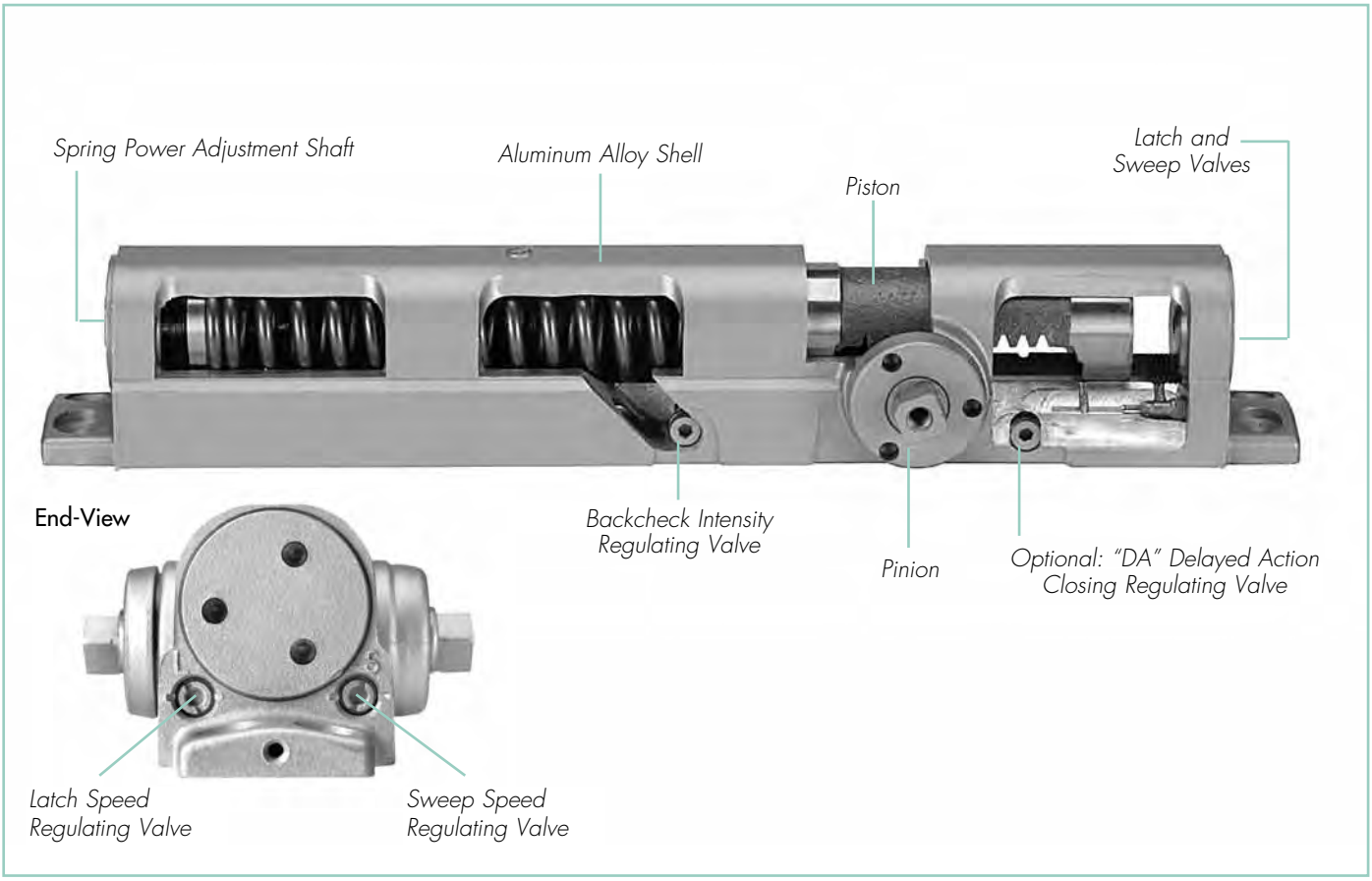
OVERVIEW

Cutaway View



COMPLIANCE STANDARDS

- ANSI/BHMA A156.4, Grade 1 certified
- UL / cUL listed for use on fire rated doors
- UL10C listed for positive pressure fire test
- 8301 and 8501 door closers are designed to comply with requirements for the Americans with Disabilities Act (A.D.A) and ANSI standard A117.1
- This product is manufactured in an ISO 9001 facility

CAUTION: Door Closers for Low Opening Force Applications:
Door closers installed in openings required to meet the requirements of The Americans with Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door.

HOW TO ORDER

For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.

Prefixes

No Prefix } 8301/8501 series designates Tri-Style®

- **S** - 8301/8501 regular arm application only, non-hold open
- **JS** - 8301/8501 top jamb application only, non-hold open
- **P** - 8301/8501 parallel arm application only, non-hold open 8381/8581 low profile closer
- **J** - Top Jamb installation. 2-3/4 to 7" reveal - 150° swing
- **PR** - Parallel rigid arm (parallel arm only - specify hand for hold open functions)
- **PRO** - Parallel rigid arm with offset soffit plate (parallel arm only - specify hand for hold open applications)
- **PS** - For push side mounted slide track only
- **R** - Regular rigid heavy-duty arm (Torx® screws not included)
- **CLP** - CloserPlus® arm (parallel arm only)
- **CPS** - CloserPlus Spring™ arm (parallel arm only)
- **UNI** - Unitrol® arm (parallel arm only - specify door width)
- **UNIJ** - *Unitrol* arm (top jamb only - specify frame reveal)

8 — First Digit Defines Closer Series

3 — Second Digit Specifies Cover Option

Appearance Options
1- without cover
3- closer with Slim Line cover
5- closer with Full cover

0 — Third Digit Specifies Type

- 0 - Specifies standard type arms for non-hold open, hold open closers
- 4 - Specifies low profile slide track
- 8 - Specifies a low profile arm for non-hold open closers only

1 — Fourth Digit Specifies Closer Size

1 - Full Power Range Closer adjustable sizes 1 through 6 (also adjustable to comply with Accessibility Code Closer Requirements)

H — Suffix

- **No Suffixes** - Standard non-hold open arm
- **H** - Standard hold open arm
- **M** - Metal cover; optional for series 8501 closers only (Specify hand for Top Jamb closer)
- **MLL** - Lead lined metal cover
- **A** - Optional Architectural Plastic cover (8501 only)
- **MA** - Optional Architectural Metal cover (8501 only)
- **T** - Thumbturn hold open on *CloserPlus* (CLP) & *CloserPlus Spring* (CPS) arms
- **DA** - Adjustable delayed action closing optional. Available with adjustable backcheck cushioning for all series
- **ST** - Slide track single lever arm (pull side standard. For push side prefix PS)
- **DE** - Pull side slide track arm for double egress frame with reveal (Handed)
- **G** - ABS cover
- **R** - Ramp hold open on CloserPlus® arm

Notes:
- Warranty becomes void if door closer is installed on the exterior side of a door in the exterior wall of a building.
- It is strongly recommended, and required on fire door assemblies, that doors having a door closer be hung on ball bearing or anti-friction hinges or pivots; unless an alternate method is identified in the door manufacturer's listing.
- 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 standard *Norton* product, such as sleeve-nuts/sex nuts or through-bolts and grommet nuts.
- Sizing charts provided on pages 13-25 are based on 1-3/4" (44mm) x 7' (2.13m) standard weight doors swinging to 110°. Other conditions (such as door height or weight; or wind/draft conditions) may require a larger size closer.

FASTENERS

Type	Description	Arm								
		RA	PA	TJ	Low Profile	PR	CLP / CPS	UNI	UNI-J	Slide Track
DOOR										
SDST	Self Drilling Self Tapping	S	S	S	S	S	S	S	O	O
MS	Machine Screw	S	S	S	S	S	S	S	S	S
SN	Sleeve Nut/Sex Nut	O	O	O	O	S	S	S	S	S
TBGN	Through-Bolts & Grommet Nuts	O	O	O	O	O	O	O	O	O
SMS	Sheet Metal Screws	O	O	O	O	O	O	O	O	O
Torx®	*Torx* Drive Security Screw	O	O	O	O	O	O	O	O	O
FRAME										
SDST	Self Drilling Self Tapping	S	S	S	S	S	S	S	S	S
MS	Machine Screw	S	S	S	S	S	S	S	S	S
SMS	Sheet Metal Screws	O	O	O	O	O	O	O	O	O
Torx	*Torx* Drive Security Screw	O	O	O	O	O	O	O	O	O

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.
TORX screws with security pin are standard with Security Door Closers. *Torx* may be specified for all other series applications. *Torx* are only available with machine screw threads. Sheet metal screw threads or wood screw threads are not available.
Note: To order special fasteners with closers, specify model number x fastener (Ex: 8501 x 689 x TBGN)

FINISHES

Norton offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA	Description
600*	Prime Coat
605	Bright Brass
606	Satin Brass
611	Bright Bronze
612	Satin Bronze
613E	Dark Oxidized Satin Bronze - Equivalent
619	Satin Nickel
625	Bright Chrome
626	Satin Chrome

ANSI/BHMA	Description
689	Aluminum
690	Statuary Bronze
691	Dull Bronze
693	Black
694	Medium Amber
696	Gold
N/A	556 White

* 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.
- Norton closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.
- When a plated finish is ordered, arm and cover will be plated unless "cover only" is specified.

FEATURES

Aluminum Alloy Housing
Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interactive 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 interfere.

Non-handed
With few exceptions all series 8301/8501 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, as noted on pages 6-7, will require that the hand of the closer be specified.

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

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

Tri-Style®
8301/8501 comes with screws, brackets and soffit plates to allow for regular, top jamb, and parallel arm installations.

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

Standard Molded Covers
Molded of high-impact U.L. listed material. These covers are non-handed for all applications.

Warranty
Limited 25-year warranty for defects and life of the building on the aluminum housing.

Closer Fluid
NorGlide® closer fluid is a specially formulated multi-viscosity hydraulic fluid that contains lubricity and anti-oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and brass components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

Door Closer Power Options

Series 8301/8501 Multi-Sized Door Closer
Adjustable through the power range of sizes 1 through 6; as outlined in ANSI/BHMA specification A156.4 option PT 4H.

Closers will also comply with the opening force requirements as outlined in the Americans with Disabilities Act (ADA) and ANSI/BHMA standard A117.1 for interior doors.

OPTIONAL FEATURES COVERS

Optional Metal Cover
This steel cover is non-handed for regular and parallel arm applications, but is handed for top jamb applications. Cover is available in sprayed or plated finishes.

Optional Architectural Covers *

Plastic Architectural plastic covers are molded of high-impact U.L. listed material. They are non-handed and available in sprayed finishes.

Metal The architectural metal covers are steel and non-handed for all applications. These covers are available in sprayed or plated finishes.

Optional ABS Cover
Consult factory for details

OPTIONAL FEATURES

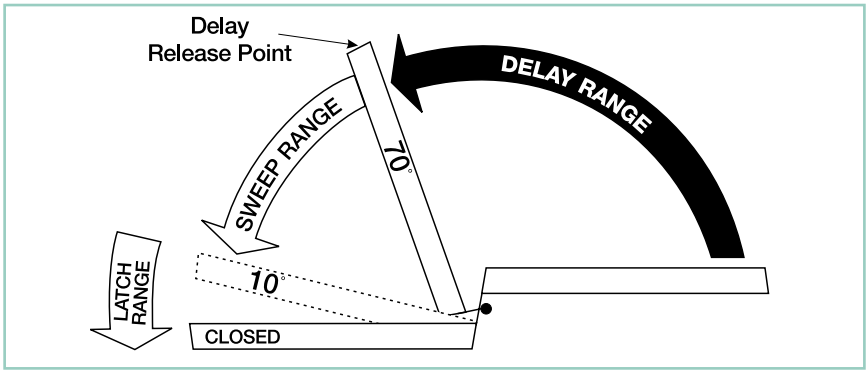
Adjustable Delayed Action Closing

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	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.



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, 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 except when using the CloserPlus®, CloserPlus Spring™ or Unitrol® arms.

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.

Door Opening Degrees

Arm Function	Regular Arm, Top Jamb Parallel Arm	Parallel Rigid Arm	CloserPlus® Parallel Arm	CloserPlus Spring™ Parallel Arm	Unitrol® Parallel Arm	*Unitrol* Top Jamb	Low Profile Regular, Parallel	Slide Track
Non-Hold Open	✓	✓	85° to 110°	85° to 110°	85° to 110°	85° to 110°	✓	85° to 110°/180°
Hold Open	90° to 180°	85° to 180°	85° to 110°	85° to 110°	85° to 110°	85° to 110°	N/A	85° to 110°

✓=180° trim and template permitting

SUGGESTED SPECIFICATIONS

8301/8501 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 2-1/8" from the surface of the door with standard cover. 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 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 from size 1 through size 6. Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep speed and latch speed. Closers shall have adjustable backcheck intensity controlled by a hex key adjusted valve.

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

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+ or – 7-1/2%) power adjustment. **Closers shall be enclosed in a [molded resin cover] [plated or sprayed metal cover], Closers to be Norton® [8301/8501] [8501M] [8501MA] [8501A].

**For special arms insert that specification here (see column three on this page).

**Unitrol® Arm

Door closers shall have a fixed door stop feature effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop shall be cushioned by a shock-absorbing heavy-duty spring action effective at the [soffit plate] [arm shoe] pivot. [Closers shall be provided for parallel arm installation using a rigid steel main arm and secondary arm lengths proportional to the door width.] [Closers shall be provided for top jamb installation using a forged steel, rigid main arm and telescoping secondary arm adequate for the frame reveal of the openings.]

**CloserPlus® Arm

Door closers shall have a field reversible door stop. Door closer shall have a feature with selectable on and off ball and detent hold open. Hold open tension shall be adjustable effective at one point selected at installation, from 85° - 110° in five degree increments. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel arm installation using a forged rigid steel main arm and secondary arm.

**CloserPlus Spring™ Arm

Door closers shall have built-in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall be reversible and have a buffer spring that engages prior to the dead stop feature, reducing shock loads to the door and frame assembly. Door stop mechanism shall be non-handed and attached to soffit plate. [Hold open mechanism shall have engage/disengage selection actuated by thumbturn]. Closers shall be provided for parallel installation using a forged rigid steel main arm and secondary arm.

APPLICATIONS

8301 - slim cover

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.

8501 - full cover

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 2-1/4" (57mm). 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 matters of appearance and malicious abuse can be of concern. Consideration must be given to depth of frame reveal.

Parallel Arm

This application provides the most appealing design appearance for a surface-mounted door closer having a double lever arm. This also makes it beneficial in vandalism-prone 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 power efficient than a regular arm application. The entire closer and arm assembly are mounted below the frame stop. Top rail clearance dimensions will vary based on the type of cover used. (See pg.15)

APPLICATIONS

Non-hold open arm shown

Parallel Rigid Arm

An enhanced variation of the standard parallel arm assembly that is intended for use in heavy traffic areas where auxiliary door stops are installed.

Hold open available - specify hand when ordering.

Non-hold open arm shown

CloserPlus® Arm

Similar to the Parallel Rigid arm, this arm incorporates a stop at the arm's soffit plate to dead stop the door at a predetermined degree of door swing between 85° and 110°, in 5° increments. Prior to dead stop the door closer's backcheck feature slows the door speed to reduce the impact of the stop action.

The *CloserPlus* Arm is intended for use where an auxiliary door stop cannot be utilized and no more than moderate abuse is anticipated. Where more extreme conditions are expected, use of a *Unitrol* arm is recommended.

Available with or without hold open. (Hold open strength is adjustable.)

Non-hold open arm shown

CloserPlus Spring™ Arm

This arm has all the characteristics of the *CloserPlus* arm with an additional steel buffer spring that provides greater protection at the end of the door opening cycle.

For extreme conditions, use of a *Unitrol* arm is recommended. Available with or without hold open.

CloserPlus Ramp™

The CLP-R uses a patent pending ramp and plunger design that easily slides into place reducing wear often seen on traditional hold open arms. Ideal for applications where the door will constantly be pulled out of hold open.

APPLICATIONS

Regular Rigid Arm
This double lever arm features a non-adjustable secondary arm. Orbitally riveted joints prevent tampering or disassembly. Prefix "R" to model number. Available non-hold open only.

Parallel Rigid Offset Arm
This heavy-duty parallel rigid arm provides additional vertical clearance. It is well suited for applications where weather-stripping or other hardware prevents the use of the standard Parallel Rigid (PR) soffit plate. The non-hold open and hold arms allow 1-1/4" clearance. When used in conjunction with a #6891 spacer block, the PRO arm provides 1-7/8" clearance to accommodate the use of a surface overhead stop/holder.

Parallel

Top Jamb

Unitrol® Arm
Can be used for either parallel arm or top jamb applications. *Unitrol* arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. The *Unitrol* uses a compression spring buffer at the soffit plate/arm shoe that will absorb 30 lbf. of force, 5° prior to the door's dead stop. Coupled with the door closer's backcheck feature, this arm provides the most controlled stop available with a surface door closer. For parallel arm applications there are three different length arm assemblies. Each length is designed for a specific range of door widths, to provide precise door control. This further lessens the dead stop impact on the door's hinges/pivots.

APPLICATIONS

Pull Side

Low Profile Pull Side

Push Side

Low Profile Push Side

Slide Track
Whether pull- or push-side mounted, slide track provides the designer with the smoothest lines available in a surface- mounted door closer. The single lever arm allows components to be located in a stack configuration to minimize projection and eliminate obtrusive arm angles. The arm geometry reduces door closer power efficiency by approximately 25% from that of a regular arm.

Standard unit:

- Adjustable85°- 110° (hold open and non-hold open). Track is supplied with a spring buffered stop. An auxiliary stop, by others, is recommended.
- Specify if hold open unit is required.
- 180° swing (non-hold open, pull side only) is also available. This track assembly requires that a door stop, by others, be supplied to stop the door.

Regular Arm

Parallel Arm

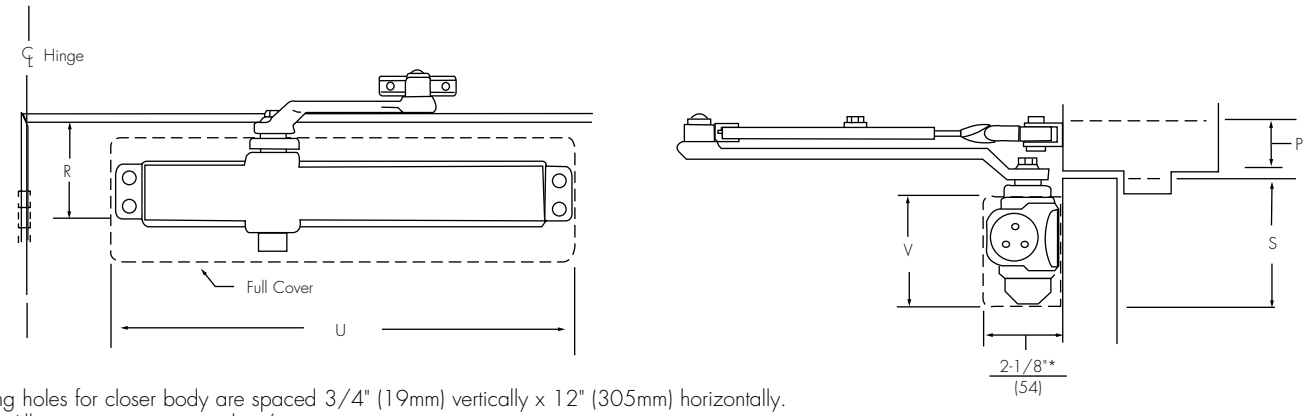
Regular Arm: Allows closer to be installed where there is as little as 1" (25mm) of frame face or ceiling clearance.

Parallel Arm: Allows closer to be installed 1/2" (13mm) higher up on door than standard parallel arm application.

Low Profile Arm
Supplied with 8381/8581 series door closers for non-hold open installations only. Low profile arms have a reduced height elbow joint and a straight main arm. This enables the door closer to be installed in less vertical space.

Note: Low profile arm door closers are not supplied with Tri-Style® packaging.

REGULAR ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 12" (305mm) horizontally.
Note: All measurements are inches/mm.
Maximum 180° door swing, conditions permitting.

Closer Series	Covers	P Minimum Ceiling Clearance			R Minimum Top Rail				S Minimum Top Rail Clearance		U Closer Length	V Closer Height
					W/O Drop Plate		W/8146 Drop Plate					
		NHO	Low Profile	HO	NHO	Low Profile	NHO	Low Profile	NHO	Low Profile		
8101	No Cover	1-1/2" (38)	1" (25)	1-5/8" (41)	2-1/2" (64)	2-3/8" (60)	1-5/8" (41)	1-1/2" (38)	3-1/2" (89)	3-3/8" (86)	12-3/4" (324)	2-7/8" (73)
8301	Slim Line Plastic										13" (330)	
8501	Full Plastic											
8501M	Metal								4-1/4" (108)	4-1/8" (105)	13-5/8" (346)	3-3/4" (95)
8501A	Arch. Plastic								3-5/8" (92)	3-1/2" (89)	14" (356)	3-1/8" (79)
8501MA	Arch. Metal								3-1/2" (89)	3-3/8" (86)		3" (76)

Door Width Inches (cm)		Model Number	
Interior	Exterior	Non-Hold Open	Hold Open
30" (76)	—	8301 8501	8301H 8501H
36" (91)	30" (76)		
48" (122)	36" (91)		
—	48" (122)		
Unusual			

Note: 8301/8501 door closers are set at midpower range from the factory and can be adjusted for door sizes noted above.

* Projection is for Slim Line or Full Covers. Projection for Metal Covers = 2-3/16" (56mm). Projection for Architectural Plastic & Architectural Metal Covers = 2-1/4" (57mm).

Note: Please contact factory if door weight exceeds 250 lbs.