

Fully adjustable door closer for aluminum storefronts and other medium traffic applications

1600 SERIES

ALUMINUM STOREFRONT DOOR CLOSERS

CATALOG

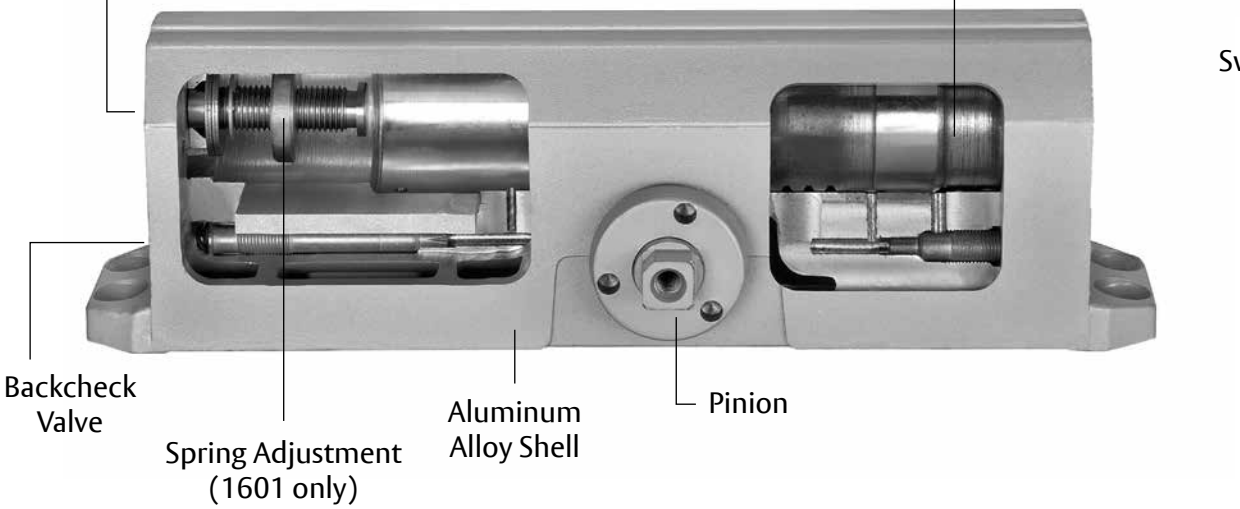
Norton®

ASSA ABLOY

ASSA ABLOY, the global leader in door opening solutions

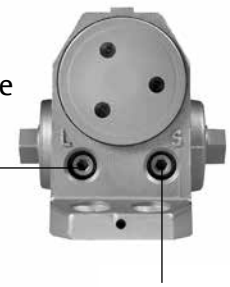
OVERVIEW

CUTAWAY VIEW



Spring omitted for illustration purposes

SIDE VIEW



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1 certified
- UL / cUL listed for use on fire rated doors
- UL10C listed for positive pressure fire test
- Manufactured in an ISO 9001 and ISO 14001 certified facility
- 1601 door closers are designed to comply with requirements for the Americans with Disabilities Act (A.D.A) and ANSI standard A117.1

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 Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door.

EXPLANATION OF 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 1600BC and series 1601 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-Style®

1600BC/1601 closers come with screws, brackets & soffit plate to allow for regular, top jamb, & parallel arm installations.

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 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.

Warranty

These closers carry a limited 15-year warranty against defects and a limited lifetime warranty on the aluminum housing.

Closer Fluid

NorGlide® door closer fluid is a specially formulated 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 zinc 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

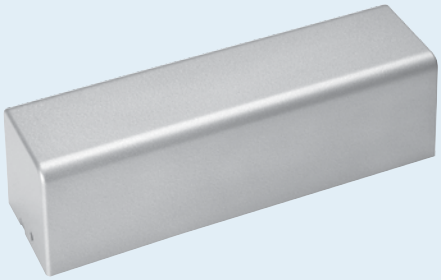
Sized Door Closer: 1600BC

Available in power sizes 3 or 4. Outlined in ANSI specification A156.4. Spring power is not adjustable.

Multi-Sized Door Closer: 1601

Adjustable through the power range of sizes 1 through 6 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. Outlined in ANSI specification A156.4.

OPTIONAL FEATURES



Optional Molded Cover - 1600P

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.

Corrosion Resistant Door Closer

The series 1601SS door closers are available for use where corrosive conditions exist. This series is provided with zinc diecast adjustment valves, a 440 grade stainless steel pinion shaft, an all-aluminum body and bronze closer arm bushings; all other components and fasteners are of 302/303 grade stainless steel. This product is available for standard regular arm, top jamb and parallel arm, non-hold open, applications only. Not Tri-Style packed. "P" or "J" prefix required for parallel arm and top jamb applications.

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.

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.

Non-hold open arm shown



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.

Non-hold open arm shown



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 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, requiring a top rail clearance on the door of between 5-3/8" (137mm), when using a low-profile arm (1680 series), to 6-3/8" (162mm), when using the hold open arm.

Non-hold open arm shown

APPLICATIONS



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.



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 arm 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 tension is adjustable.)

Non-hold open arm shown

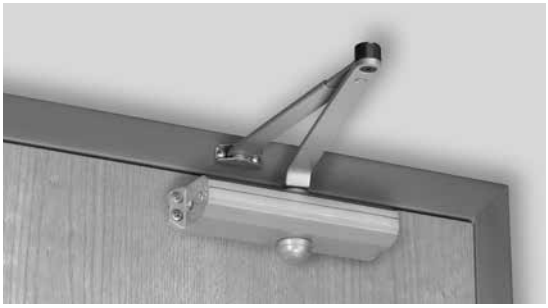


CLOSERPLUS SPRING™ ARM

This heavy-duty stop arm includes all the features of the *CloserPlus* arm, plus an added buffer spring that is compressed prior to the arm hitting the dead stop point. This greatly reduces the shock of the stopping action that occurs with the *CloserPlus* arm.

Thumbturn hold open is available.

APPLICATIONS



CUSHION STOP ARM

Supplied with 1600BC and 1601 series door closers for non-hold open installations only. Available for regular arm. Not available for parallel or top jamb. The Cushion Stop Arm has a stop mounted on the arm elbow and allows door top stop at 85 to 110 degrees of opening based on mounting used.



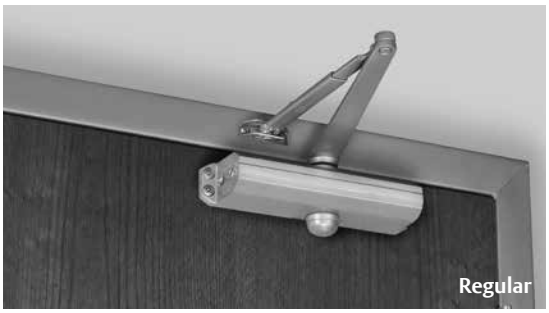
UNITROL® ARM

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.

Specify depth of reveal when using top jamb mounting.





LOW-PROFILE ARMS

Supplied with 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. Non-hold open function only.

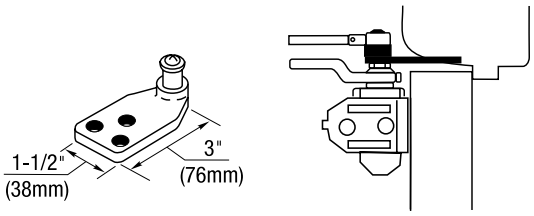
Regular Arm: allows closer to be installed where there is as little as 1" (25mm) of frame face or ceiling clearance.



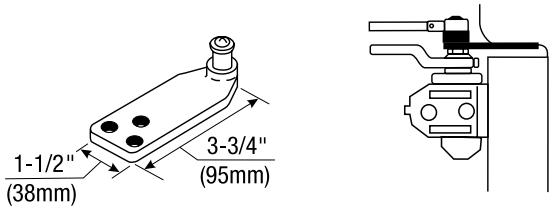
Parallel Arm: allows closer to be installed 1/2" (13mm) higher up on door than standard parallel arm application. Suffix "P" to the catalog number; i.e., P1680BC, P1681.

REGULAR ARM

Brackets for Non-Hold Open Arms

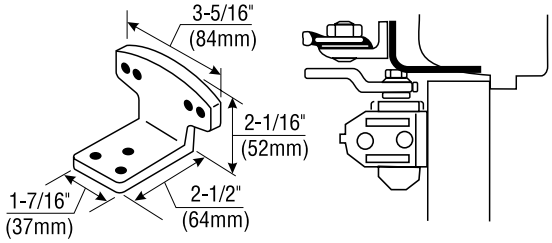


Molded/Bull Nose Trim - #2403B Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.



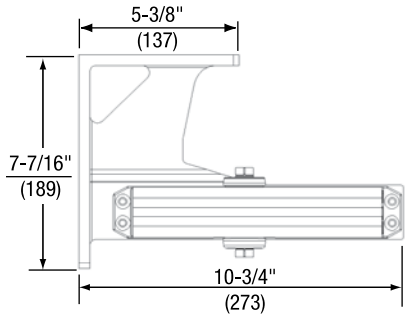
Molded/Bull Nose Trim - #2403-3/4 Bracket: This bracket is similar to-but longer than-the 2403B bracket. It is designed to accommodate frame rabbets from 2" to 2-7/8" (51 to 73mm) deep.

Brackets for Hold Open Arms



Molded/Bull Nose Trim - #80 Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard hold open shoe. It is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a rabbet up to 2" (51mm) deep. This bracket is used in combination with the standard hold open mounting shoe.

Corner Brackets for Closer Mounting

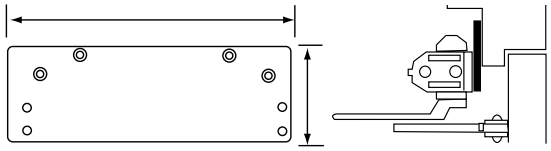


For Closer sizing information, use the Parallel Arm sizing chart on page 13.

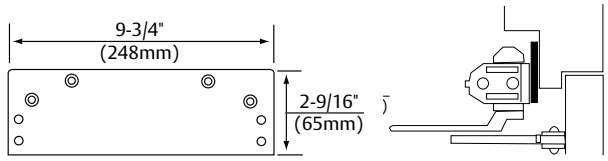
Mounting Opposite Hinge Side - #1647 Corner Bracket: For use where it is desired to mount the closer regular arm on the opposite to hinge side of the door. Can also be used to clear an overhead door holder.

TOP JAMB

Closer Mounting Plates



Overhead Door Holder - #1688 Drop Plate: For use where a overhead door holder prevents normal top jamb mounting. This places the center line of the arm mounting screws at 3-1/2" (89mm) from the top of the door.



Low Ceiling Clearance - Overhead Door Holder - #1687 Drop Plate: For use where the ceiling clearance is between 1-3/4" and 2-5/8" (44 and 67mm). Or for use where an overhead door holder prevents normal top jamb mounting. This places the centerline of the arm mounting screws at 2-1/8" (54mm) from the top of door.

PARALLEL ARM

Closer Mounting Plate

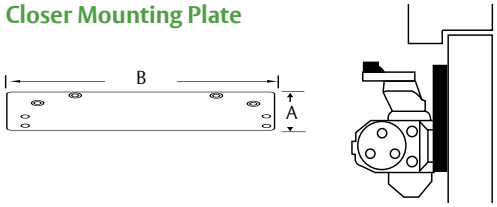
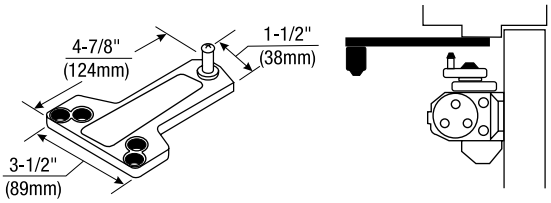


Plate No.	Dimensions	
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

Note: #1688C - To be used when optional cover is specified.

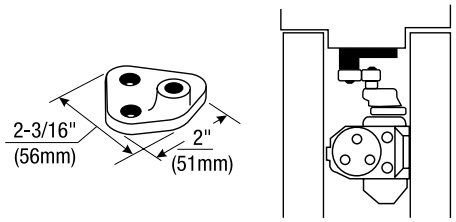
Narrow Top Rail - #1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 3-1/8" (79mm) in height for 1600BC or 2-1/8" (54mm) for 1680BC.

Brackets for Non-Hold Open Arms

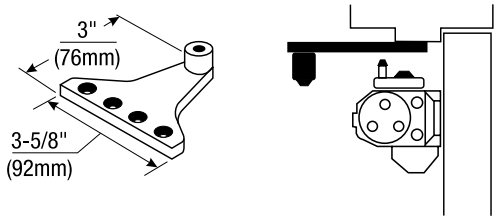


Standard Installation - #1618A Soffit Plate: This soffit plate is supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25 mm).

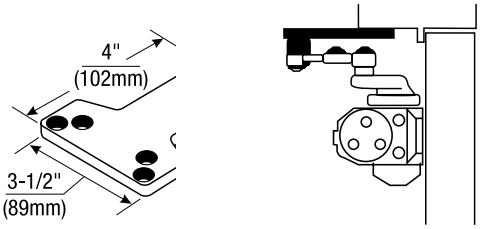
Specify 1618A-SS for stainless steel soffit plate: With Series P1600SS closers, a 1618A-SS soffit plate fabricated of stainless steel is supplied standard.



Mounting Between Doors - #2018 Soffit Bracket: For use where insufficient space between companion doors does not permit use of other soffit plates. This bracket permits mounting of the closer between doors with as little as 3" (76mm) of header space. Permits closer arm to clear up to 5/8" (16mm) high stop.



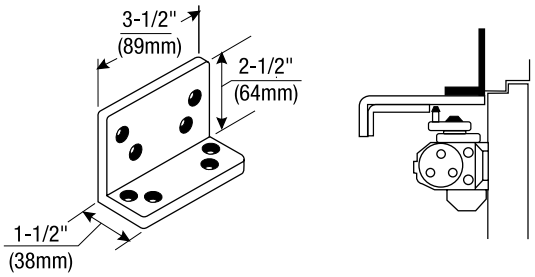
Narrow Frame/Removable Stop - #2018B Soffit Plate: For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This soffit plate may be mounted on the frame soffit or the frame rabbet where the stop does not exceed 5/8" (16mm) in height. All of the screw holes are in a straight line, requiring as little as 1-1/4" (32mm) of frame reveal to mount bracket and maintain good closer arm geometry. Where the frame soffit is as wide as 2" (51mm), this soffit plate may be used to clear weather-stripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.



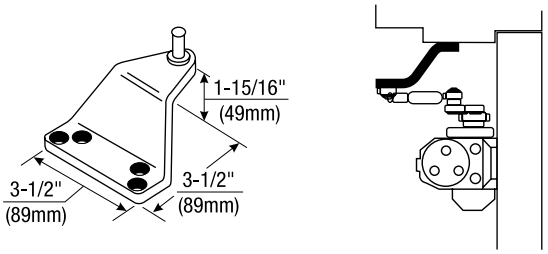
Blade/Applied Stop - #2018D Soffit Plate: For use where a blade or applied stop does not permit installation of the standard soffit plate. Mounts to either the frame soffit or rabbet. Since this soffit plate projects 7/8" (22mm) less than a standard soffit plate, it requires a minimum frame reveal of 1-1/2" (38mm). Permits closer to clear up to a 5/8" (16mm) high frame stop.

PARALLEL ARM

Brackets for Non-Hold Open Arms (continued)



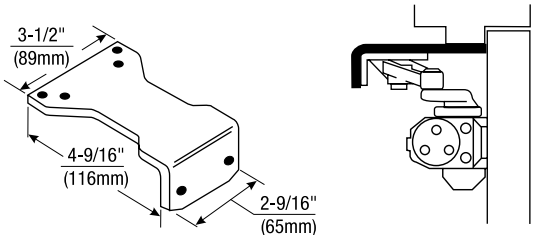
Flush Transom - #2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618A soffit plate, or may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.



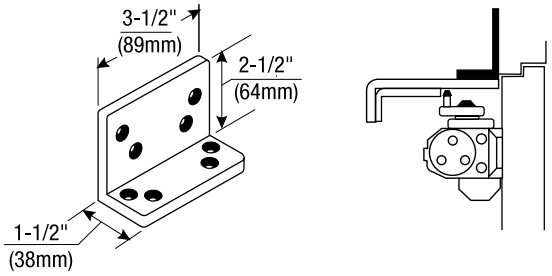
Extra-Clearance - #2018S Offset Soffit Plate: For use where the need for additional clearance prevents use of the standard soffit plate. This plate mounts to the frame soffit to provide up to 2" (51mm) of clearance when a separate overhead door holder is used.

Standard mounting requires a 2-5/8" (67mm) wide frame soffit. It may also be used where unusually high frame stops or weatherstripping prevents the use of other soffit plates.

Brackets for Hold Open Arms



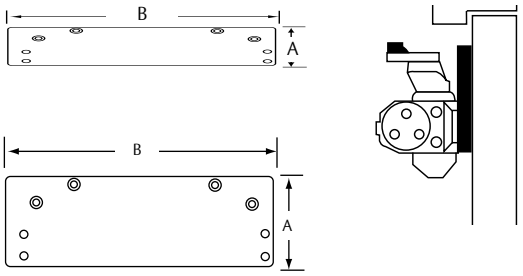
Parallel Hold Open - #1628H Adapter Plate: This Adapter Plate is supplied standard with all parallel arm hold open closers. It can also be used to convert regular arm or top jamb hold open arms to parallel arm installation. It can be mounted where the frame soffit is as narrow as 1" (25mm).



Flush Transom Hold Open - #2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of the standard 1628H hold open adapter plate. It is used in combination with the 1628H adapter plate.

PARALLEL RIGID ARM

Closer Mounting Plate



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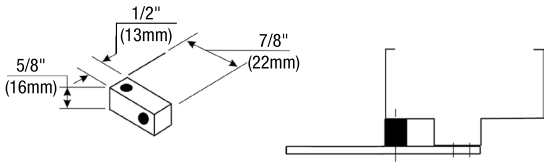
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

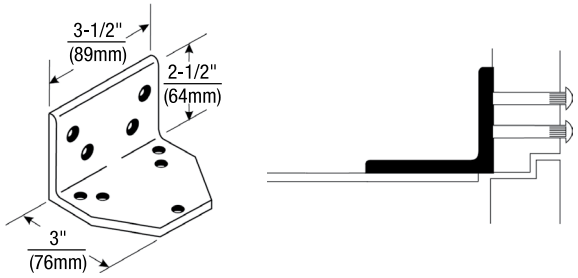
Note: #1688C - To be used when optional cover is specified.

Narrow Top Rail - #1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-5/8" (67mm) in height.

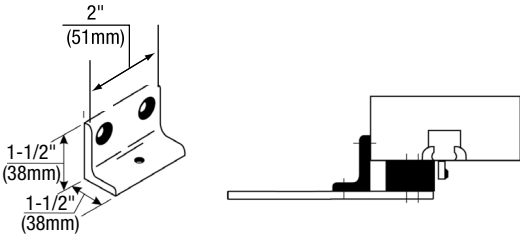
Brackets for Non-Hold Open Arms & Hold Open Arms



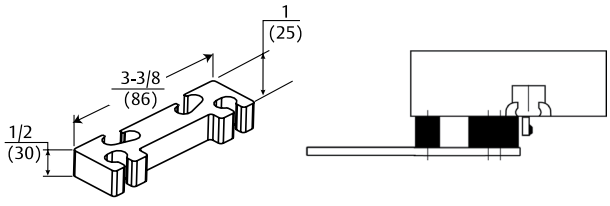
Standard - #2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all parallel rigid arm closers. For use on frame with either 1/2" (13mm) or 5/8" (16mm) high frame stop.



Flush Rabbeted Transom - #2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the arm's soffit plate.



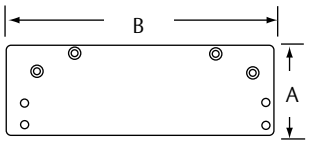
Narrow Frame - #6890 Support Bracket: For use where the frame is narrow and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the #6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frame where frame stop does not exceed 5/8" (16mm) in height.

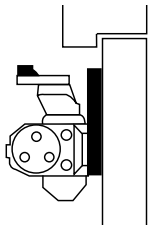


Clearance/Support Blade Stop - #6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard 2019S Spacer Block to provide clearance of the blade stop. For clearance of 5/8" (16mm) high-frame stop.

CLOSERPLUS® AND CLOSERPLUS SPRING™ ARMS

Closer Mounting Plate





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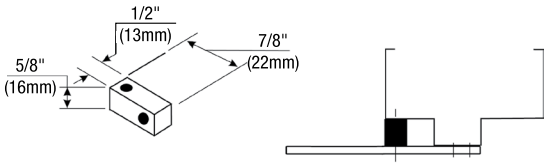
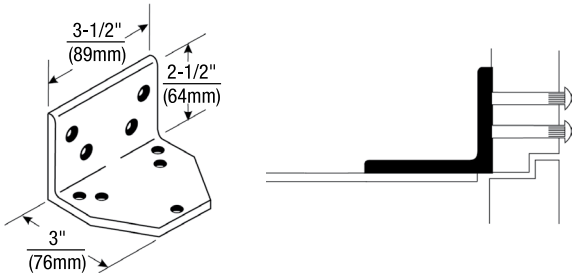
Note: #1688C - To be used when optional cover is specified.

Narrow Top Rail - #1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-5/8" (67mm) in height.

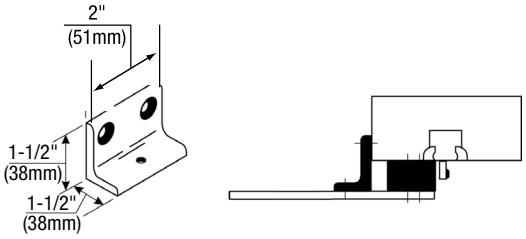
Brackets for Non-Hold Open Arms & Hold Open Arms



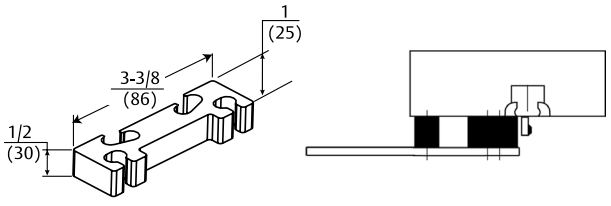
Standard - #2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all parallel rigid arm closers. For use on frame with either 1/2" (13mm) or 5/8" (16mm) high frame stop.



Flush Rabbeted Transom - #2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the arm's soffit plate.



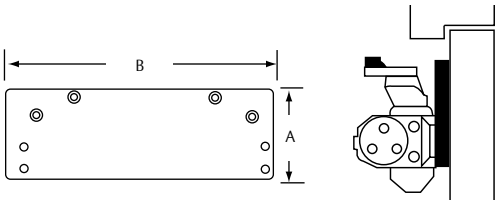
Narrow Frame - #6890 Support Bracket: For use where the frame is narrow and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the #6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frame where frame stop does not exceed 5/8" (16mm) in height.



Clearance/Support Blade Stop - #6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard 2019S Spacer Block to provide clearance of the blade stop. For clearance of 5/8" (16mm) high-frame stop.

UNITROL® ARM

Closer Mounting Plate (for Parallel Arm)

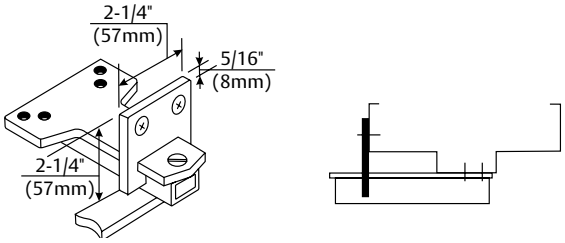


Note: #1688C - To be used when optional cover is specified.

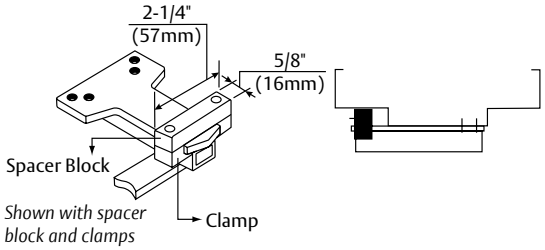
Plate No.	Dimensions	
	A (width)	B (length)
1688	3-1/4" (83)	9-3/4" (248)
1688C	4-1/8" (105)	9-7/8" (251)

Narrow Top Rail - #1688 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-5/8" (67mm) in height.

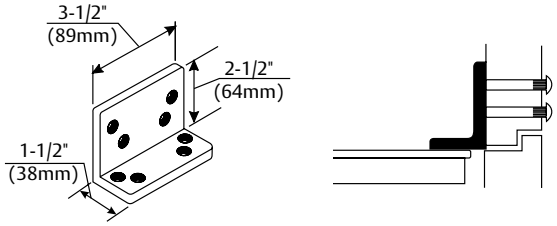
Soffit Plate Reinforcing Brackets (for Parallel Arm)



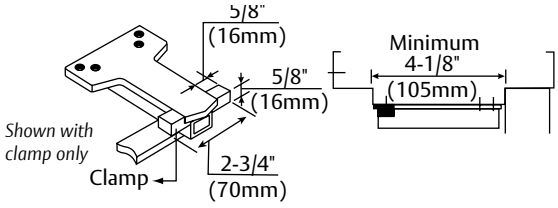
Additional Support - #6190 Reinforcing Bracket: Standard for use with all parallel arm Unitrol Door Controls. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).



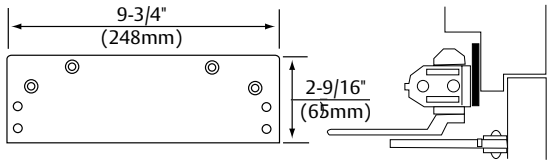
Wide Frame - #6191 Reinforcing Kit: Optional for use with all parallel arm Unitrol Door Controls. Used to support the soffit plate on installations with deep frames. Clamps may be used with or without the spacer block, depending on frame conditions.



Flush Rabbeted Transom - #2022 Angle Bracket: Optional for use with all parallel arm Unitrol Door Controls. For use where rabbeted or flush transom conditions prevent installation of the soffit plate assembly. This bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.

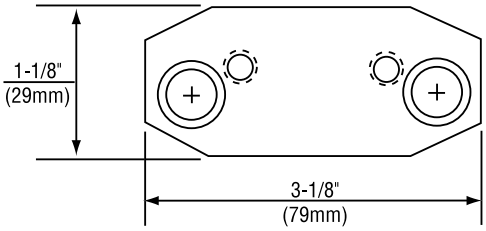


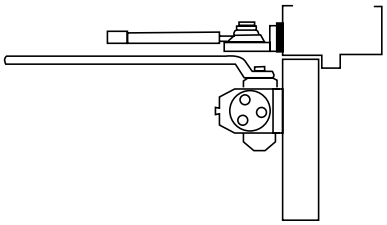
Closer Mounting Plate (for Top Jamb)



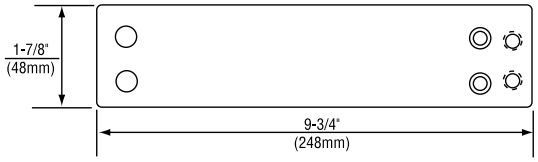
Low Ceiling Clearance - #1687 Drop Plate: For use where the ceiling clearance is between 1-3/4" and 2-5/8" (44 and 67mm). This places the centerline of the arm mounting screws at 2-5/8" (67mm) from the top of door.

SPECIAL ACCESSORIES





Converting Old Hold Open Installations - #2017 Adapter Plate: For use on old hold open installations with 2-1/2" (64mm) hole spacing on the holder bracket. Plate uses existing holes in either door or frame and accepts the new hold open bracket with 1-3/4" (44mm) hole spacing. For regular arm or top jamb installations.



1699 Adapter Plate: Converts old 1602/1603 closer installations with 3/4" (19mm) x 8-3/16" (208mm) - spacing to new 1603 using existing mounting holes in door or frame.

FASTENERS

Type	Description	Arm								
		RA	PA	TJ	Low Profile	PR	CLP/CPS	UNI	UNI-J	CA
					DOOR					
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
SN	Sleeve Nut/Sex Nut	O	O	O	O	S	S	S	S	O
TBGN	Thru 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
					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

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. SMS are supplied as a substitute for wood doors and frames.

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

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

^ Available on arms only.

– Plated finish available on arm only.

HOW TO ORDER

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

J | **16** | **0** | **3BC** | **H**

FIRST & SECOND DIGIT

DEFINES CLOSER SERIES

THIRD DIGIT

SPECIFIES ARM OPTIONS

- **0** - Specifies standard arm
- **8** - Specifies low-profile arm (prefix "P" for parallel arm) NHO only

FOURTH DIGIT

CLOSER POWER SIZING

- **1** - Series 1601 power range 1 thru 6
- **3BC** - ANSI Size 3
- **4BC** - ANSI Size 4

PREFIXES

- **No Prefix** } 1600BC series designates Tri-Style®, sized 1601 series designates Tri-Style®, multi-sized closer
- **J** - Top jamb installation – reveals in excess of 2-3/4 to 7"
- **P** - 1600BC parallel arm units requiring specialty brackets
- - 1601 parallel arm units requiring specialty brackets
- - 1680BC low-profile closer
- - 1601SS corrosion-resistant closer – not Tri style
- **PR** - Parallel Rigid arm (parallel arm only) – specify hand for hold open functions
- **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)
- **CA** - Cushion stop arm

FIFTH DIGIT

- **NONE** - Non-hold open arm function
- **H** - Hold open arm function (specify hand when "PR" prefix is ordered)
- **SS** - Series 1601 only Corrosion-resistant closer Not Tri-Style Available with non-hold open adjustable arm only; for regular arm, top jamb "J" prefix or parallel arm "P" prefix
- **T** - Thumbturn hold open on CloserPlus® (CLP) and CloserPlus Spring™ (CPS) arms
- **P** - Cover

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 anti-friction hinges or pivots.
- Failure to use the correct type and size fasteners may void factory warranty.
- Optional Torx® drive screws (with security pin) are only available with machine screw threads.
- 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 thru bolts and grommet nuts.
- Sizing charts provided on pages 9-17 are based on 1-3/4" (44mm) x 7' (2.13m) standard weight doors swinging to 110 degrees. Other conditions (such as door height or weight; or wind/draft conditions) may require a larger size closer.

Norton®

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Since 1880, Norton door controls have been an integral part of schools, hospitals and businesses around the globe. When you need products and people that perform at the highest level, rely on Norton – From Open to Close.

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