminal



21.1.2 Configuration parameters.

Configuration parameters (Para. 21.1.6) are set during first commissioning (Chapter 22).

21.1.3 Driving parameters.

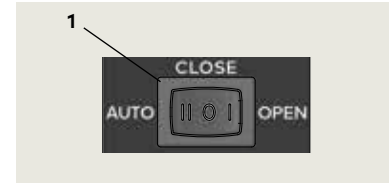
Driving parameters can be set once first commissioning has been completed.

- Reference Para. 21.1.6 for a list of driving parameters.
- Reference Appendix A for details on each driving parameter.

21.1.4 Changing parameter values

1. Set program switch to the CLOSE position

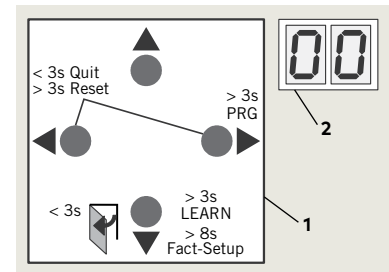
Fig. 21.1.2 Program switch



- 1 Program switch, 3 position

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

Fig. 21.1.3 4 button keypad, 2 digit display



- 1 4 button keypad
- 2 2 digit display

Step 1 ▶	Press and hold right button > 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.

21.1.5 Configuration parameters

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



21.1.6 Driving parameters

Reference Appendix A, Parameters

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

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

21.1.7 Configuration parameters, detail

Parameter and value range. Factory setting = bold .	Parameter description
Installation type	
1  0 - 5 0	Pull <ul style="list-style-type: none"> Arm with track (Fig. 21.1.4). Arm and CPD lever with track (Fig. 21.1.5). Wall mounting on swing (hinge) side.
	Push <ul style="list-style-type: none"> Standard push arm (Fig. 21.1.6). Deep reveal push arm (Fig. 21.1.7) Wall mounting on approach (non-hinge) side.
	Push <ul style="list-style-type: none"> Arm with track (Fig. 21.1.4). Arm and CPD lever with track (Fig. 21.1.5). Wall mounting on approach (non-hinge) side.
	OHC RH <ul style="list-style-type: none"> Overhead concealed (OHC), right hand (v2.1)
	OHC LH <ul style="list-style-type: none"> OHC, left hand (v2.1)
5 Push <ul style="list-style-type: none"> ANSI door closer size ≥ 6, greater than 1400 mm (55.1") width Mounting version only used with gearbox with splined shaft axle. Wall mounting on approach (non-hinge) side.	
Reveal depth	
2  ED100 -3 to 30 ED250 -3 to 50 0	Reveal is set in increments of 10 mm (3/8"), "3" = 30 mm (1 1/8"). <ul style="list-style-type: none"> ED100: [-30 to 300mm] -13/16" to 11 13/16" ED250: [-30 to 500mm] -13/16" to 19 11/16" If using CPD lever (Fig. 21.1.5), approximately 3/16" [30 mm] must be deducted from actual reveal (Para. 17.1).

21.1.8 Arm with CPD lever; rd parameter adjustment.

- Value of parameter **rd** must be reduced by 3/16" [30] when using the arm and CPD lever in a pull installation.
- Example: ED250 with arm and CPD lever in pull installation with reveal of 30 mm (1 1/8"). Parameter **rd** setting = 0 (Reveal of 30 mm - 30 mm).



		Door width
3 	ED100 7 to 11	Door width is set in increments of 100 mm (4"), "10" = 1000 mm (39.4"). <ul style="list-style-type: none"> ED100: [711 - 1219mm] 28" - 48" ED250: [711- 1219 mm] 28" - 48"
	ED250 7 to 16	
		10
Door type		
		0 Single door
		Pair doors <ul style="list-style-type: none"> Overlapping door (with astragal) Active door operator.
4 	0 to 4	Pair doors <ul style="list-style-type: none"> Overlapping door (with astragal) Passive door operator.
	0	
		Pair doors <ul style="list-style-type: none"> Edgeless door (no astragal) Active door operator.
		Pair doors <ul style="list-style-type: none"> Edgeless door (no astragal) Passive door operator.

Fig. 21.1.4 Arm with track

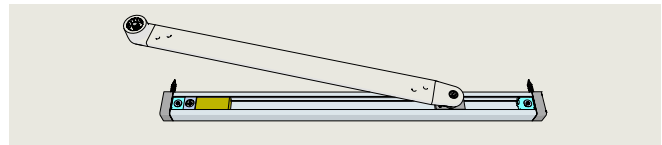


Fig. 21.1.5 Arm and CPD lever with track

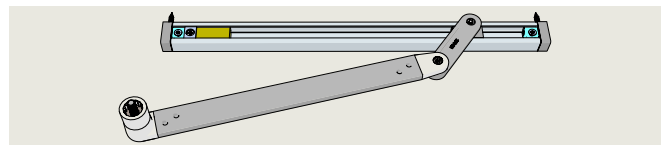


Fig. 21.1.6 Standard push arm

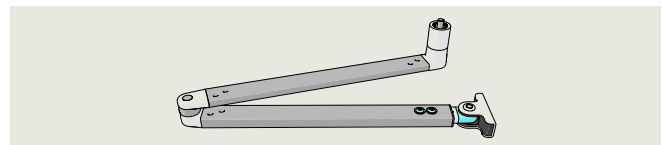
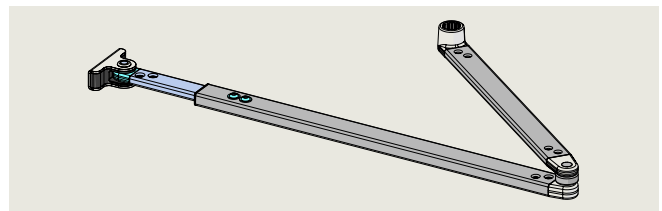


Fig. 21.1.7 Deep reveal push arm



21.1.9 Arm with track in a push installation [Application specific].

- For doors without fire or smoke detection requirements.
- Maximum reveal depth of 2 3/8" [60].
- Maximum opening width at a reveal depth of 2 3/8" [60] is reduced to 95 degrees.

22 Single door first commissioning

22.1 First commissioning

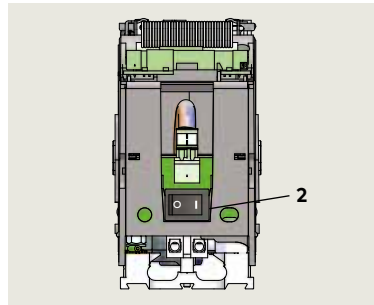
- 1 Program switch, 3 position

Fig. 22.1.1 Program switch



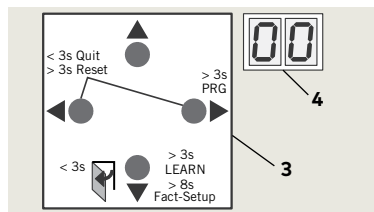
- 2 Power switch

Fig. 22.1.2 Power switch



- 3 Four button keypad
- 4 Two digit display

Fig. 22.1.3 4 button keypad, 2 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. Header with operator is installed.
2. Standard push arm or arm with track is installed.
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!

22.1.1 First commissioning.

Step 1	Program 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 (Ed 100 or Ed250) • Firmware version (format F x x x x)
	Program mode display. Program mode will be displayed indicating system requires further parameter settings.

22.2 Set configuration parameters

22.2.1 Set parameter AS, installation type.

Step 1 Press		Press and hold PRG > 3 s to enter program mode, AS parameter displayed. If no change required, go to step 7.
Step 2 Press		Displays "00", factory setting.
Step 3 Press		"00" starts flashing.
Step 4 Press		Scroll to select parameter value. "1" shown as example.
Step 5 Press		Saves value entered. Display stops flashing.
Step 6 Press		Returns to Installation type parameter.

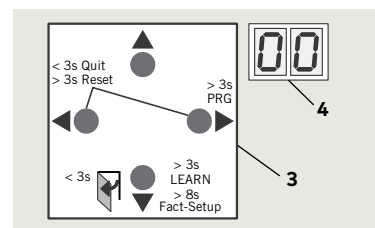
22.2.2 Set parameter rd, reveal depth.

Step 7 Press		Scroll to rd parameter.
Step 8 Press		Displays "00", factory setting.
Step 9 Press		"00" starts flashing.
Step 10 Press		Scroll to select parameter value. "6" shown as example.
Step 11 Press		Saves value entered. Display stops flashing.
Step 12 Press		Returns to reveal depth parameter.

Configuration parameter settings continue on next page..

Fig. 22.2.1 4 button keypad, 2 digit display

- 3 Four button keypad
- 4 Two digit display



	Installation type
Parameter value	Parameter description
0*	Pull arm with track, wall mounting on swing (hinge) side.
1	Push arm, wall mounting on approach (opposite hinge) side.
2	Push arm with track, wall mounting on approach (opposite hinge) side.
3	Overhead concealed (OHC) RH
4	OHC LH
5	ANSI door closer size ≥ 6, greater than 1400 mm (55.1") width (v2.2).
*	Factory setting



TIPS AND RECOMMENDATIONS

Reference Chapter 17 for reveal depth parameter values.

22.2.3 Set parameter Tb, door width.


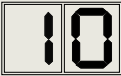



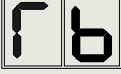

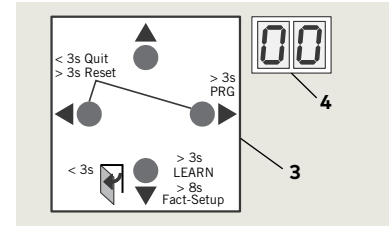
Step 13 Press ▼		Scroll to Tb parameter.
Step 14 Press ▶		Displays "10", factory setting.
Step 15 Press ▶		"10" starts flashing.
Step 16 Press ◆		Scroll to select parameter value. "7" shown as example.
Step 17 Press ▶		Saves value entered. Display stops flashing.
Step 18 Press ◀		Returns to door width parameter. If single door, exit program mode (Step 19).
Step 19 Press ◀		Exits program mode. Display indicates "ready for learning cycle".

Fig. 22.2.2 4 button keypad, 2 digit display

- 3 Four button keypad
- 4 Two digit display



i TIPS AND RECOMMENDATIONS

Reference Chapter 17 for door width parameter values.






22.2.4 Parameter dL, door type.

i TIPS AND RECOMMENDATIONS

Parameter **dL** factory setting is 0, single door. Reference Chapter 23 for double door commissioning.

22.3 Key switch option; set parameter PS, program switch type

22.3.1 Full width cover option – set parameter PS to 1.

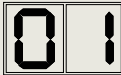


Step 1 Press ▶		Press and hold PRG > 3 s to enter program mode, AS parameter displayed.
Step 2 Press ▼		Scroll to PS (Program switch type) parameter.
Step 3 Press ▶		Displays "00", factory setting.
Step 4 Press ▶		"00" starts flashing.
Step 5 Press ◆		Scroll to select parameter value "1", External mechanical program switch connected to operator terminal board.

CAUTION

Key switch option –

Program switch wired to ED100/ED250 terminal board. Reference Appendix E.

Parameter **PS** (Program switch type) must be set to 1.

Step 6 Press ▶		Saves value entered. Display stops flashing.
Step 7 Press ◀		Returns to program switch parameter.
Step 8 Press ◀		Exits program mode.

22.4 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 (Para. 22.2):

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



TIPS AND RECOMMENDATIONS









During learning cycle:

- Safety sensors and activators, are switched off to insure learning cycle sequence is not interrupted.
- Operator functions are deactivated.



WARNING

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

Step 1	Secure motion range of door.
Step 2	 <p>Set program switch to CLOSE position.</p>
	 <p>Rotating "o" and a "0" indicates operator learning cycle is required.</p>
Step 3 Press ▼	 <p>Press and hold down button until display changes.</p> <ul style="list-style-type: none"> • Door performs several movements and display shows a sequence of symbols. • Movements of door must not be interrupted!
	 <p>Display indicates door is at 70° position and is waiting for door opening angle to be set.</p>
Step 4	<ul style="list-style-type: none"> • Manually move door to desired opening angle. • Maximum door angle is 110°.
Step 5 Press ▼	 <p>Momentarily press down button to continue learning cycle.</p> <ul style="list-style-type: none"> • Door performs several movements and display shows a sequence of symbols. • Movements of door must not be interrupted!
	 <p>Operator spring tension too low.</p> <ul style="list-style-type: none"> • Display with small rotating "o" and an "F" during learn cycle indicates spring tension is too low. • Door will close. <ol style="list-style-type: none"> 1. Increase spring tension (Chapter 19). 2. Restart learning cycle (Step 3).
	 <p>Door completes learning cycle.</p> <ul style="list-style-type: none"> • 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, reference Chapter 30.
Step 9	 <p>Set program switch to Auto.</p>

23 Double door first commissioning

23.1 Separately commission active and inactive doors

23.1.1 Commission active door first.

1. Refer to Para.22.1 and commission active door.

23.1.2 Commission inactive door.

1. Refer to Para.22.1 and commission inactive door.

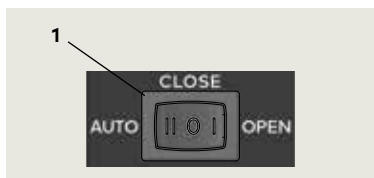
23.2 Set operator parameters for double door operation

23.2.1 Active door, set parameters dL and Ad.

1. Set program switch to CLOSE.
2. Set parameters dL (door type) and Ad (caster angle) for active door.
 - Caster angle sets opening angle of active door before inactive door starts to open. Factory setting is 30°.

Fig. 23.1.1 Program switch

1 Program switch, 3 position



Step 1 Press		Press and hold PRG > 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.

	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 8 Press		Scroll to Ad parameter.
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.

23.2.2 Inactive door, set parameter dL.

1. Set program switch to CLOSE.
2. Set parameter dL (door type) for inactive door.

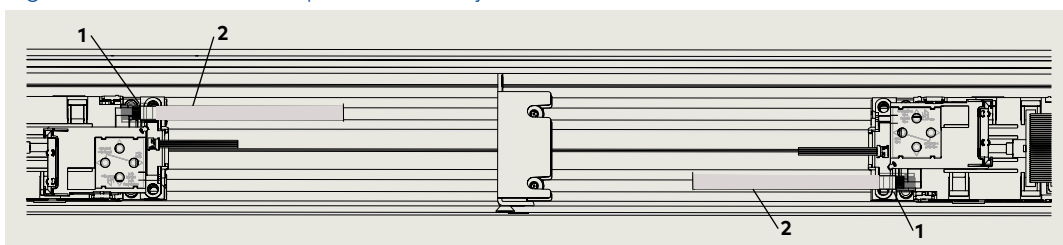
Step 1 Press		Press and hold PRG > 3 s to enter program mode, AS parameter displayed.
Step 2 Press		Scroll to dL parameter.
Step 3 Press		Displays "00", factory setting.
Step 4 Press		"00" starts flashing.

Step 5 Press		Scroll to select parameter value ("3" 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.

23.3 Connect communication cable between operators

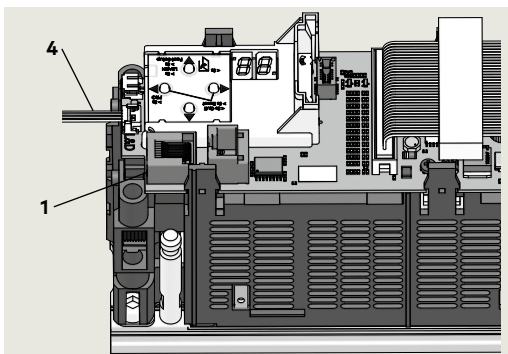
- 1 RJ45 jack (horizontal) for communication cable

Fig. 23.3.1 Double door operators, RJ45 jack for communication cable



- 1 RJ45 jack
- 4 Program switch cable

Fig. 23.3.2 RJ45 jack



23.3.1 Install communication cable.

1. Set program switch to CLOSE.
2. Connect communication cable to active and inactive operator RJ45 jacks.
3. Secure cable to header

23.3.2 Test door operation,

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

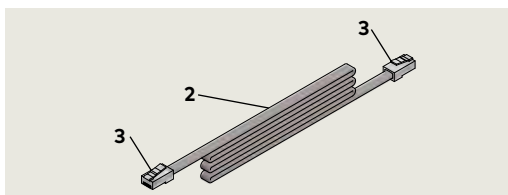


TIPS AND RECOMMENDATIONS

IF sensors have not been connected, set program switch to OPEN, and after doors have opened set back to CLOSE.

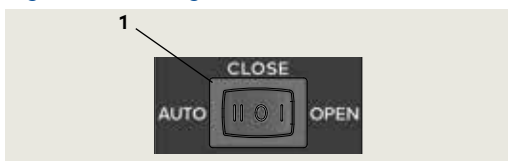
- 2 Communication cable, 36" long DX4607
- 3 RJ45 plug

Fig. 23.3.3 Communication cable



- 1 Program switch, 3 position

Fig. 23.3.4 Program switch



24 Connect accessory wiring

24.1 Connect accessory wiring

24.1.1 Connect accessory wiring.



TIPS AND RECOMMENDATIONS

- Reference Chapter 10, System Accessories.
- Reference ED100/ED250 Sensors Installation and Wiring Instructions Manual.

1. Terminate all accessory wiring at ED100/ED250 terminal board.
2. Secure all accessory wiring.

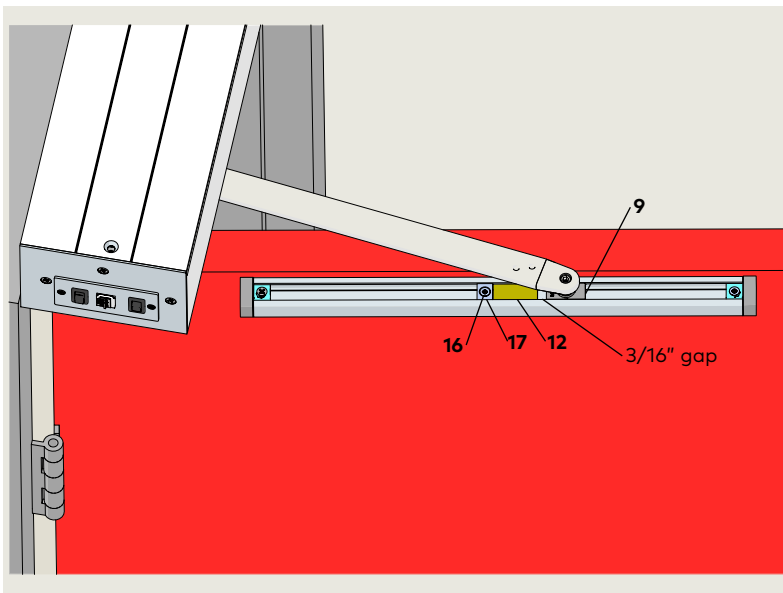
24.1.2 Test system accessories.

Test functionality of all accessories.

25 Set track bumper stop

25.1 Set track bumper stop position

Fig. 25.1.1 Door at set opening angle, bumper stop set



- | | | | |
|----|------------|----|------------------------------|
| 9 | Slide shoe | 16 | MM5 x 13 FHMS cross recessed |
| 12 | Bumper | 17 | Bumper stop |

25.1.1 Set bumper stop position.

1. Set program switch to OPEN.
2. Door moves to set opening angle.



WARNING

Use caution when working in proximity of door and track.

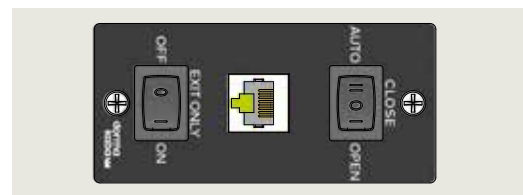
3. Slide bumper and bumper stop toward slide shoe until bumper is 3/16" from edge of slide shoe.
4. Tighten bumper stop M5 screw. Do not overtighten.

CAUTION

Using program switch, close then open door to verify gap between bumper and slide shoe with door at full open position.

25.1.2 Place program switch in AUTO.

Fig. 25.1.2 Program switch panel



27 Install push arm door stop

27.1 Install push arm bumper stop (optional assembly)

- 1 1/2" thick base plate
DC4633-002
- 2 1/4" thick base plate
DC4633-001
- 3 Rubber bumper
DC4633-003
- 4 Shoulder screw
DC4633-004
- 5.1 1/4 x 1 1/4" Phillips FHS, black oxide, SS

Fig. 27.1.1 Bumper stop assembly

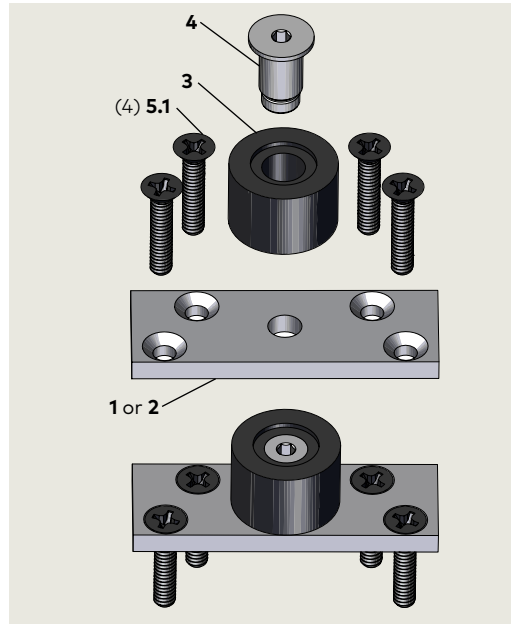
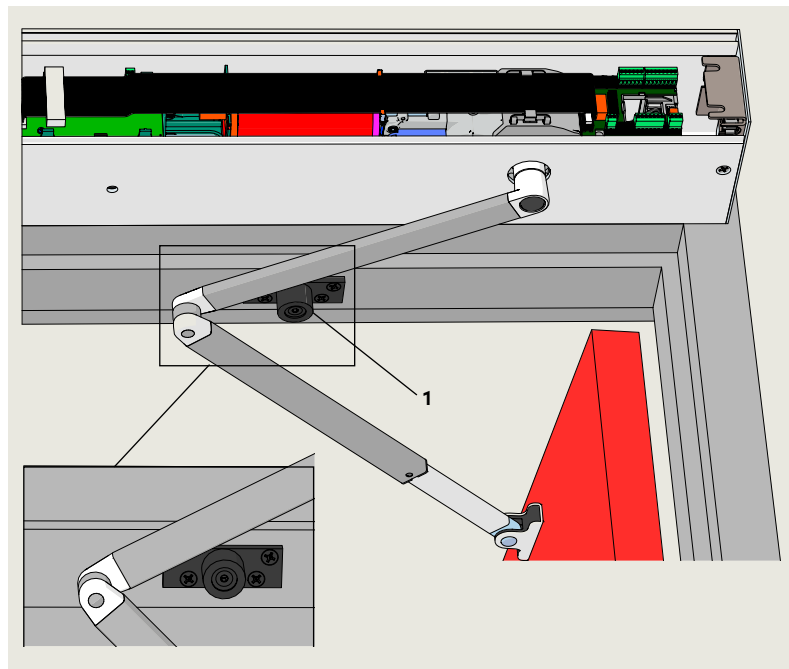


Fig. 27.1.2 Bumper stop installed



TIPS AND RECOMMENDATIONS

Contact local dormakaba USA, Inc. distributor for bumper stop assembly DC4633.

27.1.1 Assemble bumper stop.

1. Attach bumper to bumper mounting plate with 1/2" shoulder screw. Use 5 mm hex key.

27.1.2 Open door.

1. Set program switch to OPEN.
2. Door moves to set opening angle.



WARNING

Use caution when working in proximity of door and push arm!

27.1.3 Locate bumper stop on door frame.

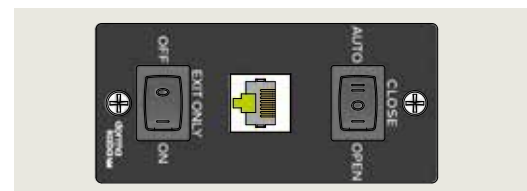
1. With door at its full open position locate bumper on door frame 1/8" beyond arm.
2. Mark mounting plate hole locations on frame. Plate hole diameter is 1/4".
3. Select screws based on door frame material.
4. Attach bumper stop to door frame.

CAUTION

Using program switch, close then open door to verify gap between bumper and slide shoe with door at full open position.

27.1.4 Place program switch in AUTO.

Fig. 27.1.3 Program switch panel



28 Install header cover

28.1 Install header cover

28.1.1 Install header cover.

CAUTION

Before installing cover, check header assembly:

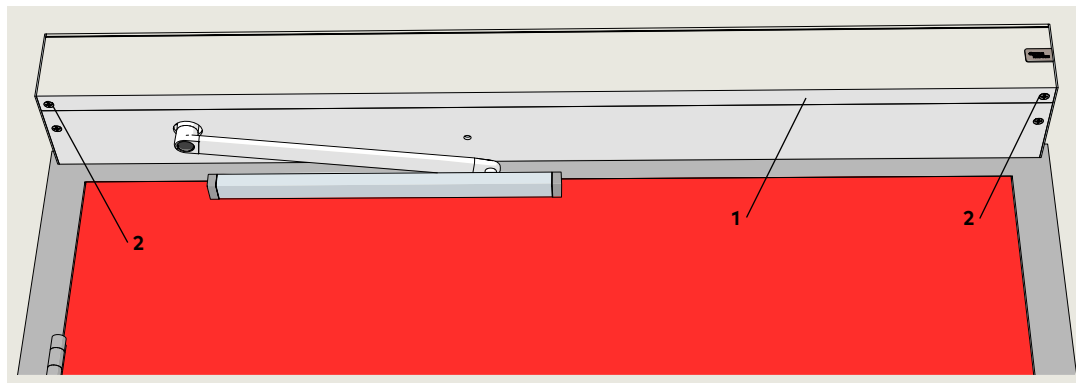
- All wiring secured.
- No pinched wiring.
- Remove any debris in header; assembly must be clean.

1. Install header cover on header and secure with supplied flat head screws.

Note: Headers with pull arms shown as an example.

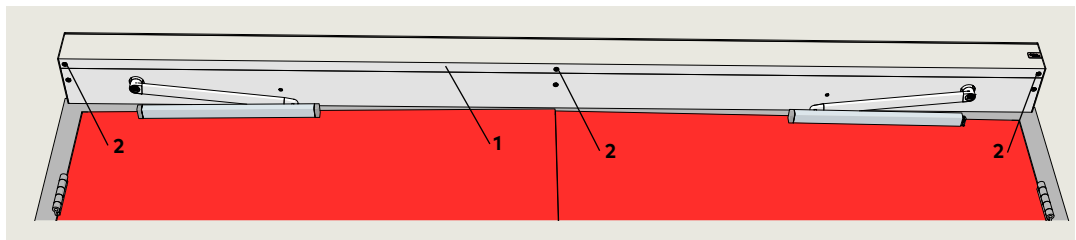
- 1 Header cover
- 2 Flat head screw

Fig. 28.1.1 Single door header with cover installation



- 1 Header cover
- 2 Flat head screw

Fig. 28.1.2 Double door header with cover installation



29 Install door signage

29.1 Install door signage

29.1.1 Install door signage based on type of door and ED100/ED250 operator configuration.

Install applicable door signage as outlined in Chapter 11, ED100/ED250 door signage.

30 ANSI/BHMA standards

30.1 A156.10 Power operated pedestrian doors

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.

Reference Appendix A for additional parameter detail.

30.1.1 Door measurements, power operated swing door.

ED100/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%/s	ED100 8%/s - 50%/s ED250 8%/s - 60%/s	10.2.1	Swing door opening time to 80°, not less than 1.5 s.
Sc	Closing speed automatic mode	Swing door closing speed, automatic mode.	25%/s	ED100 8%/s - 50%/s ED250 8%/s - 60%/s	10.2.5	Swing door closing time to latch check. Reference 28.1.2.
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 Reduced in low energy mode.	10.2.2	Not to 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 Reduced in low energy mode	10.2.7	Not to exceed 30 lb f measured 1" from lock edge of door at any point in closing cycle.
bc	Back check	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 (F2 parameter set to full energy)	10.2.4	Minimum of 1.5 seconds after loss of detection.
	Latch check	Checking or slowing down of door speed before door being fully closed.		Not adjustable	10.2.6	Not less than 10° from closed position. The door will not close through the final 10° in less than 1.5 s.
hS	Reference Appendix A for parameter detail.	Support for manual mode in door closed position.			10.2.8	Manual opening force in event of power failure. Not greater than 30 lb f applied 1" from edge of lock stile to open.
hA		Adjustment, door activation angle.				
hF		Power assist function.				

30.1.2 A156.10, 10.2.5 swing door closing time to latch check.

"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

30.1.3 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.

30.2 A156.19 Low energy power operated doors

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 Appendix A for additional parameter detail.

30.2.1 Door measurements, low energy power operated door.

ED100 Parameter				A156.19 standard		
Parameter	Function	Factory setting	Adjustment range	Para.	Requirement	
So	Opening speed	Swing door opening speed	19%/s Note 1	ED100 8%/s - 60%/s ED250 8%/s - 60%/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	Back check	Checking or slowing down of door speed before door being fully opened.	10°	5° - 40°	4.2	Back check shall not occur before 60° opening.
Sc	Closing speed	Swing door closing speed, automatic mode.	19%/s Note 1	ED100 8/s - 50%/s ED250 28/s - 60%/s	4.4	Closing Doors shall close from 90° to 10° in 3 seconds or longer as required in Table I (next page). Doors shall close from 10° to fully closed in not less than 1.5 seconds.
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 seconds. Exception: when push-pull activation is used, the door shall remain at the fully opened position for not less than 3 seconds.
hS	Reference Appendix A for parameter detail.	Support for manual mode in door closed position.			4.5	Doors shall open: <ul style="list-style-type: none"> 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 - 33.7 lb f Reduced in low energy mode.	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 33.7 lb f Reduced in low energy mode.	4.5	

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

30.2.2 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).

30.2.3 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.		

30.2.4 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.

This page left intentionally blank.

31 Upgrade cards

31.1 Upgrade cards

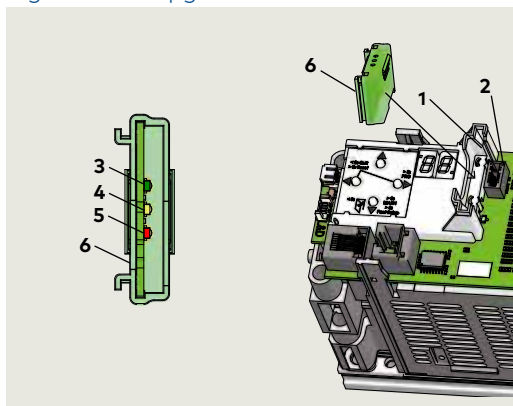
31.1.1 Upgrade card installation.

dormakaba upgrade cards can be used to expand the range of functions of ED100/ED250 operators.

When upgrade cards are installed, information is exchanged between and permanently allocated to both the operator control unit and the upgrade card.

Fig. 31.1.1 Upgrade card slot

- 1 Upgrade card slot
 - 2 Upgrade card socket
- Status LEDs
- 3 Green LED
 - 4 Yellow LED
 - 5 Red LED
 - 6 Upgrade card professional (green)



31.1.2 Upgrade cards.

Upgrade card	EDxxx	Upgrade card color	Paragraph
Fire protection	ED100	Red	
	ED250	Transparent red	
DCW	ED100/ ED250	Yellow	
Barrier free toilet	ED100/ ED250		

31.2 Container module

31.2.1 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.

31.2.2 Container module removal.

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

31.2.3 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.

31.2.4 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.

31.2.5 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.

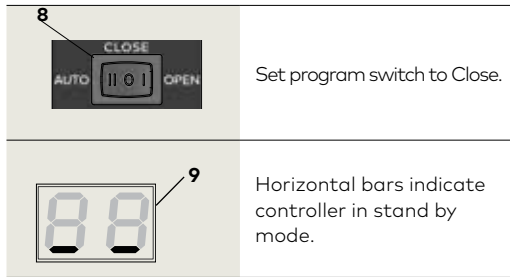
31.2.6 Container module defective.

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

31.3 Installing upgrade cards

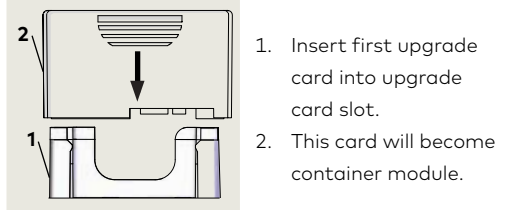
31.3.1 Set program switch to CLOSE.

- 1 Upgrade card slot
- 6 Second upgrade card
- 7 Container module
- 8 Program switch
- 9 2 digit display with horizontal bars



31.3.2 Installing first upgrade card.

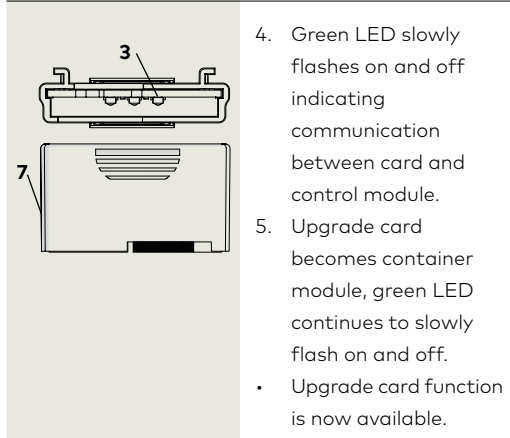
- 1 Upgrade card slot
- 2 First upgrade card



- 4 Yellow LED
- 7 Container module



- 1 Upgrade card slot
- 3 Green LED
- 7 Container module



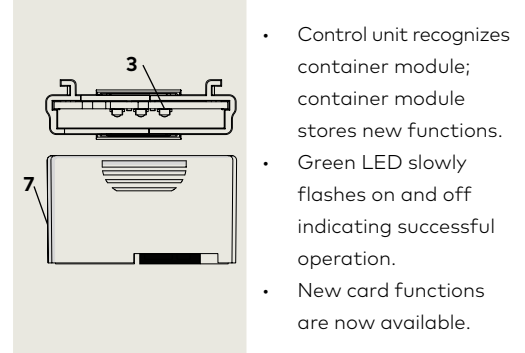
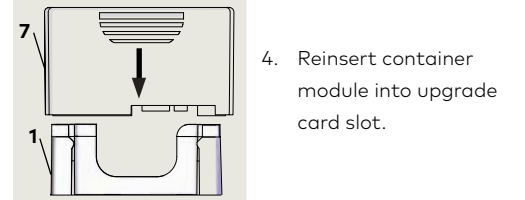
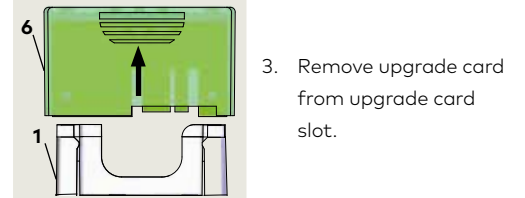
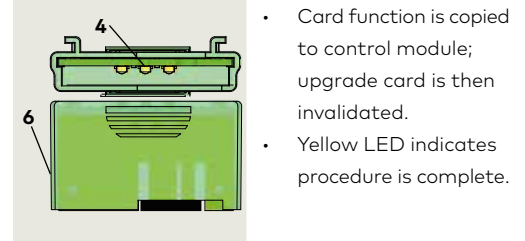
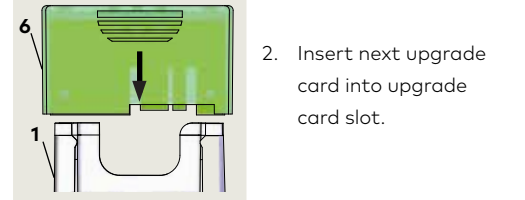
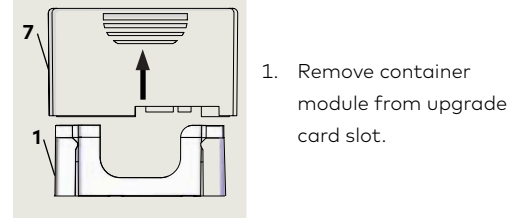
- 3 Green LED
- 7 Container module



TIPS AND RECOMMENDATIONS

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

31.3.3 Installing additional upgrade cards.



TIPS AND RECOMMENDATIONS

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

32 Maintenance

32.1 Safety label, automatic swing doors

32.1.1 Automatic swinging door safety information label.

This AAADM label outlines safety checks that should be performed daily on full power automatic swinging door controlled by an:

- ED100 operator
- ED250 operator

32.1.2 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 a AAADM certified dormakaba USA, Inc. technician.

32.1.3 Additional annual compliance inspection labels.

Place additional labels over annual compliance inspection section of safety information label.

32.2 Safety label, low energy swinging doors

32.2.1 Low energy swinging door safety information label.

This AAADM label outlines safety checks that should be performed daily on low energy swinging door controlled by an:

- ED100 operator
- ED250 operator

32.2.2 Safety information label location.

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

32.2.3 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.

32.2.4 Additional annual compliance inspection labels.

Place additional labels over annual compliance inspection section of safety information label.

Fig. 32.1.1 Annual compliance inspection labels

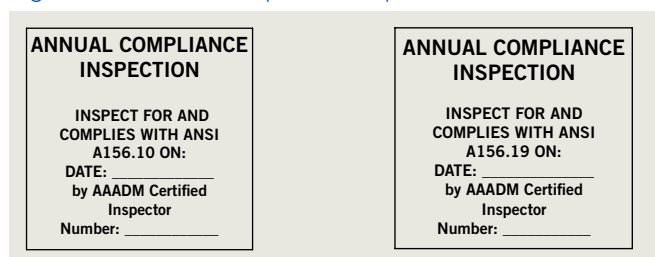
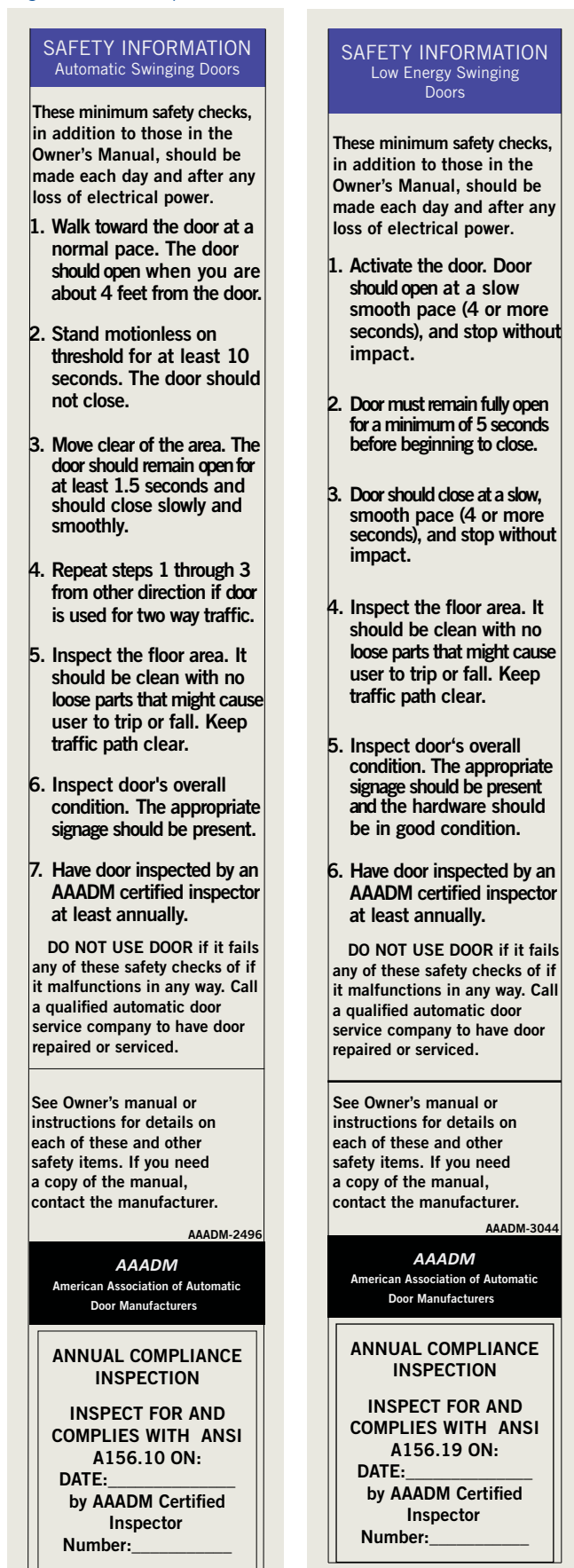


Fig. 32.1.2 Safety information labels



32.3 ED100/ED250 environment and cleaning

Table 32.3.1 Operator environmental requirements.

Ambient temperature	5 to 122 °F
---------------------	-------------

Fig. 32.3.1 ED100/ED250 header



32.3.1 ED100/ED250 environmental requirements.

ED100/ED250 header assembly is designed to operate on an interior building surface under the specifications shown in Table 32.3.1.

32.3.2 Areas around door(s) and door swing radius.

Areas around doors and door swing radius must be kept clear of all obstacles.

32.3.3 Cleaning



WARNING

Cleaning of header surfaces must be done with program switch in Close position!

External surfaces of header can be cleaned with a damp cloth and commercial cleaning agents.



TIPS AND RECOMMENDATIONS

Abrasive (scouring) agents should not be used as they may damage external surfaces.

32.3.4 Water and other liquids.

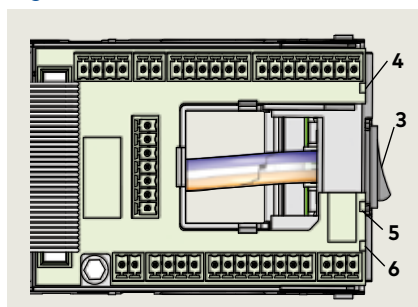
CAUTION

No water or other liquids must be sprayed or spilled on ED100/ED250 header!

32.4 Yellow LED, service level

Fig. 32.4.1 Service level indicator

- 3 Power switch
- 4 Red LED
- 5 Yellow LED
- 6 Green LED



32.4.1 Service level indicator.

Header cover must be opened to view operator LEDs.

Yellow LED on operator power switch side is service level indicator. Operator system should be scheduled for service when yellow LED is first illuminated, or annually, whichever comes first.



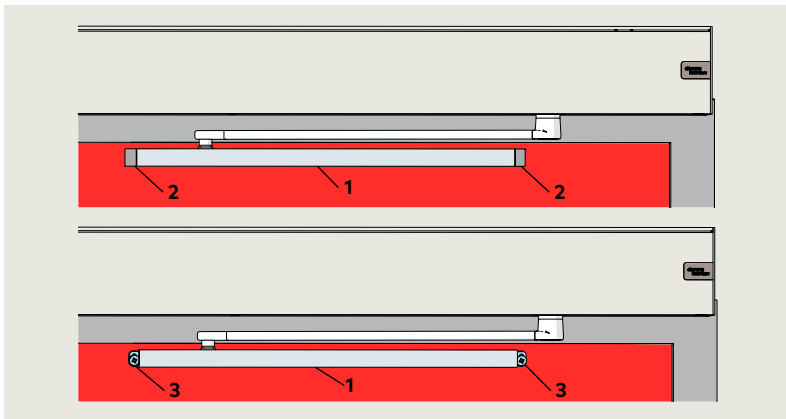
TIPS AND RECOMMENDATIONS

Reference Appendix A, Parameters for information on:

- Parameter CS, reset service interval display.
- Parameter CC, cycle counter.

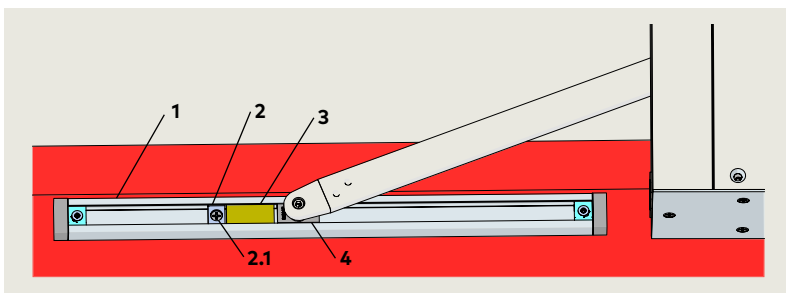
32.5 Pull arm maintenance

Fig. 32.5.1 Pull arm with track assembly, track mounting screws



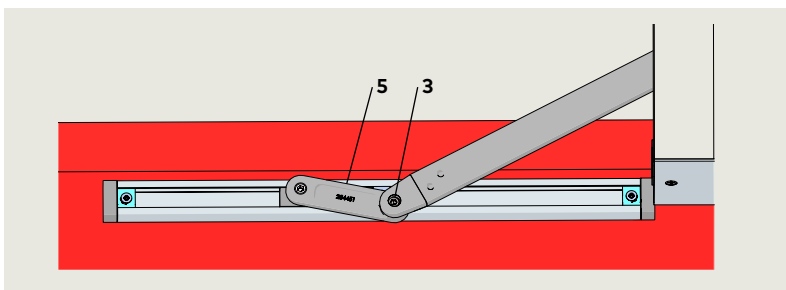
- 1 Track
- 2 End cap
- 3 Fastener

Fig. 32.5.2 Track assembly



- 1 Track
- 2 Bumper stop
- 2.1 M6 FHMS
- 3 Bumper
- 4 Slide shoe, pivot pin

Fig. 32.5.3 CPD lever



- 3 M6 socket head cap screw
- 5 CPD lever

Fig. 32.5.3 Program switch



32.5.1 Track mounting screws.

1. Set program switch to CLOSE.
2. Remove track end caps
3. Check tightness of track mounting screws.
4. Replace end caps.

32.5.2 Track maintenance.

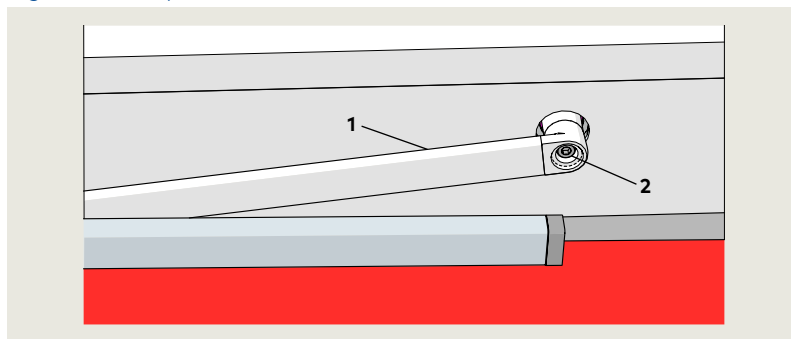
1. Set program switch to OPEN.
 - Check for wear or damage.
3. Slide shoe and pivot pin.
 - Check for wear or damage.
4. Bumper stop M6 screw.
 - Check bumper stop position (bumper location approximately 1/8" from slide shoe)
 - Check tightness of screw.

32.5.3 CPD lever.

1. Check tightness of M6 SHCS.

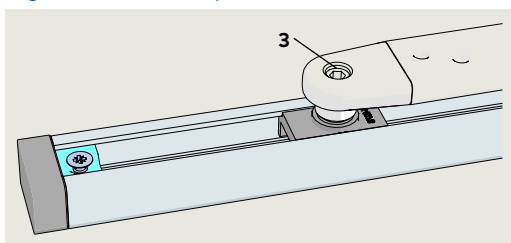
32.5.1 Arm fasteners – torque requirements

Fig. 32.5.1.1 Spindle M8 SHCS



- 1 Arm
- 2 M8 x SHCS
- 3 Pivot pin M8 socket head

Fig. 32.5.1.2 Pivot pin M8 socket head



32.5.1.1 Check drive arm M8 SHCS torque.

1. Set program switch to CLOSE.
2. Remove cap over M8 SHCS.
3. Check torque.
4. Replace cap.

CAUTION

Using torque wrench with 5 mm hex key socket, check M8 SHCS torque. 17 ft-lb [23 Nm].

32.5.1.2 Check pivot pin M8 socket head torque.

1. Check torque.

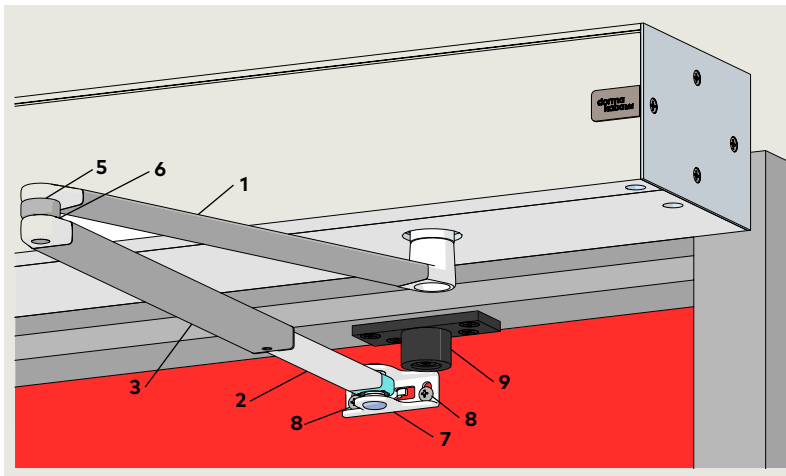
CAUTION

Use torque wrench with hex key socket. M8 screw torque: 5.9 - 7.4 ft-lb [8 - 10 Nm].

Reference Para. 15.8 for arm assembly.

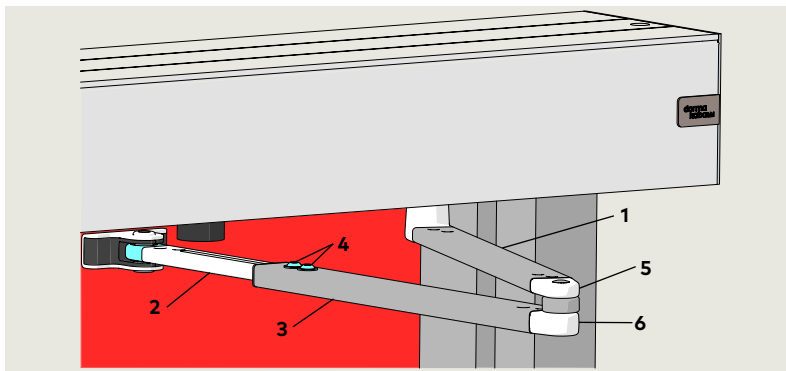
32.6 Push arm maintenance

Fig. 32.6.1 Push arm assembly



- | | | |
|-----------------------|----------------------------|----------------------------|
| 1 Drive arm | 5 Drive arm socket | 7 Shoe |
| 2 Adjustment arm | 6 Adjustment arm ball head | 8 Shoe mounting screws (2) |
| 3 Adjustment arm tube | | |

Fig. 32.6.2 Adjustment and drive arms



- | | | |
|-----------------------|--|----------------------------|
| 1 Drive arm | 4 M6 x 10 mm flanged button head screw | 6 Adjustment arm ball head |
| 2 Adjustment arm | 5 Drive arm socket | |
| 3 Adjustment arm tube | | |

- | |
|------------------------|
| 8 Shoe mounting screws |
| 9 Hinge cover caps |

Fig. 32.6.3 Push arm shoe fasteners

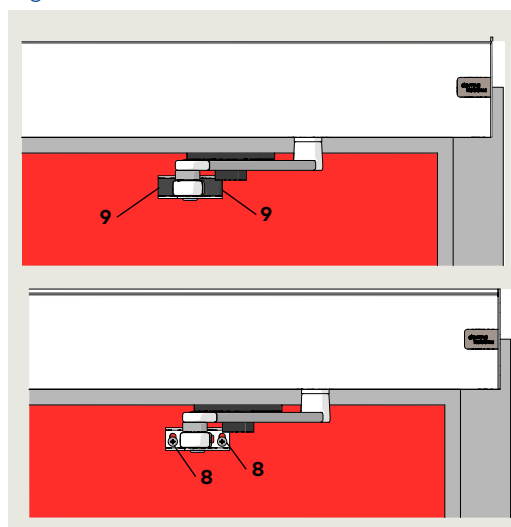


Fig. 32.6.4 Program switch



32.6.1 Push arm maintenance.



WARNING

Set program switch to CLOSE before performing maintenance!

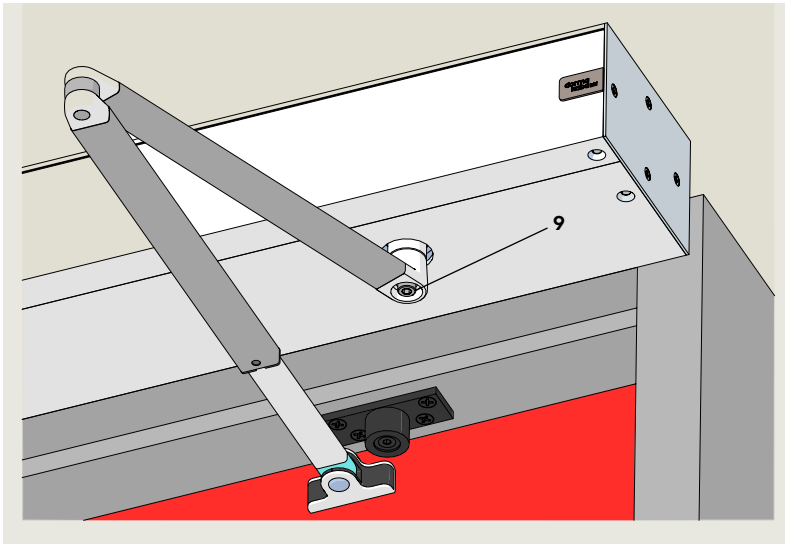
- Adjustment arm.
 - Check for wear or damage.
 - Check tightness of M6 x 10 flanged button head screws (Fig. 32.6.2).
- Shoe and adjustment arm assembly:
 - Check for wear or damage at shoe bearing (Fig. 32.6.1).
- Adjustment arm socket and ball head (Fig. 32.6.2).
 - Check for wear or damage.

32.6.2 Shoe door mounting screws .

- Remove hinge cover caps (Fig. 33.6.3).
- Check for tightness of mounting screws.
- Replace hinge cover caps.

32.6.1 Push arm – M8 SHCS torque requirements

Fig. 32.6.1 Push arm M8 SHCS



9 M8 x ___mm SHCS

32.6.1.1 Drive arm M8 SHCS torque.

1. Remove spindle cap.
2. Check tightness of M8 SHCS.
3. Replace spindle cap.








CAUTION

Using torque wrench with 5 mm hex key socket, check M8 SHCS torque. 17 ft-lb [23 Nm].







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					
5	ED100 8 - 50*	%s	25	<ol style="list-style-type: none"> Opening speed refers to automatic mode, speed can be adjusted using this parameter. Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value. After parameter set, verify setting meets ANSI/BHMA standards A156.10 (full energy) or A156.19 (low energy) standards. See Chapter 30. Full adjustable range of opening speeds available only when configured for full energy. *Maximum opening speed reduced to 27%/s in low energy mode. 	
		ED250 8 - 60			%s
Closing speed, automatic mode					
6	ED100 2 - 50* (v2.0)	%s	25	<ol style="list-style-type: none"> Closing speed refers to automatic mode, speed can be adjusted using this parameter. Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value. After parameter set, verify setting meets ANSI/BHMA standards A156.10 (full energy) or A156.19 (low energy) standards. See Chapter 30. Full adjustable range of closing speeds available only when configured for full energy *Maximum closing speed reduced to 27%/s in low energy mode. 	
		ED250 2 - 60 (v2.0)			%s
Hold open time, automatic mode					
7	0 - 30	s	5	<ol style="list-style-type: none"> 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. Hold open time values from 0 to 30 are set in increments of 1 second. Hold open time values greater than 30 seconds are set in increments of 5 seconds. In low energy mode, a minimum hold open time of 5 seconds is required. Hold open time can be re-triggered. <p>*Parameter F2, when set to full energy, extends maximum hold open time to 180 seconds.</p>	
		0 - 180*			s
Night-bank hold open time					
8	 0 - 30	s	10	<ol style="list-style-type: none"> Night-bank (key switch) hold open time is set using this parameter. Night-bank Hold open time starts once contact on night-bank activator input is opened and door is in an open position. Night-bank hold open time can be re-triggered. 	
Hold open time, manual opening					
9	 0 - 30	s	1	<ol style="list-style-type: none"> Default hold open time of 1 second that follows every manual opening of door can be adjusted using parameter do (v1.9). Hold open time starts when door is released. 	
Wall masking on door hinge side					
10		60 - 99	°	80	<ol style="list-style-type: none"> Wall masking required if door opens against an obstacle. When door reaches set wall masking angle, system will ignore signal from safety sensor on door swing (hinge) side. 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. 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. Rapidly flashing dot disappears when door angle drops below set wall masking angle.
					






A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description	
Safety sensor test					
 11 	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.4.	
				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. (v2.1)				
Activation by safety sensor on approach (opposite hinge) side					
12 	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 	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 (v1.9). • 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					
14 	0 - 40 * 100	ms	3 * 100	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 (v1.7).	
Door preload prior to unlocking					
15 	0 - 9		0	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.	






A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Power reserve module SVP-PR 12 test				
				0 Test off
16	0 - 1		0	  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: <ul style="list-style-type: none"> Unlocking is not performed and no automatic door movements are initiated. Error code E 25 is displayed, See Appendix B.4, Troubleshooting Error Codes. 2. SVP-PR 12 power reserve module can be used but must be tested on a regular basis if using: <ul style="list-style-type: none"> SVP-2000 DCW® emergency escape motor lock with automatic latching action. M-SVP 2000 DCW® emergency escape lock, v1.5 or later. 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				
17	2- 15 *10	N	6 *10	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 standards A156.10 (full energy) or A156.19 (low energy) standards. See Chapter 36. *Static force range is reduced with Low Energy mode. See Chapter 36.
	.45- 3.4 *10	lbf	1.35 *10	
Static force in closing direction				
18	2- 15 *10	N	6 *10	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 standards A156.10 (full energy) or A156.19 (low energy) standards. See Chapter 36. *Static force range is reduced with Low Energy mode. See Chapter 36.
	.45- 3.4 *10	lbf	1.35 *10	
Motor driven latching action, automatic mode				
19	0 - 9		0	1. System offers a motor driven latching action in automatic mode in addition to mechanical latching action. 2. The EP parameter setting (v1.7) 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.
Motor driven latching action angle (v1.7)				
20	2 -10	°	3	Door opening angle at which motor driven latching action EP is activated. <ul style="list-style-type: none"> Starting angle of the latching angle adjustable from 10°. (v1.7).
Keep closed force				
				0 Off
21	0 - 9		0	1 to 9 <ol style="list-style-type: none"> Keep closed force is: <ul style="list-style-type: none"> Permanently applied following motor drive latching action. Designed to keep door in closed position even if wind acts on door. Keep closed force can be set from 0 (off) to 9, maximum force.





A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Push & Go				
22		0 - 1	0	0 Off
				1 <ul style="list-style-type: none"> 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" (manual) to enable this function.
Program switch type				
23		0 - 4	0	0 Internal, operator mounted program switches are active.
				1 External mechanical program switch with contacts is connected to operator terminal board. Internal program 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 Program switch control by TMS Soft control software.
4 <ul style="list-style-type: none"> 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 (v1.9). 				
DCW Electronic program switch (EPS) behavior following power reset				
24		0 - 1	0	0 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 if insurance compliant locking if required.
Internal program switches, switch on delay				
25		0 - 1	0	0 Operator will perform function of new switch setting as soon as internal program switch is moved.
				1 <ul style="list-style-type: none"> 1. Operator will perform function of new switch setting after a delay of 10 seconds from when internal program switch is moved. 2. This function is useful if user has to pass through door and its connected detectors and sensors after program switch is set to new function.
Unlocking during business hours				
26		0 - 1	0	0 Door is always locked when it reaches closed position.
				1 <ul style="list-style-type: none"> 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 (v1.9).
				6 <ol style="list-style-type: none"> Status relay activated when door is opened further than opening angle parameter OA, set during learning cycle. 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 <ol style="list-style-type: none"> Locking device output terminal X3, 1G (24V) is turned on as soon as contact at X6, 4/4a is opened (v1.9). 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. This function is not available for DCW®- motor locks.
Cycle counter				
29		0 - 99 * 10000	cycles	<ol style="list-style-type: none"> Total number of opening and closing cycles displayed is shown in increments of 10000. <ul style="list-style-type: none"> Display value, "4", 40,000 cycles. Display value, "53", 530,000 cycles. Total number of cycles can be displayed on dormakaba handheld. A display value of "99" means 990,000 cycles or greater.
Delete error log				
30		0 - 1	0	0 No function.
				1 <ol style="list-style-type: none"> When "1" entered, Error log is deleted. Parameter is then automatically reset to "0".
Reset service interval display, operator yellow LED				
31		0 - 1	0	0 No function.
				1 <ol style="list-style-type: none"> When "1" entered: <ul style="list-style-type: none"> Service cycle counter is reset to 200,000. Service interval is reset to 12 months. Yellow LED not illuminated. Parameter is then automatically reset to "0". Values other than default values must be set using dormakaba handheld: <ul style="list-style-type: none"> 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	<p>Parameter SL is used to determine what data will be reset during factory setting process.</p> <p>Standard factory settings</p> <ul style="list-style-type: none"> • Program switches OFF. • Door closed. <p>1</p> <ul style="list-style-type: none"> • Press 4 button keypad down button ▼ for > 8 s. <ol style="list-style-type: none"> 1. All parameters reset to factory settings. 2. Procedure completed when "8" on 2 digit displays blinks twice. 3. Installed upgrade cards remain valid and do not require reinstallation. 4. Learning cycle required.
				<p>Extended factory settings</p> <ul style="list-style-type: none"> • Program switches OFF. • Door closed. • Press 4 button keypad down button ▼ for > 8 s. <p>2</p> <ol style="list-style-type: none"> 2. Procedure completed when "8" on 2 digit displays blinks twice. 3. Installed upgrade cards deleted from operator memory. 4. Parameter SL automatically reset to 1. 5. Control unit and upgrade cards can be used independently (delivery status). 6. Learning cycle required..
Opening angle				
33	 OA	0 - 110	°	<ol style="list-style-type: none"> 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.
Door closer mode				
34	 hd	0 - 1	1	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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.
Power assist activation angle (v1.7)				
35	 hA	1 - 5	°	<ol style="list-style-type: none"> 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.









A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Power assist function (v1.7)				
36	 0 - 10		0	<ol style="list-style-type: none"> Force setting for Power assist function. Power assist function only available with hd parameter = 1, manual mode. "0"; power assist function OFF; power assist function enabled for available values greater than 0. Power assist function enabled when power assist activation angle hA reached. The greater the value of hF, the easier the door can be manually opened from power assist activation angle hA. If power assist set too high, door can open automatically. Power assist function is not available <ul style="list-style-type: none"> If operator is switched off A smoke detector or emergency button has been triggered.
Power assist function support for manual mode in door closed position (v1.9)				
37	  0 - 10		0	<ol style="list-style-type: none"> Setting for power assist function support with door in closed position. Power assist function only available with hd parameter = 1, manual mode. The greater the value of hS, the easier the door can be manually opened from the closed position.
Upgrade card codes				
			0	Upgrade card not installed, function not available.
	0 - 3		0	<ol style="list-style-type: none"> Upgrade card installed, function not activated. Upgrade card installed, function activated. Upgrade card has been removed, function no longer available.
Upgrade card, fire protection				
38	 0, 2, 3		0	<ol style="list-style-type: none"> Once upgrade card installed, parameter value will automatically change to 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. Full energy function is automatically activated. Plug for terminal board X9 socket included with upgrade card.
Full energy				
39	 0,2,		0	<ol style="list-style-type: none"> Function must be activated by changing parameter F2 to 2. The full setting range of parameters So, Sc, Fo and Fc will be available after the activation.
40	 0		0	Not used.
41	 0		0	Not used.

A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
42	 0		0	Not used.
Upgrade card barrier free toilet				
43	 0, 1, 2, 3		0	<ol style="list-style-type: none"> Once upgrade card installed, parameter value will automatically change to 1. Function must be activated by changing parameter F7 to 2. Operator power reset is required; turn power switch off, wait 10 s and turn power back on. Upgrade card assigns inputs and outputs of the control unit with functions which are required for this application.
Upgrade card DCW®				
44	 0, 2, 3		0	<ol style="list-style-type: none"> Once upgrade card installed, parameter value will automatically change to 2. Upgrade card provides operator with DCW® bus connection. Plug for terminal board X8 socket included with upgrade card. DCW® bus enables connection of: <ul style="list-style-type: none"> 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)
COM 1 configuration interface				
45	 0 - 1		0	<p>0 Interface programmed for communication with dormakaba handheld.</p> <p>1 Interface programmed for use with dormakaba TMS Soft control software.</p>
Back check when door opened manually				
46	 5 - 40 (v1.9)	°	10	<ol style="list-style-type: none"> Angle after which door is braked when manually opened. 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 (v1.7). Entered value is subtracted from set opening angle OA. Example <ul style="list-style-type: none"> Opening angle, 90° Parameter bc, 12° Door back check starts at 78°.
Door thickness				
47	 0 - 99	mm	35	<ol style="list-style-type: none"> Parameter is entered in mm. Door thickness affects measured door opening angle. Parameter Td enables a more accurate door width to be entered, if required.
	 0 - 3 7/8"		1 3/8"	

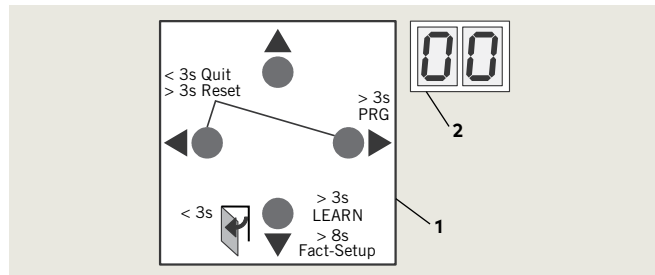
A.1.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
Deactivation of drive; X6, 4 and 4a, trigger type (v1.7)				
48 	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 (v1.7)				
49 	0 - 1		0	0 <ol style="list-style-type: none"> NO contact, night-bank function is triggered when NO contact is closed. Typically used when using a key switch or an access control system.
				1 <ol style="list-style-type: none"> NC contact, night-bank function is triggered when NC contact is opened. Typically used when connected to building management system to trigger doors (signal normally present).
Release of hold-open system (v1.7)				
50 	0 - 1		1	1 <ol style="list-style-type: none"> Upgrade care Fire Protection installed, users may release hold-open by manually moving door in closed direction. A manual release button is not required.
				0 <ol style="list-style-type: none"> Hold-open release by manually moving door in closed direction is deactivated. A manual release button is required.
Castor angle for double doors				
51 	0 - 30	°	30	Active door with astragal, angle active door must open before passive door opens.
Hinge clearance				
52 	± 5 *10	mm	3 *10	<ol style="list-style-type: none"> Clearance between hinges is critical for the calculated door angle. It may only have a small effect but the clearance can be adjusted in extreme cases to improve accuracy. Factory setting is 3 * 10, 30 mm, 1 3/16". 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.
	±3/16 *10	inches		
Overhead concealed mode (OHC): Activation of permanent open via night-bank input (v2.2)				
53 	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)				
53 	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 	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

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 situations 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 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:

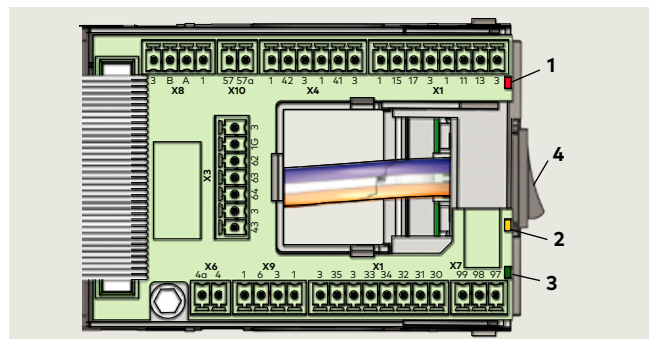
1. Certain **In** information
2. E status codes (Para. B.2)



TIPS AND RECOMMENDATIONS

- Para. B.2, Red LED Status Codes
- Para. B.3, Information Codes
- Para. B.4, Error Codes

Fig. B.1.2 Operator LEDs



- 1 Red LED
- 2 Yellow LED
- 3 Green LED
- 4 Power switch

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 greater than 3 seconds to reset system (v1.8).
 - Header cover must be opened to access user interface.
3. Power reset:
 - Turn power switch OFF.
 - Turn power switch back on after 10 seconds.

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.

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.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	<p>Obstruction Door obstructed by an obstacle or person; door movement stopped by operator.</p>	<p>Sustained operation on a door with an obstruction can result in damage to drive.</p> <ol style="list-style-type: none"> Object or person obstructing door movement. <ul style="list-style-type: none"> Check door movement while system is deenergized. Remove cause of anything obstructing door movement. Sensor detection range too small. <ul style="list-style-type: none"> 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. Test system operation after cause of obstruction found.
2	In 08	Off	<p>Deactivation of drive function</p> <ul style="list-style-type: none"> Contact at X6, 4 and 4a is opened. Operator switched to emergency mode, door can only be used manually. 	<p>An emergency close switch, lock switch, or other system safety device may be connected to the X6 input.</p> <ol style="list-style-type: none"> One of the activators connected to X6 may have opened, or a defect is present. Reset the applicable activator. Operator should start operation automatically. If In 08 still present, check activators or system wiring.
3	In 09	Off	<p>Upgrade card error</p> <ul style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> Installed Upgrade card may not be removed from operator. If more than one upgrade card is installed, the first card installed becomes the container module. <ul style="list-style-type: none"> Reference Chapter 31 for Upgrade card installation. The container module must be installed last, after all other Upgrade cards are installed. If container module defective, first upgrade card (container module) must be replaced and all other upgrade cards must be reinstalled,
4	In 11	On	<p>Hold-open system triggered.</p>	<ol style="list-style-type: none"> Hold-open system can be triggered: <ul style="list-style-type: none"> Automatically by smoke detector or building interface system. Manually by a manual release button. Manually moving door. The system must be reactivated by a deliberate action. Depending on system's configuration, reactivation can be done by: <ul style="list-style-type: none"> Manually moving door to taught opening angle. Switching program switch to Close (off). Pressing both 4 button keypad left ◀ and right ▶ buttons >3s. It must be ensured that a smoke detector or building interface has not been triggered. If reactivation is unsuccessful, there may be a defect in the smoke detector or building interface system or its connections.
5	In 23	Off	<p>Locking alarm</p> <ul style="list-style-type: none"> Door is blocked while in the closed position. 	<ol style="list-style-type: none"> Most common cause of this error is the drive unit attempting to open a locked door. To eliminate the occurrence of this error, install a lock status switch. <ul style="list-style-type: none"> Lock switch detects the lock pin's switching status and switches the drive unit off if necessary. 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	<p>Communication error, double door system</p> <p>No communication between the two operators.</p>	<ol style="list-style-type: none"> 1. Check communication cable connection at the two operators. <ul style="list-style-type: none"> • Cable connects to the horizontal RJ45 connector next to the user interface (Chapter 23). 2. Check communication cable.
7	In 72	Off	<p>Current measuring circuit</p> <ul style="list-style-type: none"> • System could not successfully perform internal current measuring test, performed once every 24 hours. 	<ol style="list-style-type: none"> 1. The initial current measuring test may 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	<p>Braking circuit test</p> <ul style="list-style-type: none"> • System could not successfully perform internal braking circuit test, performed once every 24 hours. 	<ol style="list-style-type: none"> 1. The initial braking circuit test may 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	<p>DCW® communication</p> <ul style="list-style-type: none"> • At least one registered DCW® device is missing. 	<ol style="list-style-type: none"> 1. Reconnect the corresponding DCW® device. 2. If this is not possible, reactivate the drive. Reactivation can be done by: <ul style="list-style-type: none"> • Switching program switch to Close (off). • Pressing both 4 button keypad left ◀ and right ▶ buttons >3s.

B.4 Troubleshooting chart, "E" code

B.4.1 Troubleshooting chart, "E" codes.

No.	Display	Red LED	Description	Troubleshooting error codes
1	E 02	Flashing 2 x	<p>Locking device error</p> <ul style="list-style-type: none"> • Operator is attempting to open or close a locking device with feedback, or a DCW® locking device. An error has occurred during this process. 	<ol style="list-style-type: none"> 1. Probable causes are a defective locking device or wiring defect. <ul style="list-style-type: none"> • Check the locking device and feedback system.
2	E 03	Flashing 3 x	<p>DCW® program switch is missing.</p>	<ol style="list-style-type: none"> 1. Check the DCW® program switch and its connections.
3	E 04	Flashing 4 x	<p>Safety sensor test error</p> <ul style="list-style-type: none"> • Test of moving safety sensors was unsuccessful. 	<ol style="list-style-type: none"> 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	<p>EEPROM error</p> <ul style="list-style-type: none"> • Internal memory check could not be completed. • Drive unit works in door closer mode. 	<ol style="list-style-type: none"> 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 (continued).

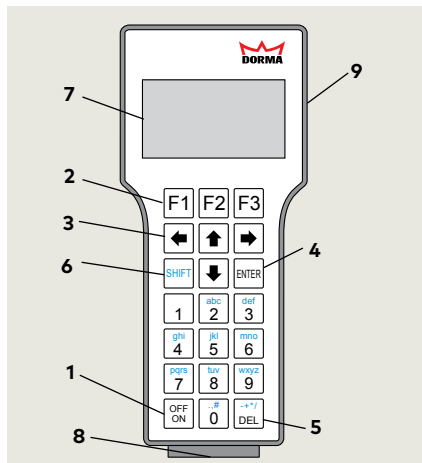
No.	Display	Red LED	Description	Troubleshooting error codes
5	E 13	Flashing 13 x	Overcurrent detection <ul style="list-style-type: none"> Motor is consuming more current than drive unit can provide. 	<ol style="list-style-type: none"> Motor is consuming too much power, check for any external causes. Drive unit or control unit is defective. If error repeats, operator must be replaced.
6	E 15	Flashing 15 x	Faulty learning cycle. <ul style="list-style-type: none"> Learning cycle could not be completed (Chapter 14). 	<ol style="list-style-type: none"> Error may occur if learning cycle has been interrupted, for example if door movement has been interrupted during the learning cycle. Learning cycle must be repeated.
7	E 25	Flashing 5 x	SVP-PR 12 power reserve module test negative	<ol style="list-style-type: none"> See Appendix A, parameter TS, Power reserve module test. Check power reserve module and its wiring.
8	E 51 E 52 E 53	Flashing 5 x	Incremental encoder error <ul style="list-style-type: none"> Motor gear unit encoder monitoring detected a faulty state. 	<ol style="list-style-type: none"> Check encoder plug connection at operator: Ref. Chapter 4. <ul style="list-style-type: none"> Secure connection. Wiring terminations Short circuits. Check locking device for short circuits. Error can be caused by defective motor or short circuit in locking device. 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.	<ol style="list-style-type: none"> Equip both operators with same firmware version.
10	E 63	Flashing 6 x	Incompatible fire protection setting, double door system.	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> In order to reliably switch off the drive unit, several switching elements are used and their functions are tested periodically. 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	<ol style="list-style-type: none"> The current measurement circuit is part of the safety mechanisms and its function is tested periodically. 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	<ol style="list-style-type: none"> The braking circuit is a safety element in the closer mode and will be tested every 24 hours. <ul style="list-style-type: none"> During the test the motor is shut down during door closing and when the door closes at a set angle in emergency mode. Test can be noticed as a short jerk on the door and is normal. Error can be due to door closing in the deenergized state too fast (under 3 seconds). See Chapter 20. Check the closing speed and reduce if necessary.
14			Energy management <ul style="list-style-type: none"> Motor is too hot (for example, too high an ambient temperature) System responds automatically. 	<ol style="list-style-type: none"> Movement dynamics in the closed direction will be reduced. Movement dynamics in both the open and closed directions will be reduced. System shuts down for 3 minutes (door closer mode). Hold-open time will be extended.

Appendix C - dormakaba handheld

C.1 dormakaba handheld

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

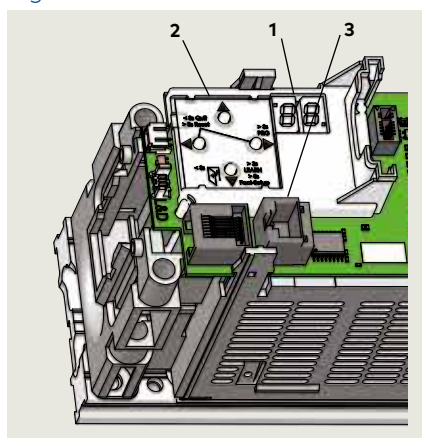
Use dormakaba interface cable (Article No. 16596101170) to connect dormakaba handheld to operator Com 1 interface.

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 2 digit display
- 2 4 button keypad
- 3 Vertical Com 1 interface



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 file names in small and capital letters. There are several special characters (dot, comma, hash key, plus, minus, asterisk and diagonal slash).

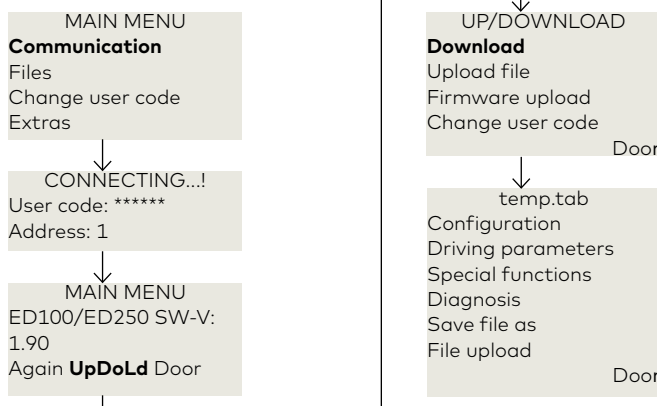
C.1.3 Handheld startup.

1. Press OFF ON to turn on Handheld terminal.
2. Screen displays Current version, creation date and name of data plate. Handheld is ready for operation.
3. Select "COMMUNICATION" and enter user code (DORMA original setting: 123456).
4. Handheld displays current software version of the connected operator (e.g., ED250 SW- V1.90).

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 Configuration parameters

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 -3 ... 50 -1 3/16 ... 19 11/16
3	Door width (steps of 4") 100	ED100/ ED250 70 ... 160 28 ... 63
		single*
4	Door type *	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		

#	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) *	Off Relay off
		Open* Door reaches closed position
		Close Door reaches open position
		Error Any error message
		Door closed and locked
		Information or error codes displayed
		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 Driving parameters

C.3.1 Driving parameters

#	Parameter and default	Description / Selections
		%s %s
5	Speed open 25	ED100 8 ... 50 27 max. L.E. mode
		ED250 8 ... 60
6	Speed close 25	ED100 2...50 27 max. L.E. mode
		ED250 2 ... 60
17	Limit force open 60	Static force in opening direction (wind load control) (20 ... 150) N
18	Limit force close 60	Static force in closing direction (wind load control) (20 ... 150) N
7	Hold-open time 5	Hold-open time automatic mode (0 ... 180) s (ED100/ED250)
8	Nurse bed function 10	Hold-open time nurse bed function (0 ... 180) s

#	Parameter and default	Description / Selections
5	Offenhaltezeit 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	Back check 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 Special functions (Upgrade cards)

C.4.1 Special functions (upgrade cards)

#	Parameter and default	Description / Selection
	Upgrade card status codes	<ul style="list-style-type: none"> locked: not available unlocked: available, not active activ or active: activated fehlt: upgrade card missing
40	Flip-flop func.	locked unlocked active fehlt Upgrade card professional
41	extend HOT (extended hold-open time) r/o	locked unlocked active fehlt Upgrade card professional
42	Nurse-Bed func.	locked unlocked active fehlt Upgrade card professional
38	Fire protection r/o	locked unlocked active fehlt Upgrade card fire protection

#	Parameter and default	Description / Selection
39	Full energy r/o	locked unlocked active fehlt Upgrade card full energy
44	DCW r/o	locked unlocked active fehlt Upgrade card DCW®
43	Disabled restr r/o	Upgrade card Barrier-free toilet
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 Diagnostics

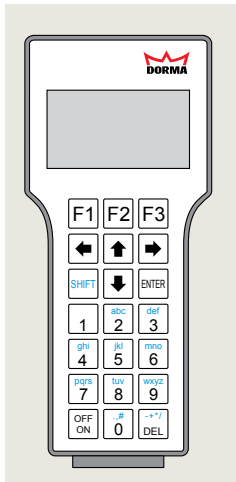
C.5.1 Diagnostics

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.6 New dormakaba handheld; language change to English

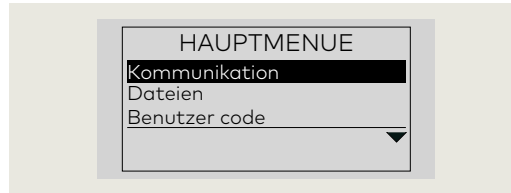
Fig. C.6.1 dormakaba handheld



C.6.1 New dormakaba handheld; language change.

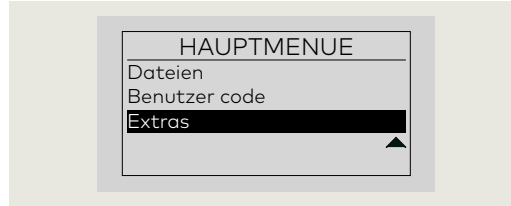
If German language is displayed on screen when handheld is first turned on (Fig. C.7.1, handheld power on sequence), use following steps to change to English.

Fig. C.6.2 HAUPTMENUE (main menu)



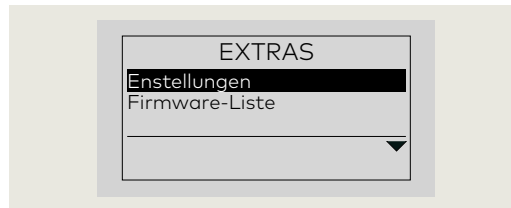
1. Scroll down Main Menu to EXTRAS:
 - Press **↓** 3 times to highlight EXTRAS.

Fig. C.6.3 Main Menu; EXTRAS highlighted.



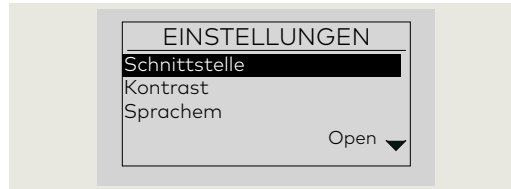
2. Press **ENTER** to select EXTRAS menu.

Fig. C.6.4 EXTRAS menu



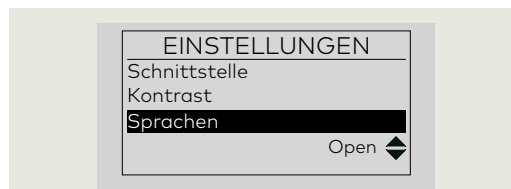
3. Press **ENTER** to select EINSTELLUNGEN (Settings) menu.

Fig. C.6.5 EINSTELLUNGEN menu



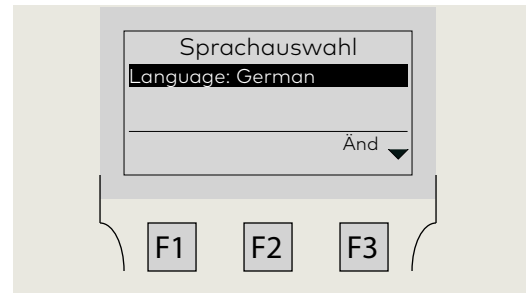
4. Scroll down EINSTELLUNGEN Menu to Sprachen (Languages):
 - Press **↓** twice to highlight Sprachen.

Fig. C.6.6 Sprachen highlighted



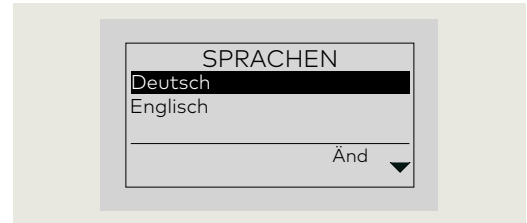
5. Press **ENTER** to select Sprachen (Fig. 18.6.6).

Fig. C.6.7 Sprachauswahl (Language Selection) menu



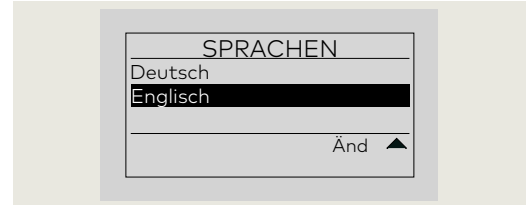
6. Press **F3** to select Änd (Amendments).

Fig. C.6.8 SPRACHEN menu



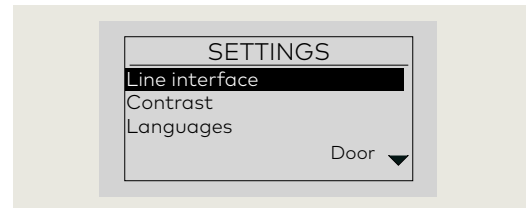
7. Scroll down SPRACHEN menu to Englisch: Press **↓** once to highlight "Englisch"

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".

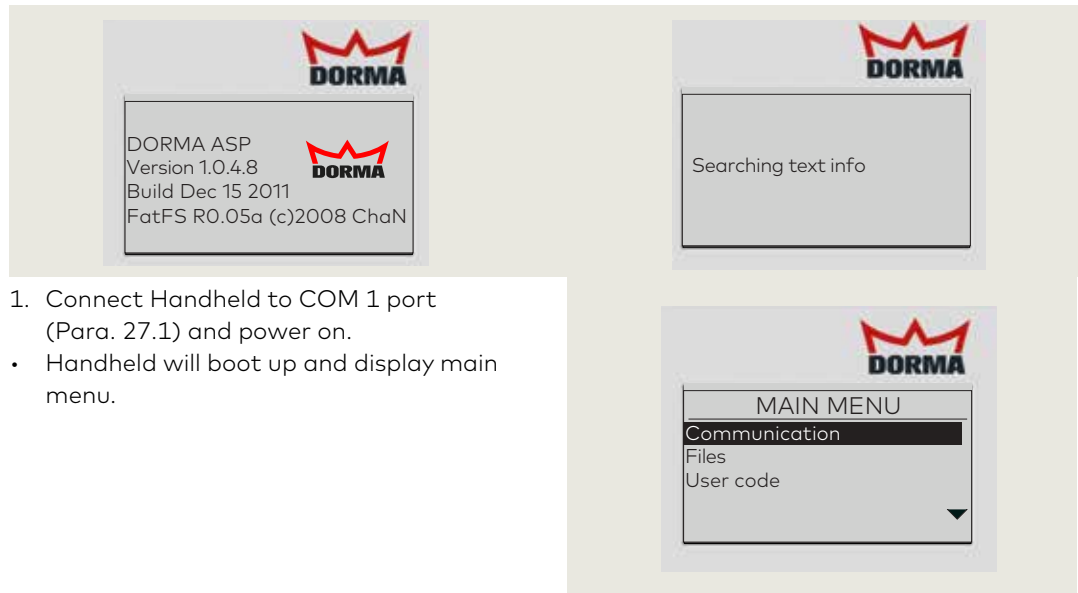
C.7 dormakaba handheld; firmware update

C.7.1 Firmware update procedure

CAUTION

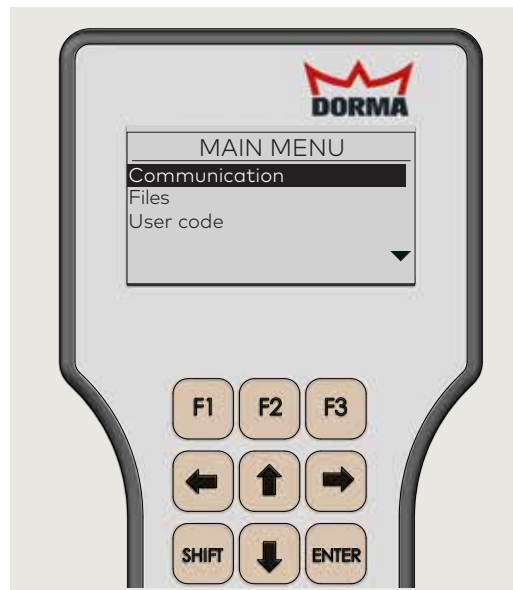
For all firmware changes, set program switch to CLOSE and allow door to close completely before any updates are made!

Fig. C.7.1 Handheld power on sequence



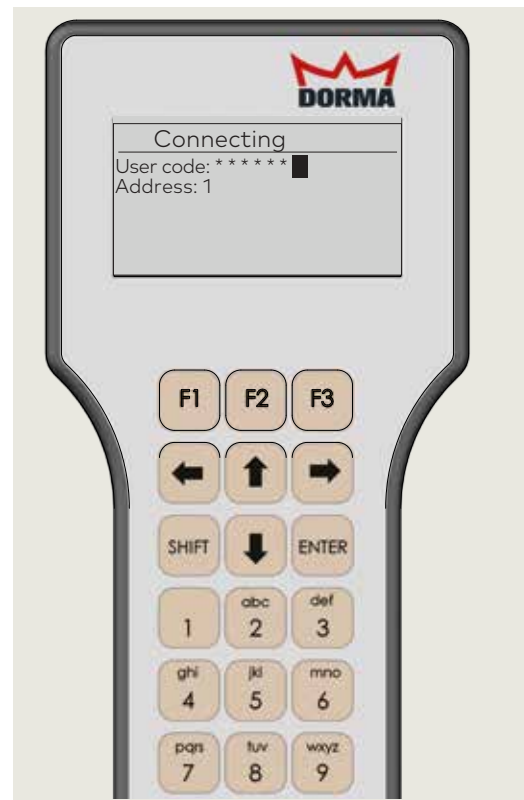
1. Connect Handheld to COM 1 port (Para. 27.1) and power on.
- Handheld will boot up and display main menu.

Fig. C.7.2 Select communication menu



2. With Communication highlighted, press ENTER.

Fig. C.7.3 Enter Handheld user code

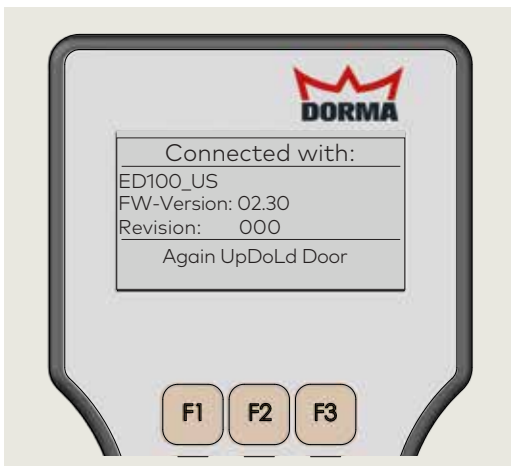


3. Enter handheld user code and press ENTER.

1 ENTER button

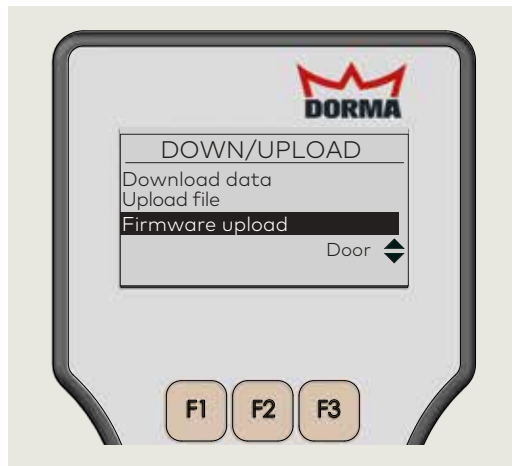
- 1 ENTER button
- 2 F2 button
- 3 Up/down arrows

Fig. C.7.4 Select UpDoLd



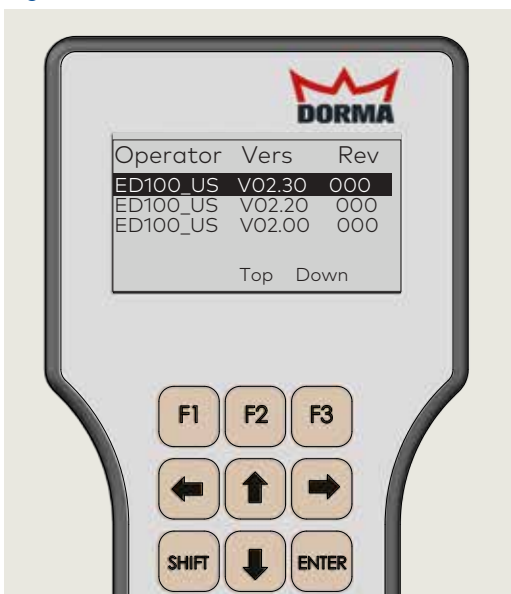
4. Press F2 to select UpDoLd.

Fig. C.7.5 Select Firmware upload



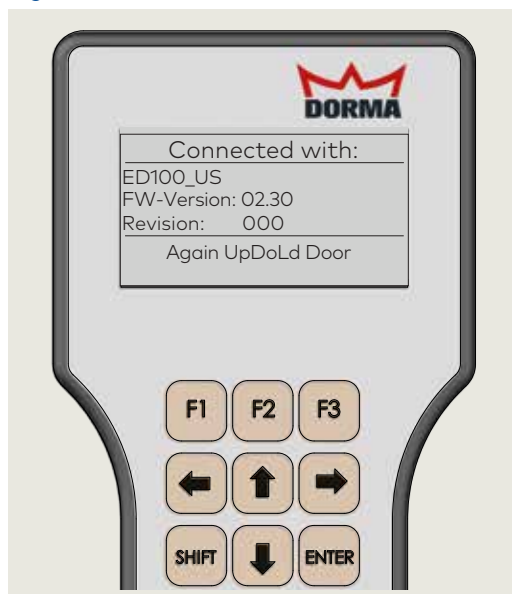
5. Use Up and Down arrows to select Firmware upload and press ENTER.

Fig. C.7.6 Select Firmware version



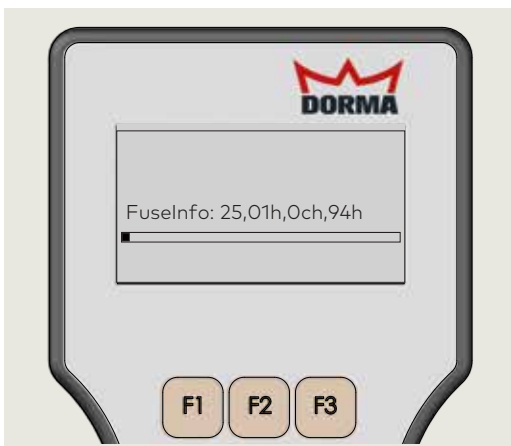
6. Use Up and Down arrows to select firmware version and press ENTER.

Fig. C.7.7 Start transmission



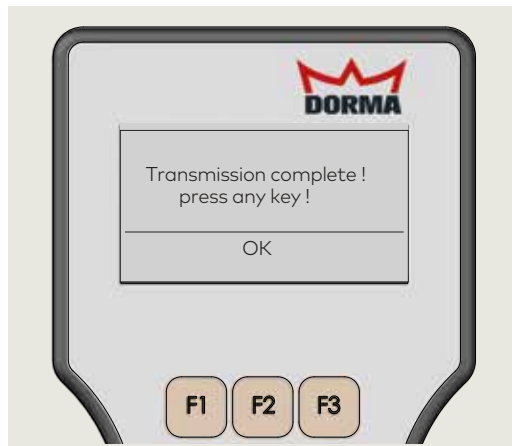
7. Press any key to start firmware transmission.

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 - Header hole preparation

D.1.1 Header, no preparation

Fig. D1.1.1 Header with no hole preparation

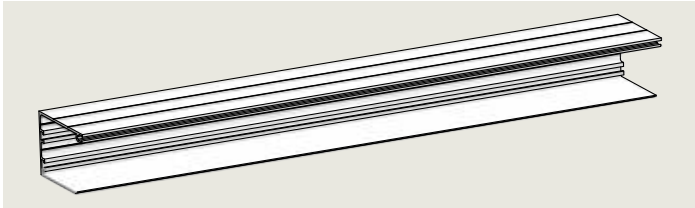
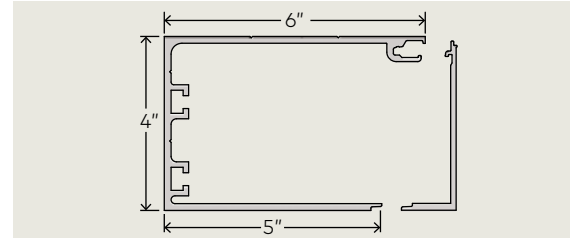


Fig. D1.1.2 Header and cover side view



D.1.2 Single LH header

Fig. D1.2.1 LH single header

- 1 1 1/2" dia. drive axle hole
- 2 3/8" dia. spring tension hole
- 3 17/64" dia. jamb bracket mounting hole

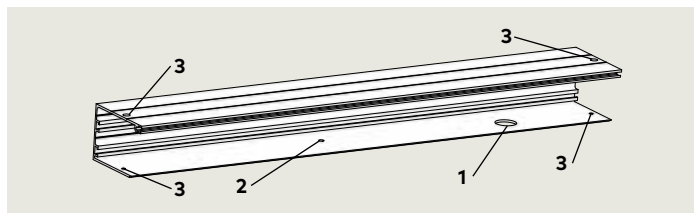


Fig. D1.2.2 LH single header top view

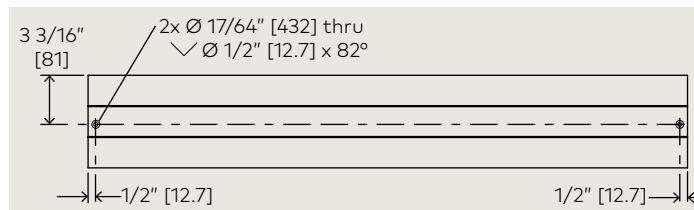


Fig. D1.2.2.1 17/64" dia. thru hole

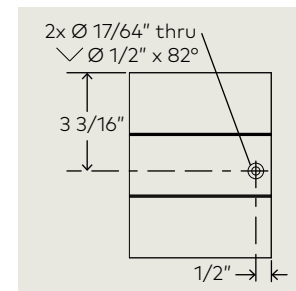
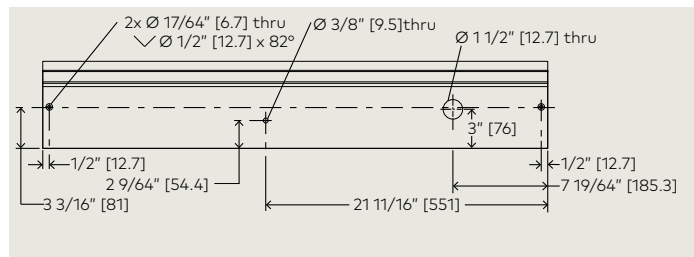
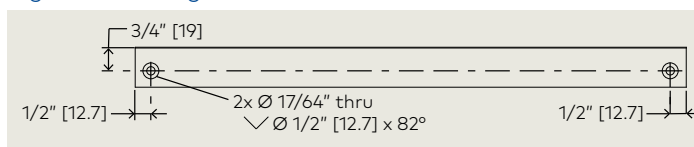


Fig. D1.2.3 LH single header bottom view



D.1.3 Single header cover bottom view

Fig. D1.3.1 Single header cover bottom view



D.1.4 Single RH header

- 1 1 1/2" dia. drive axle hole
- 2 3/8" dia. spring tension hole
- 3 17/64" dia. jamb bracket mounting hole

Fig. D1.4.1 RH single header

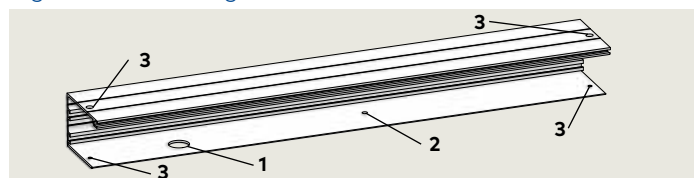


Fig. D1.4.2 RH single header top view

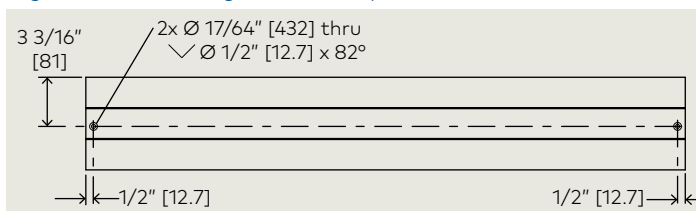
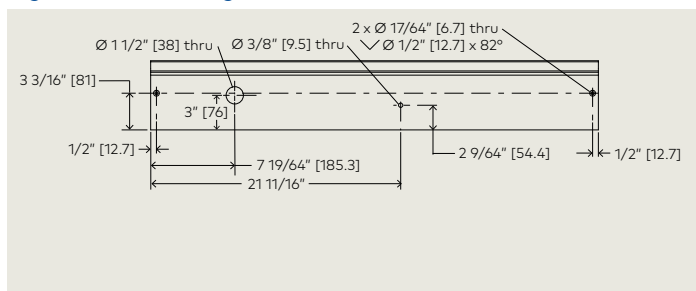
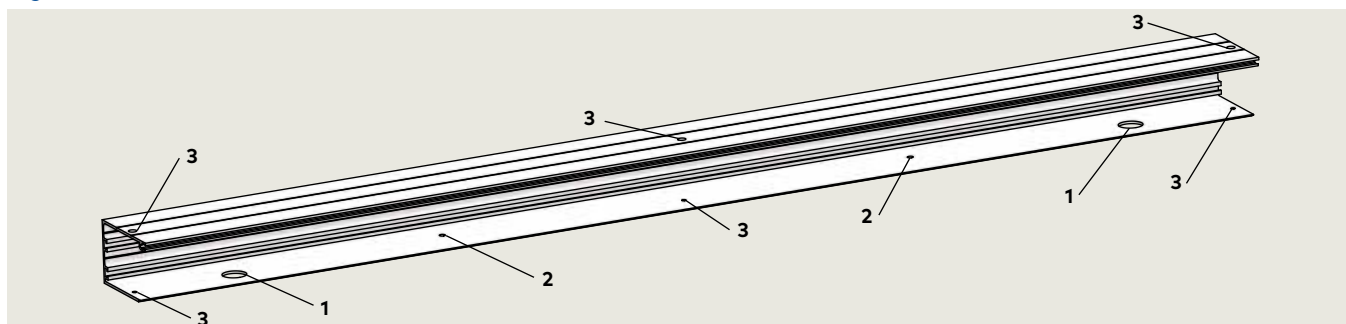


Fig. D1.4.3 RH single header bottom view



D.1.5 Double header

Fig. D1.5.1 Double header



- 1** 1 1/2" dia. drive axle hole
- 2** 3/8" dia. spring tension hole
- 3** 17/64" dia. jamb bracket mounting hole

Fig. D1.5.2 Double header top view

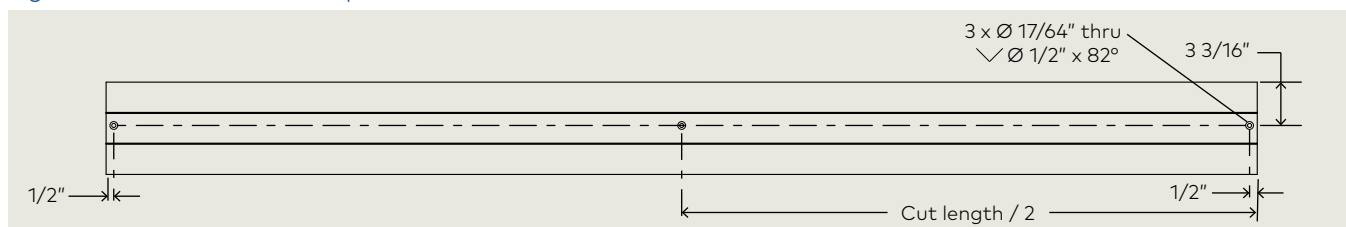


Fig. D1.5.3 Double header bottom view

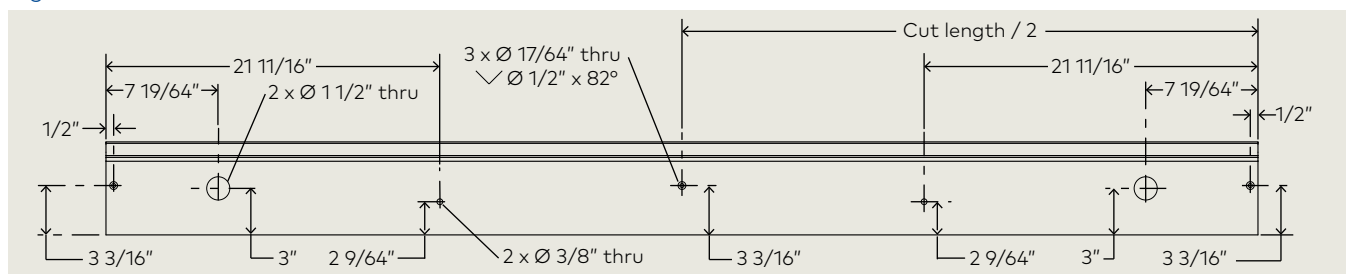
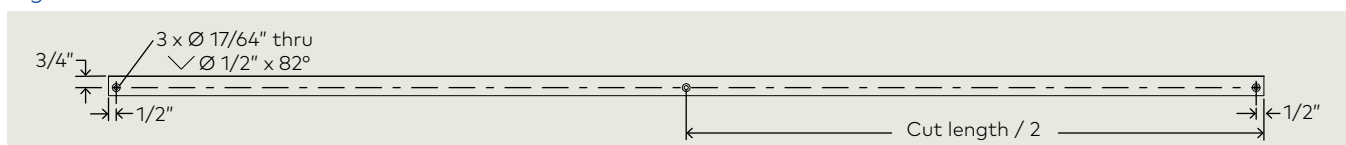


Fig. D1.5.4 Double header cover bottom view



Appendix E - Wiring diagrams

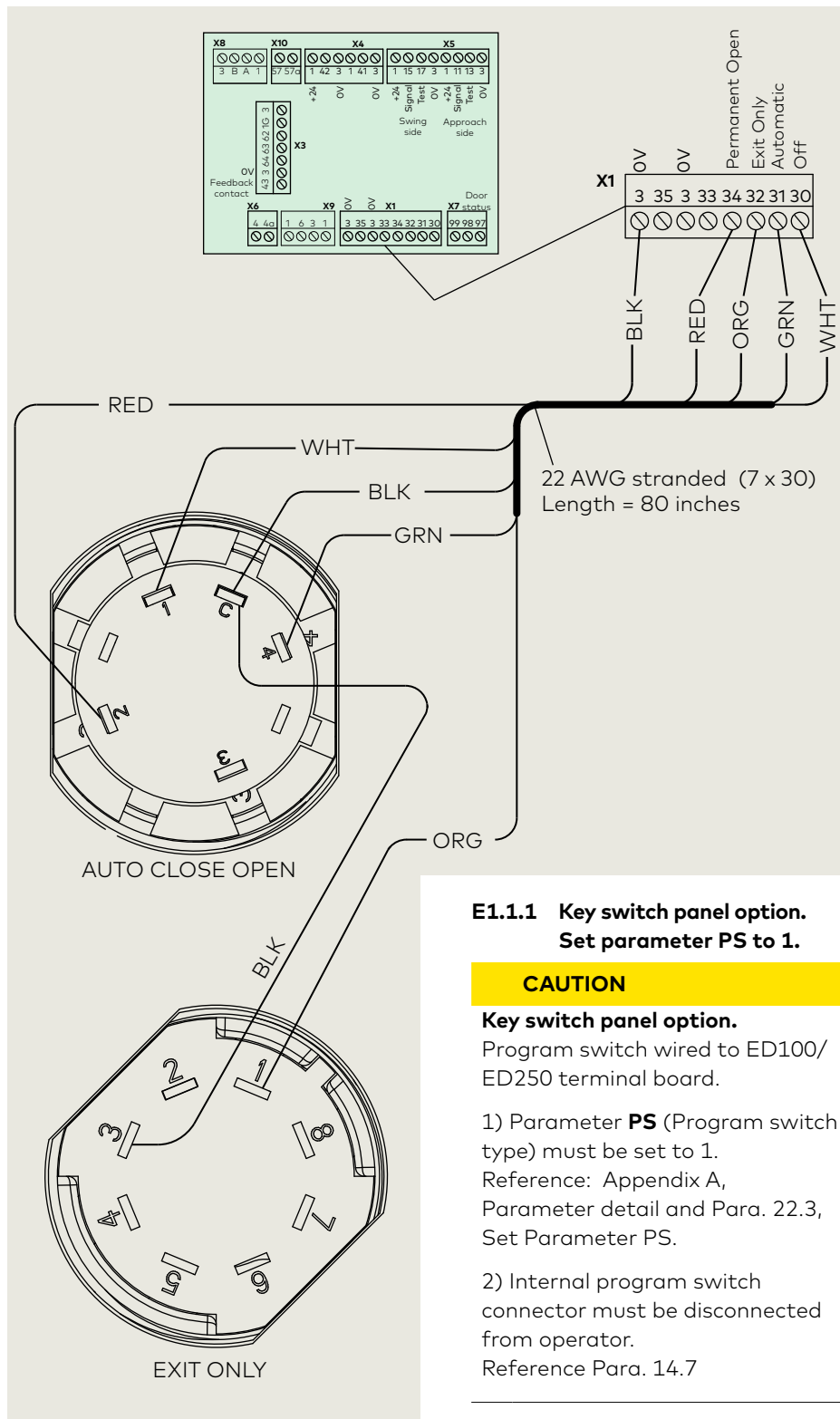
E1.1 DX4604-21C Key Switch Panel with RJ45 connector

Fig. E1.1 Key switch panel DX4604-21C



Reference Para. 14.7 for RJ45 cable connection.

Fig. E1.2 Key switch panel wiring diagram



E1.1.1 Key switch panel option. Set parameter PS to 1.

CAUTION

Key switch panel option.

Program switch wired to ED100/ED250 terminal board.

1) Parameter **PS** (Program switch type) must be set to 1. Reference: Appendix A, Parameter detail and Para. 22.3, Set Parameter PS.

2) Internal program switch connector must be disconnected from operator. Reference Para. 14.7

E2.1 DX4604-11C Key Switch Panel

Fig. E2.1 Key switch panel DX4604-11C

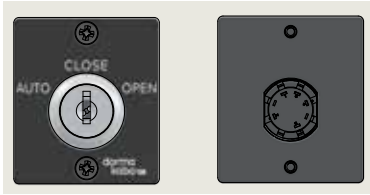
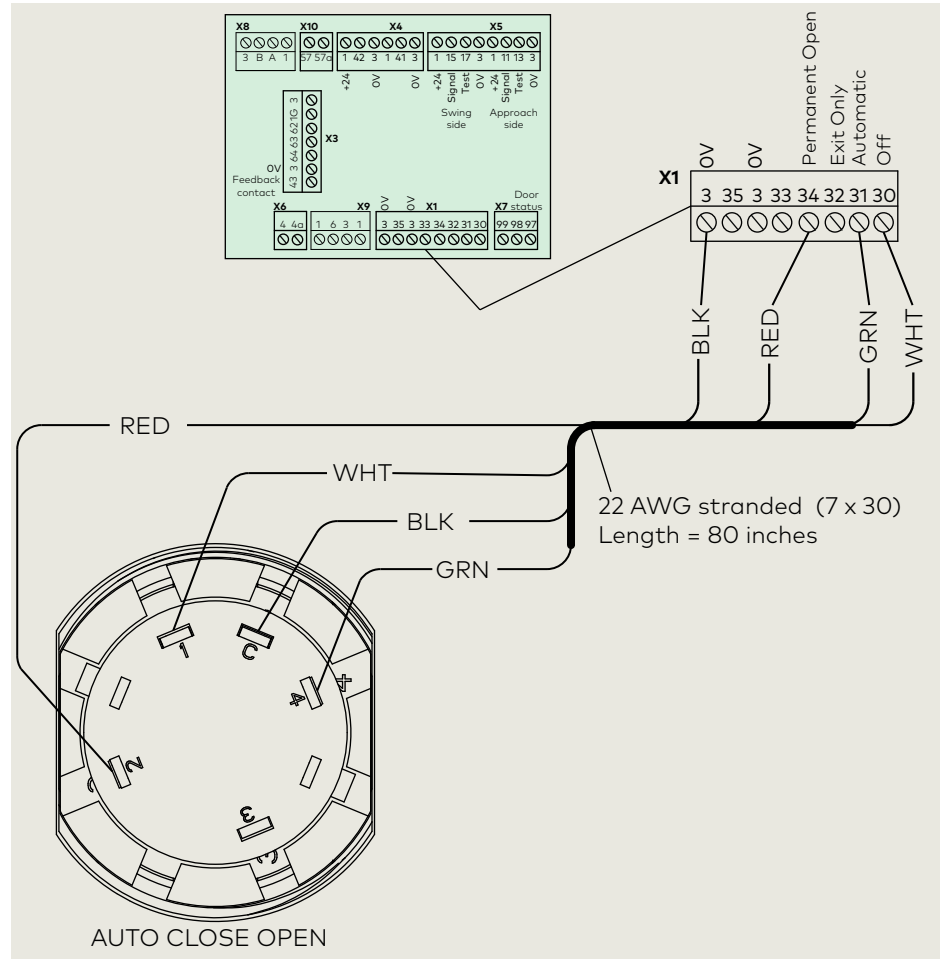


Fig. E.2.2 Key switch panel wiring diagram



E1.1.2 Key switch panel option. Set parameter PS to 1.

CAUTION

Key switch panel option.

Program switch wired to ED100/ED250 terminal board.

- 1) Parameter **PS** (Program switch type) must be set to 1.
Reference: Appendix A, Parameter detail and Para. 22.3, Set Parameter PS.
- 2) Internal program switch connector must be disconnected from operator.
Reference Para. 14.7

