







### the engineer's choice -

Yale® 51 Series Closers are designed to fit almost any application and are the choice of engineers worldwide. They are ideal for use with aluminum store front doors and frames, yet they also complement wood or metal door installations. Non-handed, the 51 series is available as multi-sized units and offers tri-packed packaging on standard non-hold open and hold open closers.

This UL listed, Grade 1 closer has a proven history of quality and tradition. With a variety of plates, brackets, precise valve adjustment and a complete range of arms, these closers can be used on retail stores, warehouses, restaurants, garages, or manufacturing and utility buildings.

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- Exceeds 10 million cycles
- Non-handed
- Tri-packed (regular arm, top jamb and parallel arm installations)
- Rack-and-pinion design
- Cast aluminum body
- 1-3/8" (35mm) diameter piston
- 5/8" (16mm) diameter pinion journals
- Standard, separate and independent, latch, sweep and backcheck intensity valves
- 2-7/8" (73mm) projection
- All standard arm applications allow doors to swing 180°, conditions permitting
- 15-year limited warranty
- Staked valves

#### 51 51**BF** Adjustable spring sizes 3 Х through 6 Adjustable spring sizes 1 through 4 Х (ADA compliant) Delayed action option with pressure relief valve (in lieu of Х Х backcheck)

#### optional features

- Delayed action (in lieu of backcheck). Specify 51DA or 51BFDA.
- Molded plastic covers (suffix P)

#### finishes

ANSI/BHMA	Description		
600*	Primed for Painting		
605^	Bright Brass		
606^	Satin Brass		
611^	Bright Bronze		
612^	Satin Bronze		
613^	Dark Oxidized Satin Bronze, Oil Rubbed		
613E^	Dark Oxidized Satin Bronze - Equivalent		
625^	Bright Chrome		

ANSI/BHMA	Description			
626^	Satin Chrome			
689	Aluminum Painted			
690	Dark Bronze Painted			
691	Light Bronze Painted			
693	Black Painted			
694	Medium Bronze Painted			
696	Satin Brass Painted			

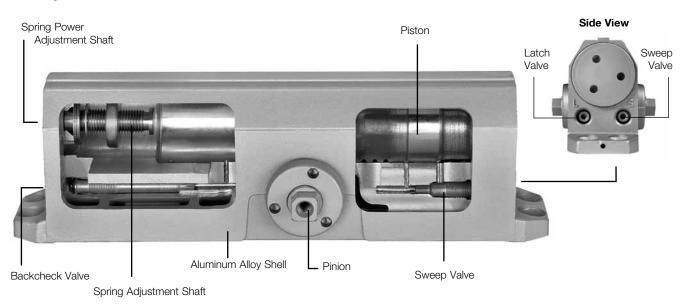
\*600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat (ex: 51 x 600 x 689).

^ Available on arms only.



### overview

cutaway view



#### Spring omitted for illustration purposes

#### compliance standards

The series 51BF door closers are designed to comply with requirements of the Americans with Disabilities Act (A.D.A.) and ANSI standard A117.1. All series 51(BF) are ANSI/BHMA A156.4, Grade 1 certified. **BHMA** (M) All Yale® series 51(BF) closers with non-hold open arms are listed by Underwriters' Laboratories for labeled fire doors. This includes compliance to UL10C for 3-hour assemblies. These products are manufactured in a certified ISO 9001 facility.

### CAUTION: Door Closers for Low Opening Force Applications:

Door closers installed in opening required to meet the requirements of The American with Disabilities Act or ANSI standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door.

#### fasteners

	Description		Arm	
Туре			PA	ТJ
	DOOR			
SDST	Self Drilling Self Tapping	S	S	S
MS	Machine Screw	S	S	S
SN	Sleeve Nut	0	0	0
TBGN	Thru Bolts & Grommet Nuts	0	0	0
SMS	Sheet Metal Screws (Wood)	0	0	0
	FRAME			
SDST	Self Drilling Self Tapping	S	S	S
MS	Machine Screw	S	S	S
SMS	Sheet Metal Screws (Wood)	0	0	0

#### S = standard; O = optional

**SN** are for use on unreinforced hollow metal doors or to prevent any hollow metal door from collapse/dimpling. They can also be used for thru bolting on wood doors. SN are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors.

**TBGN** are an alternative to SN for wood doors. TBGN are supplied standard for 1-3/4" (44mm) thick doors. They can be specified for 1-3/8" (35mm) thick doors.

**SMS** - when specified, closer will be packed with sheet metal screws for the door **AND** sheet metal screws plus machine screws for the frame.



### features

standard features

### Aluminum Alloy Housing

Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interaction with steel components and operating conditions.

### **Rack & Pinion Operation**

Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not limit door swing.

#### Non-handed

With few exceptions all series 51 door closers are non-handed and can be installed on either right- or left-hand swing doors. Pinion shaft extends vertically through the closer body in both directions. Some options, (such as Parallel Rigid Hold Open Arms) will require that the hand of the closer be specified.

### Tri-packed

51(BF) comes with screws, brackets & soffit plate to allow for regular, top jamb, & parallel arm installations.

### Sweep Speed Control Valve

Allows adjustment of door's speed from the door's full open position down to approximately 10° from the closed position.

### Latch Speed Control Value

Allows adjustment of door speed from approximately 10° down to the door's fully closed position.

# Adjustable Backcheck Cushion Valve

Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It slows/cushions the door opening, when the door is forcibly opened beyond its pre-adjusted opening speed limits.

### **Closer Fluid**

All door closers are supplied with a temperature stable, multi-viscosity fluid. This fluid will permit the door closer to perform within a wide temperature range: from very high to as low as -40°F.

#### Warranty

These closers carry a limited fifteenyear warranty against defects and a limited lifetime warranty on the aluminum housing.

### **Door Closer Power Options**

#### Series 51 Multi-Sized Door Closer

Adjustable through the power range of sizes 3 through 6, as outlined in ANSI/BHMA specification A156.4.

### Series 51BF Multi-Sized Door Closer

Adjustable through the power range of sizes 1 through 4 to comply with the opening force requirements as outlined in the Americans with Disabilities Act (A.D.A.) and ANSI A117.1 for interior doors.

### optional features

**Optional Molded Cover** 

Molded of high impact U.L. listed material that covers the entire closer body assembly. This cover is non-handed for regular and parallel arm applications. Suffix "P" to catalog number. Not designed for top jamb applications.





# features

optional features - delayed action

Adjustable Delayed Action Closing An optional hydraulic feature that adds a third speed range to the closing cycle. This feature becomes effective when the door is opened and released at any point beyond 70°. The amount of time delay depends upon the combination of the angle of door release and valve adjustment. The valve can be adjusted with a 1/8" (3mm) hex key from no delay time up to maximum delay times of:

Door Opened and Released at	Approximate Time of Delay Cycle
180°	4-5 minutes
120°	2-3 minutes
90°	25-30 seconds

### **Pressure Relief Safety Valve**

The delayed action hydraulic system contains a pressure relief valve. Any time the door is forced toward the closed direction while it is in the closing cycle, the valve will open and permit the door to close. This prevents damage to door, frame and closer. Delay Release Point DELAY RANGE BUD CLOSED

### **Suggested Applications**

Delayed Action closing allows slow-moving traffic to clear the opening before the door closer's normal closing cycle begins. This feature can be helpful in health care facilities such as hospitals and nursing homes. It provides sufficient time for persons on crutches or in wheelchairs to pass through a door without concern of it closing. At the same time, it can accommodate the facility's staff with movement of food service carts, beds, and other wheeled traffic. Use of delayed action closers on many doors throughout industrial and commercial buildings can also assist the flow of traffic. Locations where additional time to clear the opening is advantageous are doors between office and factory/ warehouse facilities, doors to workshops or laboratories, doors to kitchen and food processing areas, etc.

### optional features - arms

### **Non-Hold Open**

Self-closes door every time door is opened. Auxiliary stop (by others) required.

### **Hold Open**

Achieved by means of friction or ball and detent/roller. Friction hold open has a range of 90° to 180° using template location and mechanical adjustment. Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.



# applications



### **Regular Arm**

This is the only pull-side application where a double lever arm is used. It is the most power-efficient application for a door closer. Sufficient frame, door and/or ceiling clearance must be considered. Since the arm assembly projects directly out from the frame, this application may present an aesthetics issue or be prone to vandalism.



### **Top Jamb**

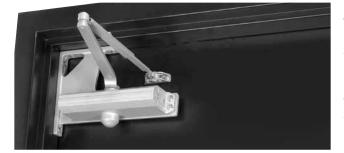
For efficiency reasons this application provides the best alternative to the regular arm application. There must be sufficient frame face and/or ceiling clearance for this application. It requires a top rail on the door of just 2-1/8" (54mm). This application provides the best door control for doors in exterior walls that swing out of a building. The entire door closer and arm assembly project from the frame, similar to the regular arm application, where the matters of appearance and malicious abuse can be of concern. Consideration must be given to depth of the frame reveal.



#### Parallel Arm

This application provides the most appealing design appearance for a surface-mounted door closer having a double lever arm. This may also be beneficial in vandalismprone areas. It is on the push side of the door and the arm assembly extends almost parallel to the door. In the closed position, there is very little or no hardware projecting beyond the frame face in most situations. Due to the geometry of the arm it is approximately 25% less powerefficient than a regular arm application. The entire closer

and arm assembly are mounted below the frame stop, requiring a top rail clearance on the door of between 5-3/8" (137mm), when using a low-profile arm (250 series), to 6-3/8" (162mm), when using the hold open arm.



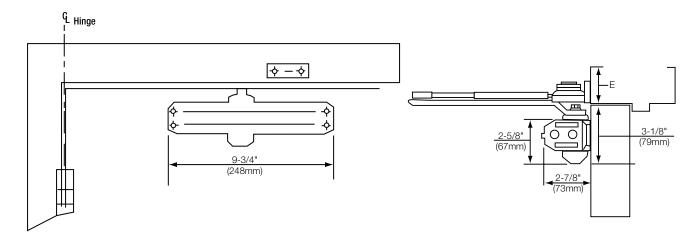
### **Corner Bracket**

This application can be used where top jamb and parallel arm application will not accommodate the door and frame conditions. Requires minimal top rail on the door; however, vertical clearance to the floor within the door opening should be checked to ensure code compliance. The close proximity, for this application, of the door closer to the door's pivot point reduces the door closer's power efficiency by approximately 25% when compared to a regular arm. The projection of the arm from the door face might pose questions regarding design parameters or environment.



# technical details -

regular arm



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum Door Size Inches (cm)		Model Number	
Interior Exterior		Non- Hold Open	Hold Open
32" (81)	_		151 151BF
38" (97)	30" (76)	51 51BF	
42" (107)	36" (91)		
48" (122)	42" (107)		
_	48" (122)	_	

E Minimum Ceiling Clearance Inches (mm)				
Non-Hold Open Hold Open				
1-1/2" (38)	1-5/8" (41)			

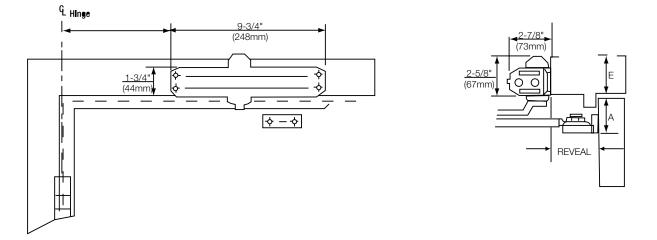
### Note:

51 Door Closers are adjustable for sizes 3 through 6, and are shipped set at size 4. 51BF Door Closers are adjustable for sizes 1 through 4, shipped set at size 2 and can be adjusted to conform to ADA opening force requirements.



# technical details

top jamb



\* For doors opening up to 100° Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Doo	Maximum Door Size Inches (cm)		Number
Interior	Interior Exterior		Hold Open
32" (81)			
38" (97)	30" (76)		151 151BF
42" (107)	36" (91)	51 51BF	
48" (122)	42" (107)		
_	48" (122)		

Mini	E Minimum eiling Clearance		A Minimum Top Rail Clearance	
Without Drop Plate	With Drop Plate	Drop		With 214 Drop Plate
2-5/8" (67)	1-3/4" (44)	1-7/8" (48)	2-5/8" (67)	4" (102)

Closer Series	Reveal Inches (mm)
51	0 to 3" (0 to 76)
TJ51	2-7/8" to 7" (73 to 178)
151	0 to 2-3/4" (0 to 70)
TJ151	2-3/4" to 6-3/4" (70 to 171)

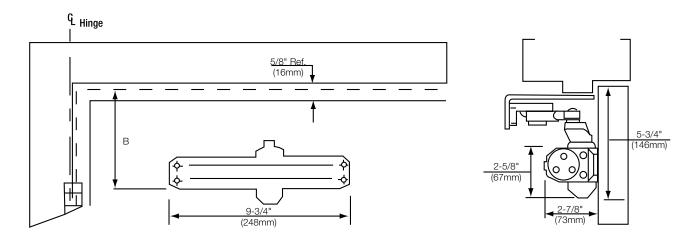
### Note:

51 Door Closers are adjustable for sizes 3 through 6, and are shipped set at size 4. 51BF Door Closers are adjustable for sizes 1 through 4, shipped set at size 2 and can be adjusted to conform to ADA opening force requirements.



# technical details -

parallel arm



\* For doors opening up to 100°

Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

	n Door Size es (cm)	Model	Number	
Interior	Interior Exterior		Hold Open	
30" (76)	_	51 151 51BF 151BF		
36" (91)	30" (76)			
42" (107)	36" (91)			
48" (122)	42" (107)			
_	48" (122)			

B Minimum top rail of door with 5/8" (16mm) frame stop		
Without Drop Plate Inches	With Drop Plate Inches	
5" (127)	3-1/8" (79)	

#### Note:

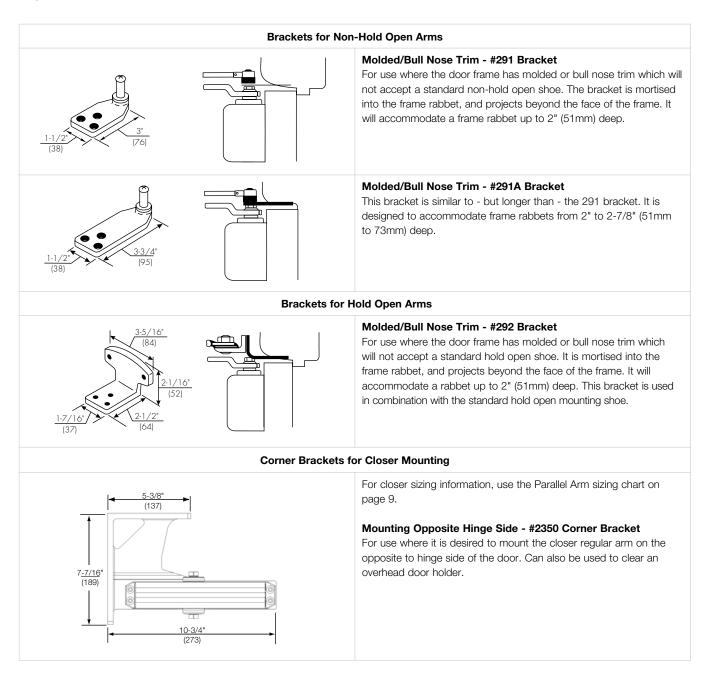
This door sizing information also applies to corner bracket mounted closers.

51 Door Closers are adjustable for sizes 3 through 6, and are shipped set at size 4.

51BF Door Closers are adjustable for sizes 1 through 4, shipped set at size 2 and can be adjusted to conform to ADA opening force requirements.

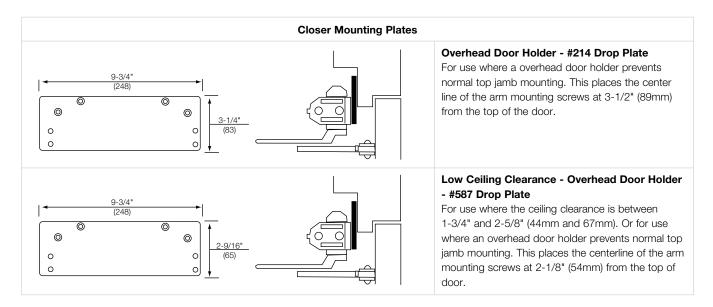


regular arm



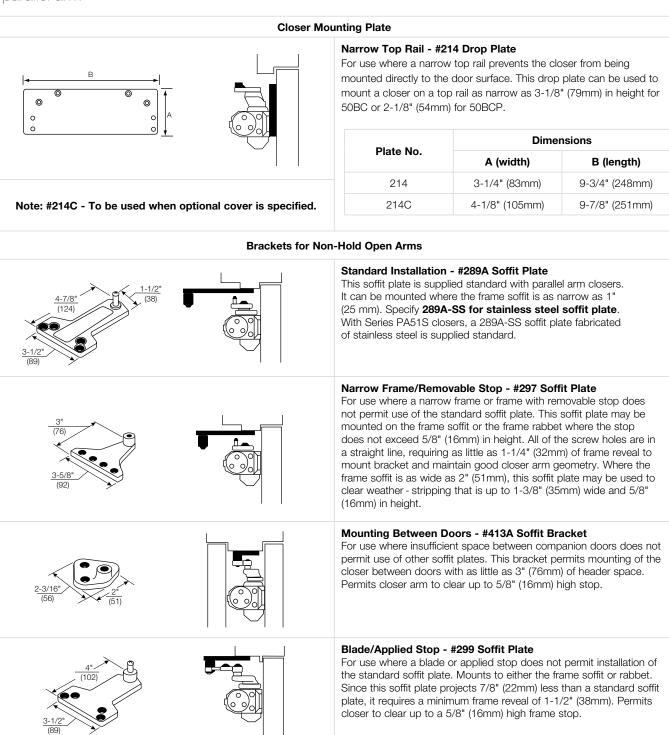


top jamb





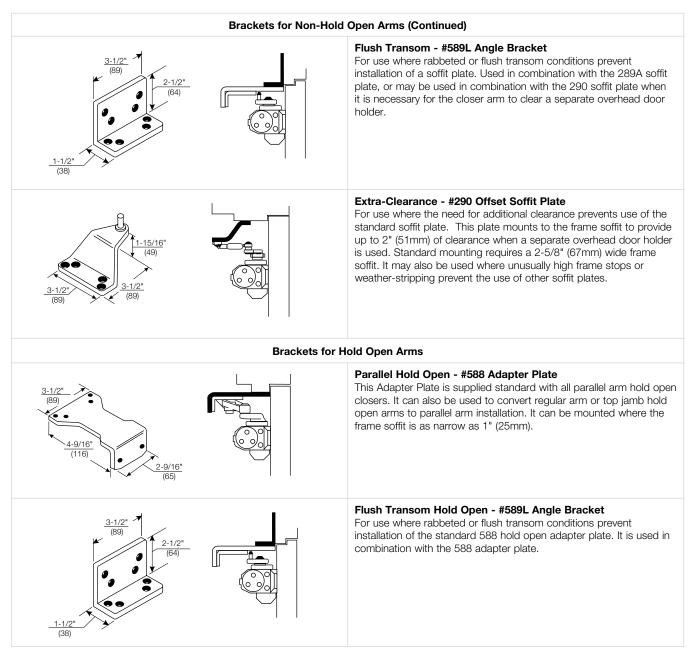
parallel arm





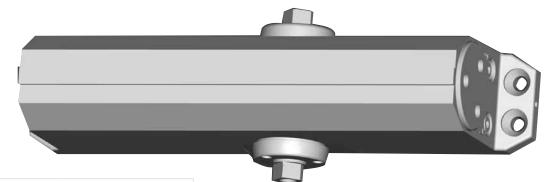


parallel arm





door closer body assemblies



r Only Idard)
Multi-sized
Barrier Free

#### LAP = Less All Parts

\* Specify closer size. Pinion cap and mounting screws supplied standard.

#### fasteners

#### Steel Door Application

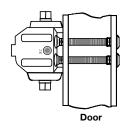
Sex Nut / Sleeve-Nut : "SN" (4 per pack) or Sex Nut / Sleeve-Nut & Screw: "SNB" (4 per pack)

_ لیسے	
	<b>h</b>
	Door
Side View	

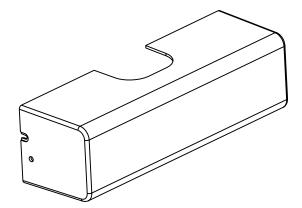
Door	SN's	SNB's		
1-3/4"	SN-134	SNB134-38		
2"	SN-200	SNB200-38		
2-1/4"	SN-214	SNB214-38		
S.S. SNB's 1-3/4"	SN-134SS	SNB134SS-38		

#### **Aluminum and Wood Door Application**

(Aluminum Door Shown) Through-Bolt & Grommet Nut : "TBGN" (4 per pack)



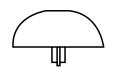
Door	TBGN's		
1-3/8"	TBGN138-38		
1-3/4"	TBGN134-38		
2-1/4"	TBGN214-38		



Cover (optional) - specify 50P

#### Dimensions (RA and PA applications):

2-7/8"(73mm) height x 3-1/16"(78mm) deep x 9-7/8"(251mm) long To order with closer use "P" suffix; i.e. 54BCP.



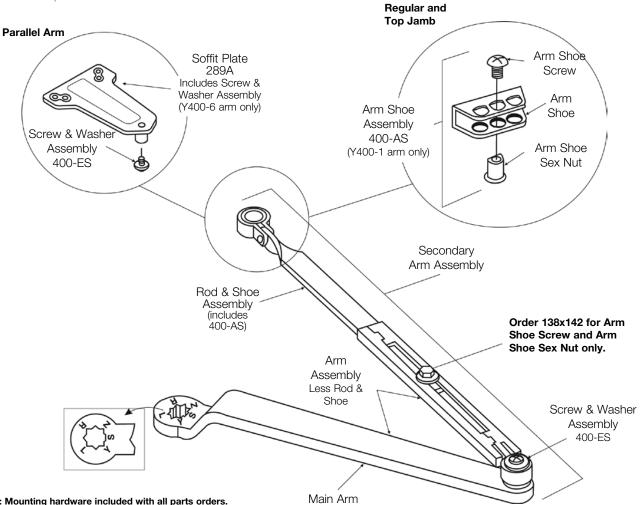
1639 Pinion Cap





# parts list —

non-hold open arm assemblies



#### Note: Mounting hardware included with all parts orders.

Closer Series	Complete Arm Assembly	Main Arm Assembly <sup>1</sup> (length)(mm) (includes 400-ES)	Secondary Arm Assembly (includes 400-ES)	Arm Assembly Less Rod and Shoe	Rod & Shoe Assembly <sup>2</sup> (length)(mm)
51	Y400-1		Y400-111		Y400-11 (8-7/8") (225)
TJ51	Y400-1A	400-1M	Y400-121	Y400-1W	Y400-11A (12-1/2") (318)
PA51	Y400-6	(11") (279)	Y400-116		Y400-16 (8-7/8") (225)
PA51C <sup>3</sup>	Y400-6A		Y400-116A		Y400-16A (12-1/2") (318)
51	Y400-26 (Tri pack includes Y400-1 plus 289A plate)				

1. C/L to C/L length shown in parentheses.

2. C/L of connecting link to end of rod shown in parentheses.

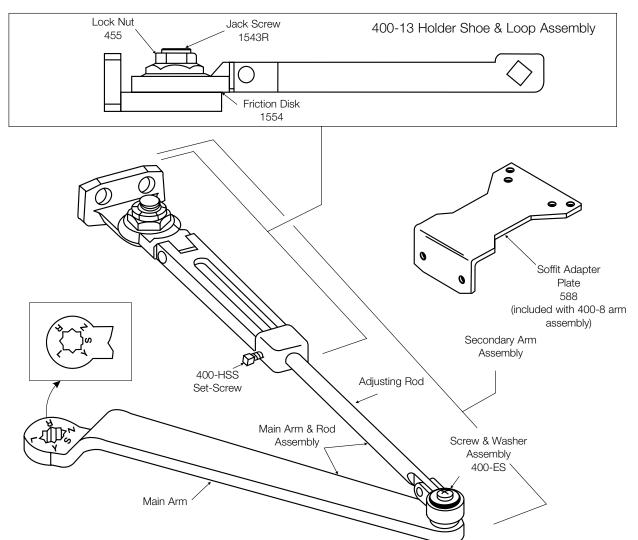
3. For 180° door swing when using a special template for doors hung on 6" to 8" (162mm to 203mm) wide throw hinges.





# parts list

hold open arm assemblies



Note: Mounting hardware included with all parts orders.

Closer Series Assembly	Complete Arm Assembly	Main Arm <sup>1</sup> (Length)(mm) (Includes 400-ES)	Secondary Arm (Includes 400-ES)	Main Arm & Rod Assembly	Holder Shoe & Loop Assembly	Adjusting Rod <sup>2</sup> (Length)(mm)
151	400-3/400-8 <sup>3</sup> (Reg)/(Par)	400-1M	400-113/400-118 (Reg)/(Par)	400-3W	400-13 / 400-18ª (Reg)/(Par)	400-31 (7-3/8") (187)
TJ151	400-3A	(11") (279)	400-123	400-3WA		400-31A (10-13/16") (275)

400-18 = Holder Shoe & Loop Assembly (400-13) with soffit adapter plate (588)

1. C/L to C/L length shown in parentheses.

2. C/L of connecting link to end of rod shown in parentheses.

3. Same as 400-3 but includes #588 soffit adapter plate.

4. Same as 400-13 but includes #588 soffit adapter plate.



# suggested specifications

51 series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closers shall be surface mounted and shall project no more than 2-7/8" from the surface of the door. Closers shall be non-handed to permit installation on doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as - 40°F. Closers shall have multi-size spring power adjustment to permit setting of spring power for sizes (1 through 4) (3 through 6). Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep and latch speed. (Closers shall have adjustable backcheck cushioning controlled by a hex key adjusted valve.) Closer power shall be adjustable using 1/8" hex key.

[Closers shall have adjustable delayed-action closing controlled by a hex key adjustable valve.]

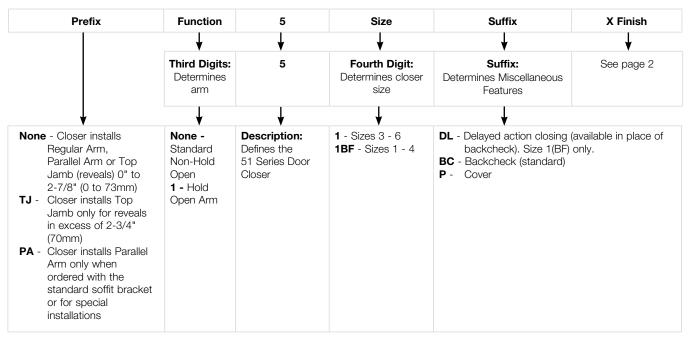
(Closers shall be provided with a full molded cover.)

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+/- 7-1/2%) power adjustment. [51] [51BF]



# how to order

ordering information



#### Notes:

- Door closer warranty becomes void if it is installed on the exterior side of a door in the exterior wall of a building
- It is strongly recommended, and it is required on fire door assemblies, that doors having a door closer be hung on ball-bearing or antifriction hinges or pivots.
- Failure to use the correct type and size fasteners may void factory warranty.
- Fasteners for fire/smoke door assemblies must conform to NFPA 80. In some applications additional fasteners may be mandated by NFPA 80 that are not shipped with Yale<sup>®</sup> standard product, such as sleeve-units/sex-nuts or through-bolts and grommet nuts.
- Sizing chart provided on pages 7-9 are based on 1-3/4" (44mm) x 7' (2.13m) standard weight door swinging to 110°. Other conditions (such as door height or weight, or wind (draft conditions), may require a larger size closer.
- Contact factory if door weight exceeds 250 lbs.





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- Parts manuals
- Templates
- Specifications
- Installation instructions

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