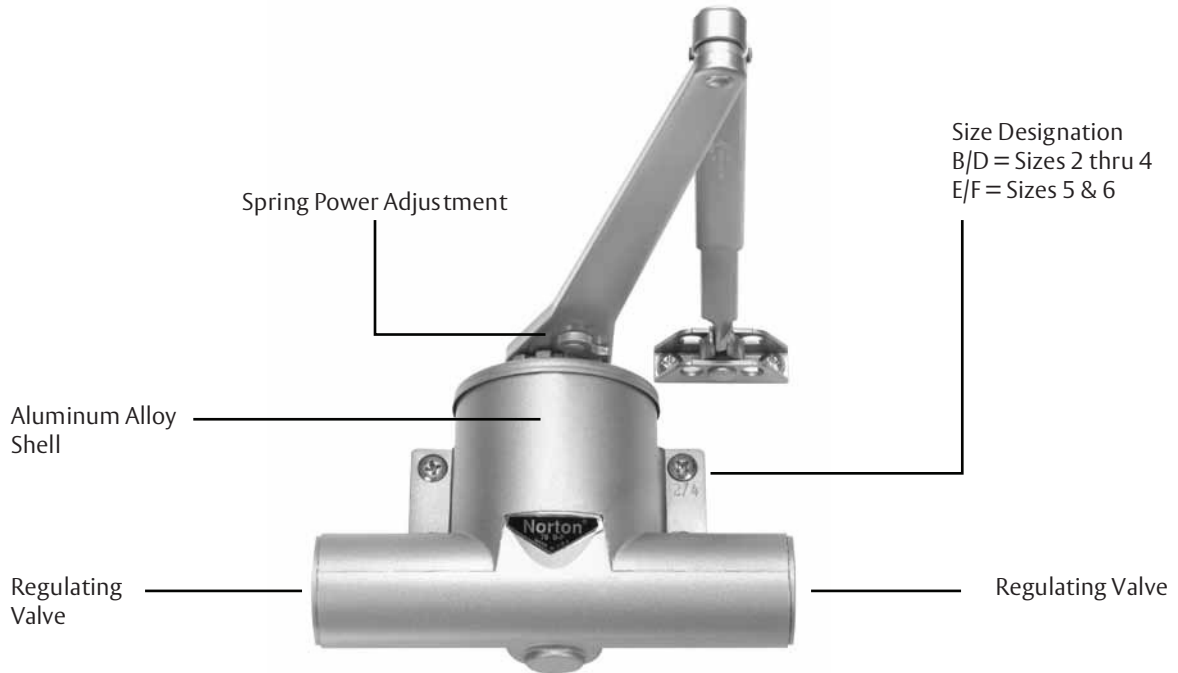


78-B/F SERIES TRADITIONAL DOOR CLOSERS

OVERVIEW



CERTIFICATIONS

- » UL / cUL listed for use on fire rated doors (UL)
- » UL10C listed for positive pressure fire test
- » This product is manufactured in an ISO 9001, ISO 14001 facility
- » Listed by the New York City Materials and Equipment Acceptance Division

EXPLANATION OF FEATURES

Aluminum Alloy Shell

Norton® closer shells are constructed of a special aluminum alloy, carefully selected to accommodate individual closer characteristics and operating conditions.

Adjustable Spring Power

Clock-type coil spring affords a wide range of closer power. Permits a fine adjustment of the closer to the environment.

Rack & Pinion Operation

Provides a smooth transmission of power for control of the door through its full opening and closing cycle.

Adjustable Sweep/Latch Speed

A dual purpose regulating valve, hex-key operated, permits independent adjustment of both sweep and latch speed.

Adjustable Backcheck Cushioning

An independent regulating valve, hex-key operated, provides an adjustable hydraulic cushion to the door opening speed toward the end of the opening cycle. This feature is standard with all but delayed action closers. Backcheck is not available with delayed action closers.

Non-Hold Open Arm

Standard closer will be supplied with a non-hold open arm. This arm is non-handed (field reversible).

Hold Open Arm

Available with heavy-duty arms (Parallel Rigid and Unitrol)

Warranty

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

Field Reversible

Closer spring can be field-reversed to accommodate the hand of the door. It is recommended that wherever possible the closer be ordered handed. Parallel hold open arms and delayed action closers **are not reversible.**

Spring Power

Choice of adjustable spring power:
B/D - Spring size 2, 3, or 4 E/F -
Spring size 5 and 6

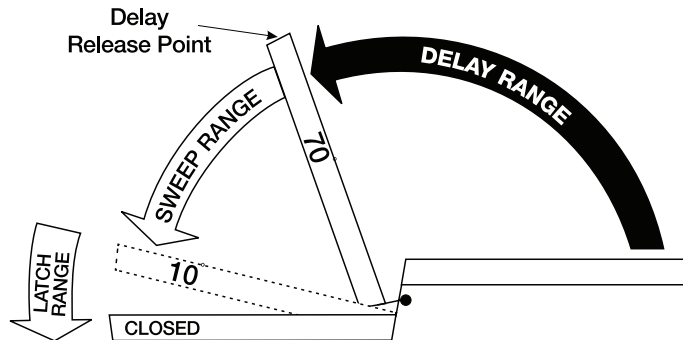
OPTIONAL FEATURES

Adjustable Delayed Action Closing* (supplied in lieu of backcheck feature)

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 |

* Regular arm (NHO units only) are handed - not reversible



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.

SPECIFICATIONS

Closer for interior (and) exterior doors shall be rack-and-pinion type enclosed in a cast aluminum alloy shell. Closer spring shall be clocktype coil spring and shall be adjustable through a wide range of closing power. Closer shall be equipped with a single hex-key operated regulating valve for control of both closing and latch speeds. Closer shall have a hex-key operated regulating valve to control the adjustable backcheck feature. Closer shall be Norton® Series 78-B/F Traditional Surface Closer or equivalent.

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. Only available with non-hold open arm.



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, requiring a top rail of 5-3/8" (137mm) to mount the body. Clearance to the bottom of the closer body from the top of the door is 7-3/8" (187mm). (Based on 5/8" (16mm) high frame stop.) Only available with non-hold open arm.

APPLICATIONS



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.



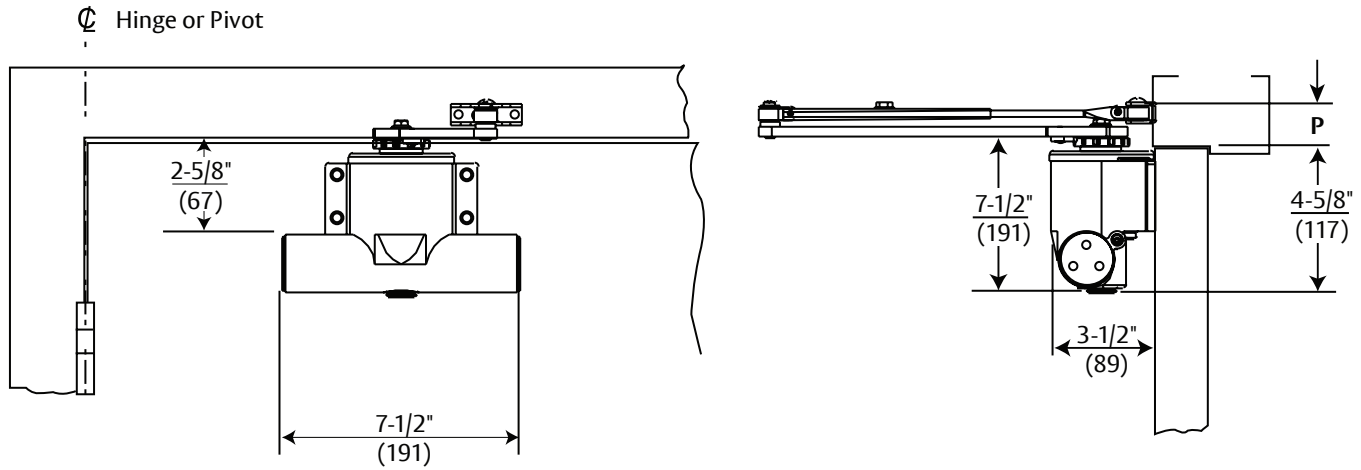
Unitrol® Arm
(Parallel Arm applications only)

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 lbs. 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.

Only available in painted finishes.

REGULAR ARM

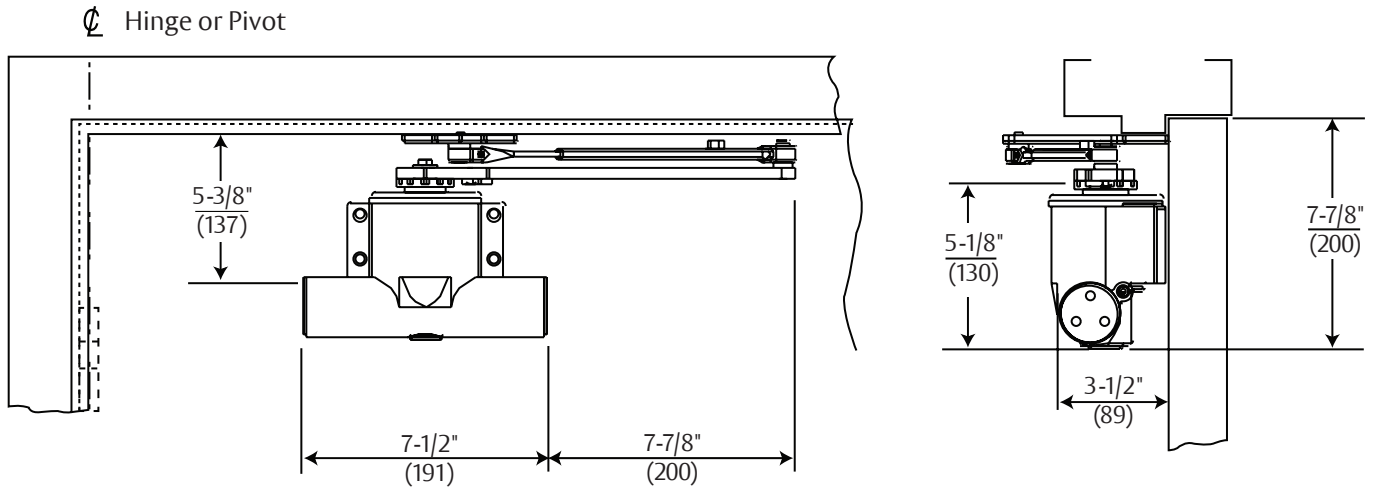


Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

| Maximum Door Size Wood or Metal Inches (cm) | | Model Number | P Minimum Ceiling Clearance |
|--|--------------|---------------|--------------------------------|
| Interior | Exterior | Non-Hold Open | Non-Hold Open |
| 48" (122) | 36" (91) | 78B/D-RA | 1-1/2" (38) |
| — | 44" (112) | 78E/F-RA | |

All dimensions are for reference only.

PARALLEL ARM

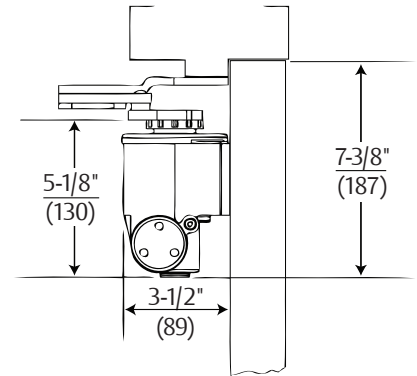
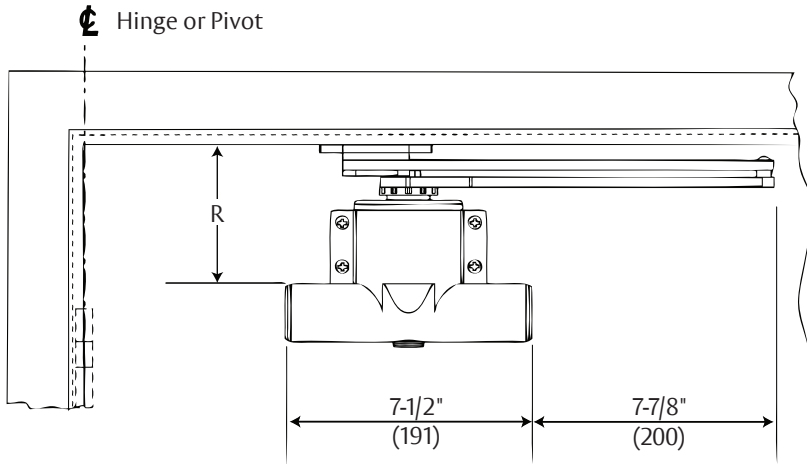


Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

| Maximum Door Size Wood or Metal Inches (cm) | | Model Number |
|---|--------------|---------------|
| Interior | Exterior | Non-Hold Open |
| 42" (107) | 36" (91) | 78B/D-PA |
| — | 44" (112) | 78E/F-PA |

All dimensions are for reference only.

PARALLEL RIGID ARM



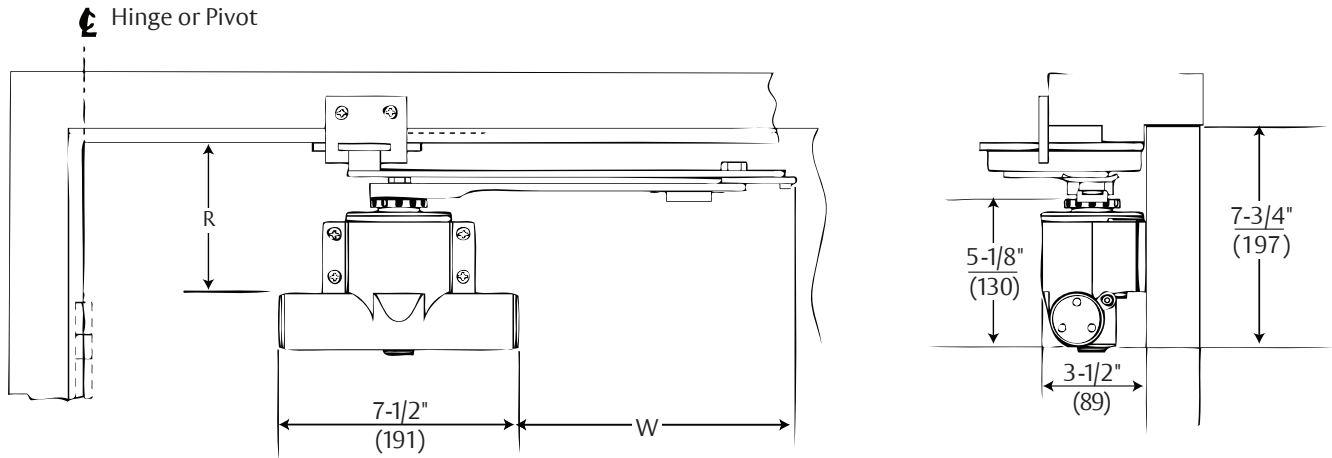
Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

| Maximum Door Size Wood or Metal Inches (cm) | | Model Number | |
|--|--------------|---------------|------------|
| Interior | Exterior | Non-Hold Open | Hold Open |
| 48" (122) | 36" (91) | 78B/D-PRA | 78B/D-PRHA |
| — | 44" (112) | 78E/F-PRA | 78E/F-PRHA |

| R Minimum Top Rail 5/8" (16mm) frame stop | |
|--|--------------------|
| Without Drop Plate | With 88 Drop Plate |
| 5-3/8" (137) | 2-1/2" (64) |

78-B/F SERIES
TRADITIONAL DOOR CLOSERS

UNITROL® ARM



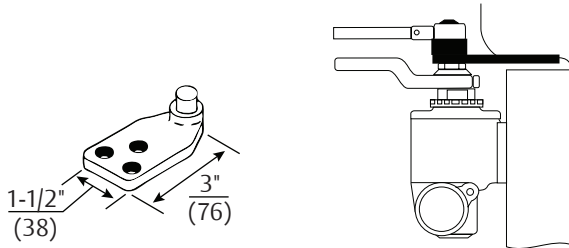
Body mounting holes are spaced 4-1/8" (105mm) horizontally and 1-3/8" (76mm) vertically.

| Door Width Inches (cm) | R - Minimum Top Rail 5/8" (16mm) Frame Stop | | W - Arm Extension Beyond Closer |
|---------------------------|---|--------------------|------------------------------------|
| | Without Drop Plate | With 88 Drop Plate | |
| 28-32" (71-81) | | | 8-7/8" (225) |
| 33-41" (84-104) | 5-5/8" (143) | 2-3/4" (70) | 10-3/8" (264) |
| 42-48" (107-122) | | | 11-7/8" (302) |

| Maximum Door Size Inches (cm) | | Model Number | | |
|----------------------------------|--------------------|---------------|-------------|----------------------|
| Interior | Exterior | Non-Hold Open | Hold Open | x Specify Door Width |
| 28-41" (71-104) | 28-36" (71-91) | UNI78-B/D | UNI78-B/D-H | |
| 42-48" (107-122) | 37-48" (94-122) | UNI78-E/F | UNI78-E/F-H | |

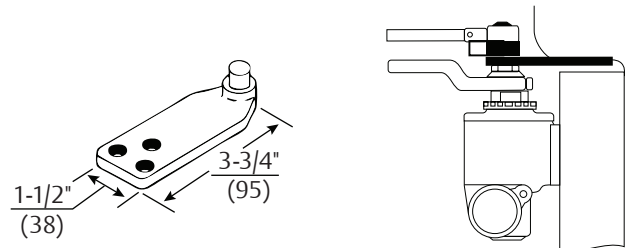
REGULAR ARM

Brackets for Non-Hold Open Arms



Molded/Bull Nose Trim - 2403B Bracket:

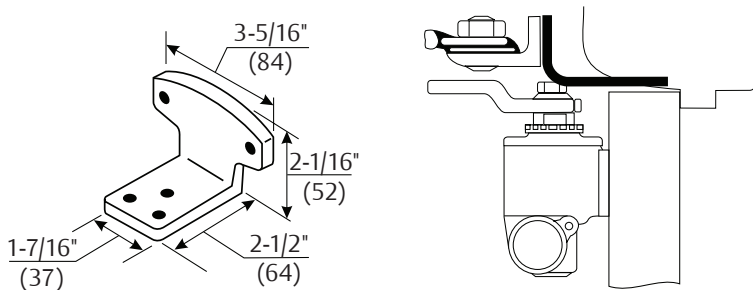
For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.



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 Non-Hold Open Arms



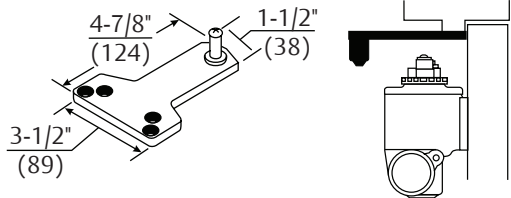
Molded/Bull Nose Trim - 80 Bracket:

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.

78-B/F SERIES
TRADITIONAL DOOR CLOSERS

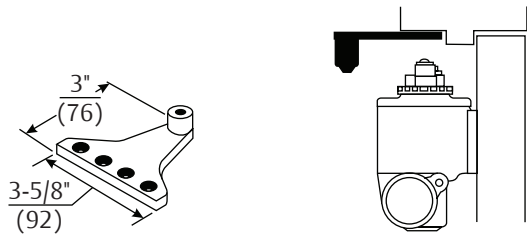
PARALLEL ARM

Brackets for Non-Hold Open Arms



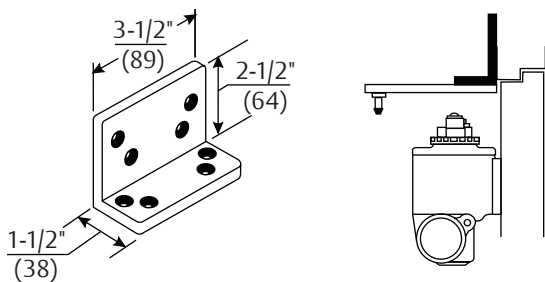
Standard Installation - 1618 Soffit Plate:

This soffit plate is supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25mm).



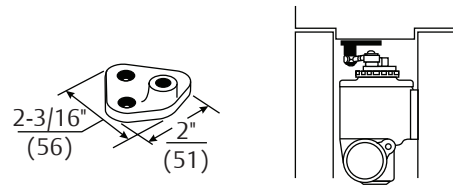
Narrow Frame/Removable Stop - 2018B Soffit Plate:

For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This 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 weatherstripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.



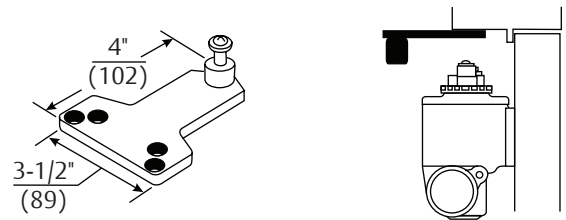
Flush Transom - 2022 Angle Bracket:

For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or it 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.



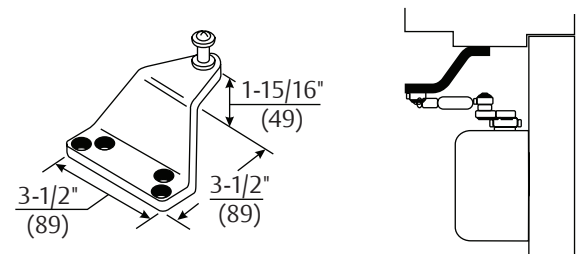
Mounting Between Doors - 2018 Soffit Bracket:

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 4-1/8" (105mm) of header space. Permits closer arm to clear up to a 5/8" (16mm) high stop.



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 arm to clear up to a 5/8" (16mm) high stop.

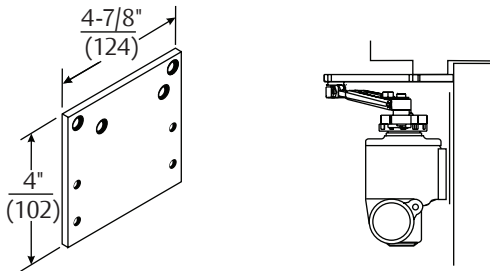


Extra-Clearance - 2018S Offset Soffit Plate:

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 1-1/2" (38mm) 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 prevent the use of other soffit plates.

PARALLEL ARM

Closer Mounting Plates

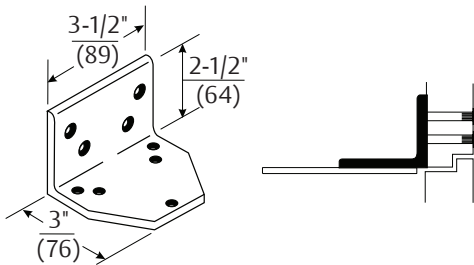


Narrow Top Rail - 88 Drop Plate:

For use where a narrow top rail prevents the closer from being mounted directly to the door surface.

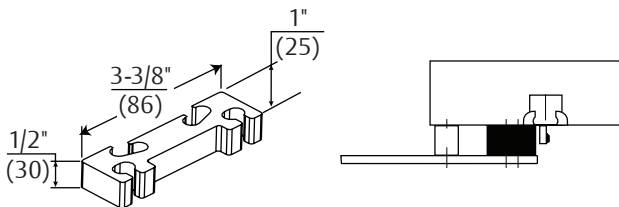
PARALLEL RIGID

Brackets for Non-Hold Open Arms



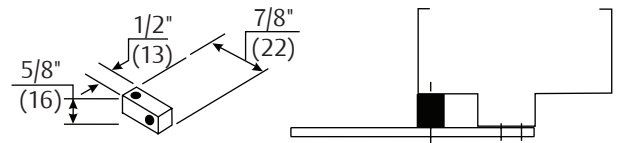
Flush Rabetted Transom - 2019L Angle Bracket:

For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



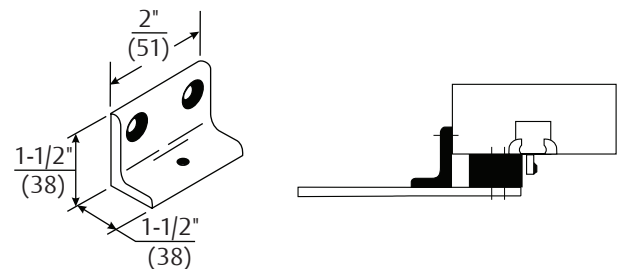
Clearance/Support Blade Stop - 6891 Spacer Block:

For use where the 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 Spacer Block to provide clearance of the blade stop.



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.



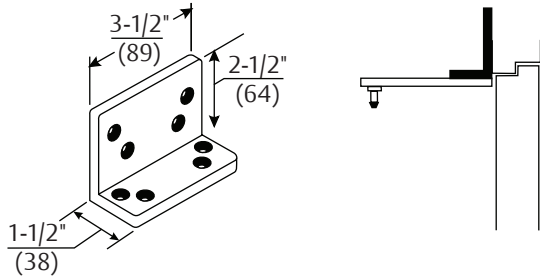
Narrow Frame - 6890 Support Bracket:

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.

78-B/F SERIES
 TRADITIONAL DOOR CLOSERS

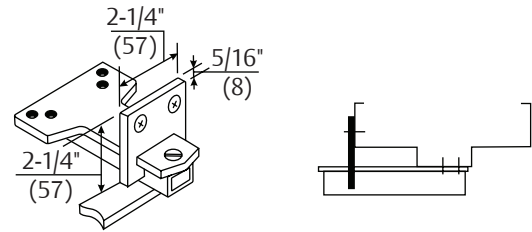
UNITROL® ARM

Brackets for Non-Hold Open Arms



Flush Transom - 2022 Angle Bracket:

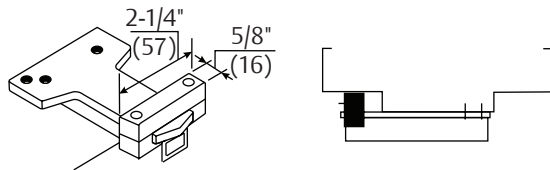
For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or it may be used in combination with the 20185 soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.



Additional Support - 6190 Reinforcing Bracket:

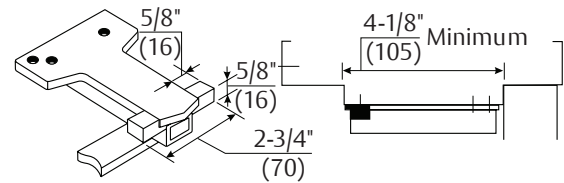
Standard for use with all parallel arm Unitrol door controls. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8\" to 4-5/8\" (48 to 117mm).

Reinforcing Kit

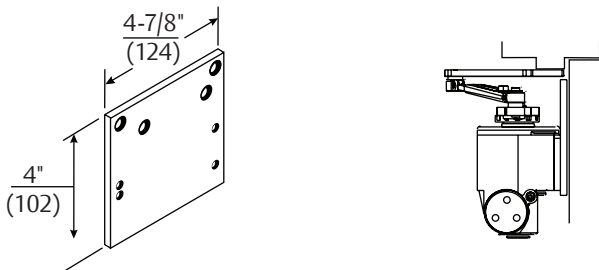


Wide Frame - 6191 Reinforcing Kit:

Optional for use with all parallel arm Unitrol door controls. Used to support the soffit plate on installations with wide frames. Clamps may be used with or without the spacer block, depending on frame conditions.



Closer Mounting Plates

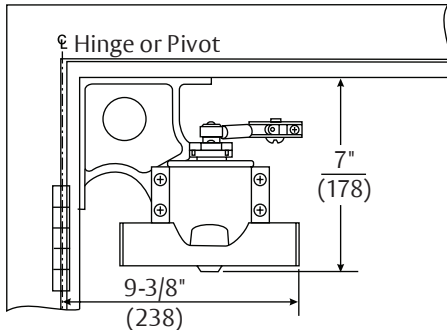


Narrow Top Rail - 88 Drop Plate:

For use where a narrow top rail prevents the closer from being mounted directly to the door surface.

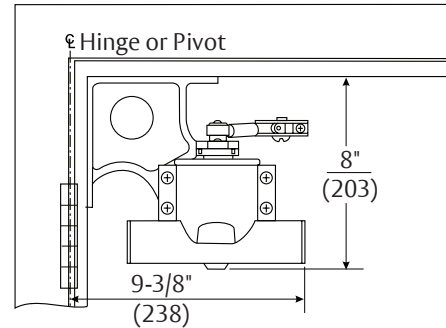
CORNER BRACKETS

All of the following frame-mounted brackets require the use of a regular arm door closer of the opposite hand from the hand of the door. Use the Parallel Arm Sizing Chart to select the correct size of closer to use when the closer is to be mounted on a corner bracket.



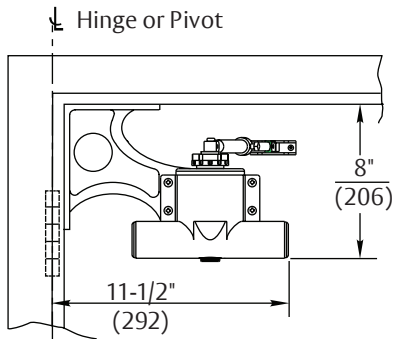
Corner Mounting, Standard Drop - 2-B/F Corner Bracket:

For use where door is required to open to 180°. Minimum soffit width 1-3/8" (35mm).



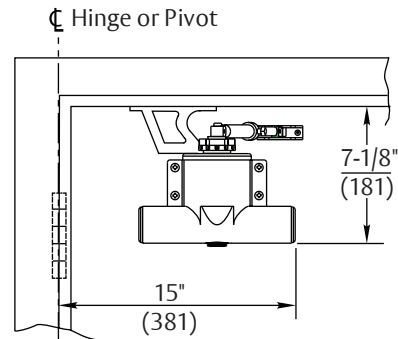
Corner Mounting, Extra Drop - 5-B/F Corner Bracket:

For use with a separate overhead door holder. Drops closer 1" (25mm) lower than 2-B/F Standard Drop Corner Bracket to permit mounting of an overhead holder. Permits door openings to 180° Minimum soffit width 1-3/8" (35mm).



Corner Mounting, Extra Drop and Extension - 8-B/F Combination Bracket:

Recommended for use instead of 2-B/F or 5-B/F Corner Brackets, whenever possible. Provides 1/2" (13mm) more clearance than 5-B/F Corner Bracket for an overhead door holder, and positions closer farther from hinge edge of door for best power advantage. Permits door openings to 140°.

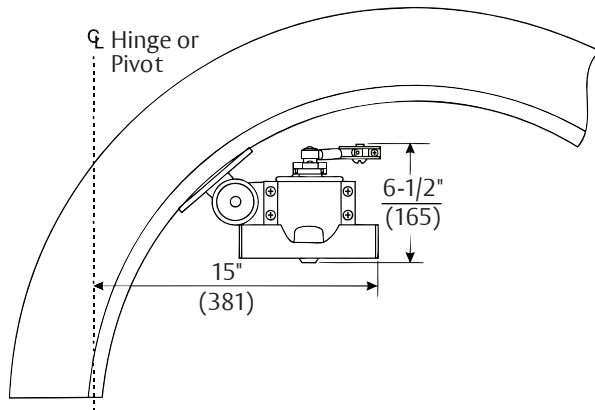


Soffit Mounting - 1-B/F Soffit Bracket:

For use where frame conditions prevent mounting of a corner bracket. This bracket mounts to the overhead frame soffit. Permits door openings to 180°.

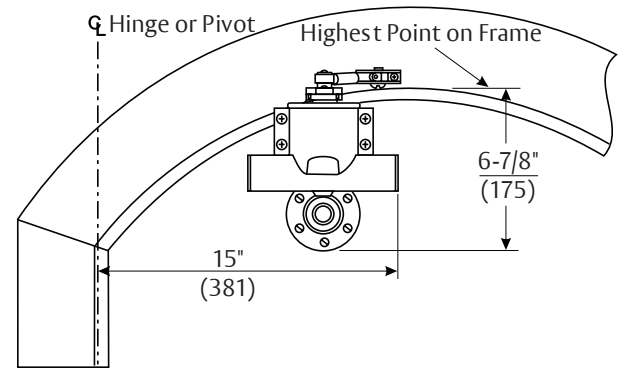
78-B/F SERIES
TRADITIONAL DOOR CLOSERS

CORNER BRACKETS



Arched or Circular Top Door - 6-B/F Adjustable Bracket:

For opposite hinge side application on arched or circular top doors. This frame-mounted bracket can be adjusted to accommodate virtually any radius of frame. Minimum soffit width 2-1/2" (64mm). This bracket requires the use of a regular arm door closer of the opposite hand from that of the door. Intended for 90° door swing.

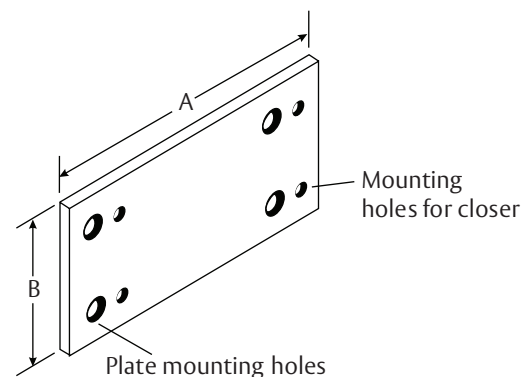


Arched or Circular Top Door - 7-B/F Offset Adjustable Bracket:

For hinge side application on arched or circular top doors. This door-mounted bracket is adjustable to accommodate virtually any radius of frame. Base diameter 3-5/8" (92mm). Use in conjunction with a regular arm door closer. Intended for 90° door swing.

ADAPTER PLATES

| Size Closer Being Replaced | Adapter Plate Catalog Number | Dimensions | |
|----------------------------|------------------------------|-----------------|----------------|
| | | A | B |
| B | 9-B | 4-7/8" (124) | 2-1/4" (57) |
| B/C | 9-B/C | 5-1/2" (140) | 2-5/8" (67) |
| D | None Required | — | — |
| E/F | 9-E/F | 5-1/2" (140) | 2-5/8" (67) |

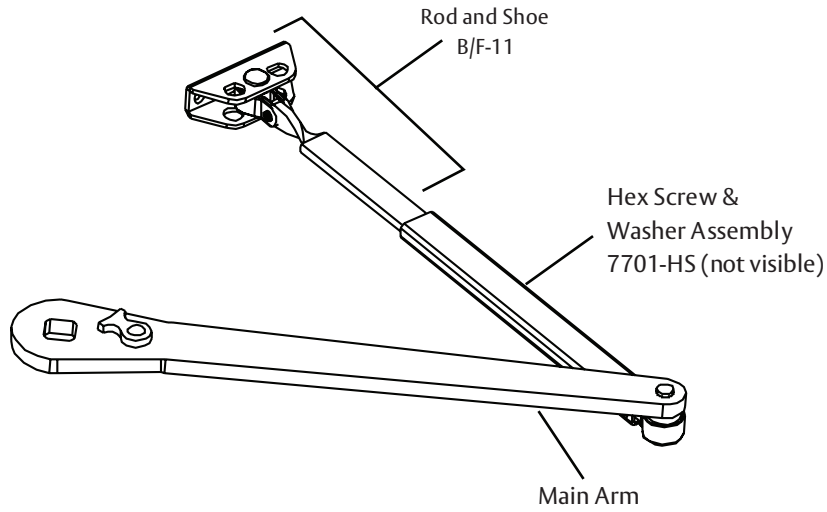


9 Adapter Plate

For use when replacing a discontinued old style traditional surface closer with a series 78-B/F Traditional Surface Closer. The plate selected will employ the existing holes in either door, corner bracket or soffit bracket. The Series 78-B/F will mount to the plate. These plates can be used to convert regular arm, parallel arm or bracket mount installations. Order by model number.

REGULAR ARM

Non-Hold Open

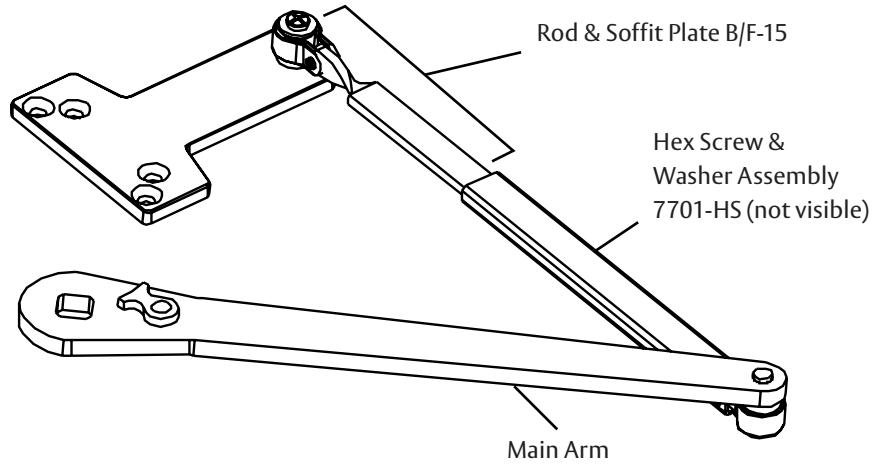


Note: Mounting hardware included with all parts ordered

| Arm Function | Complete Arm Assembly | Main Arm | Main Arm Less Rod & Shoe |
|---------------|-----------------------|----------|--------------------------|
| Non-Hold Open | B/F-1 | B/F-1M | B/F-1W |

PARALLEL ARM

Non-Hold Open

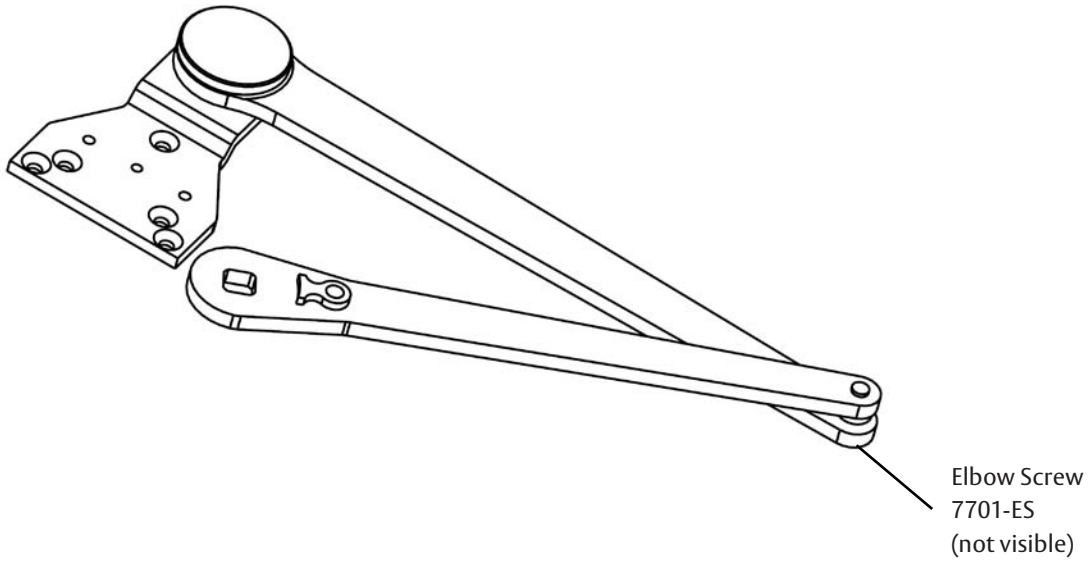


Note: Mounting hardware included with all parts ordered

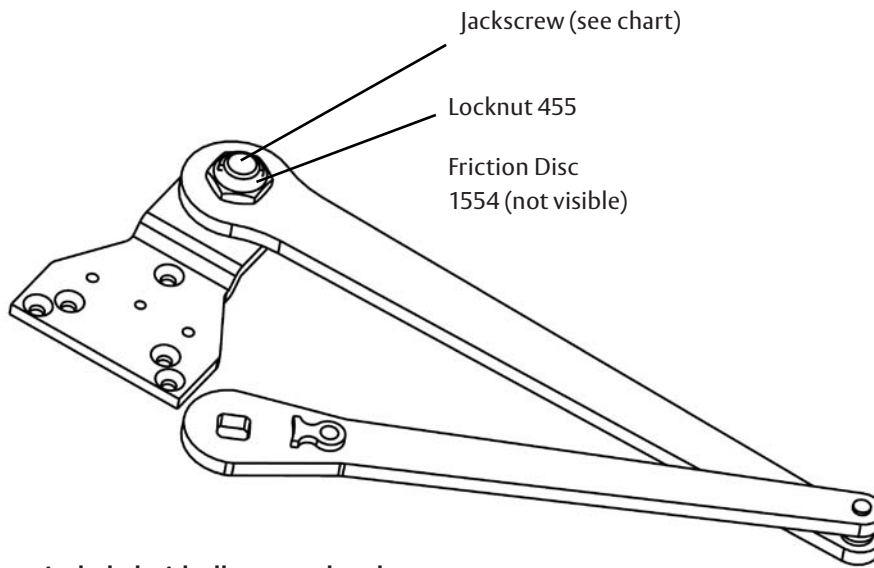
| Arm Function | Complete Arm Assembly | Main Arm | Main Arm Less Rod & Shoe |
|---------------|-----------------------|----------|--------------------------|
| Non-Hold Open | B/F-5 | B/F-1M | B/F-5W |

PARALLEL ARM

Non-Hold Open



Hold Open



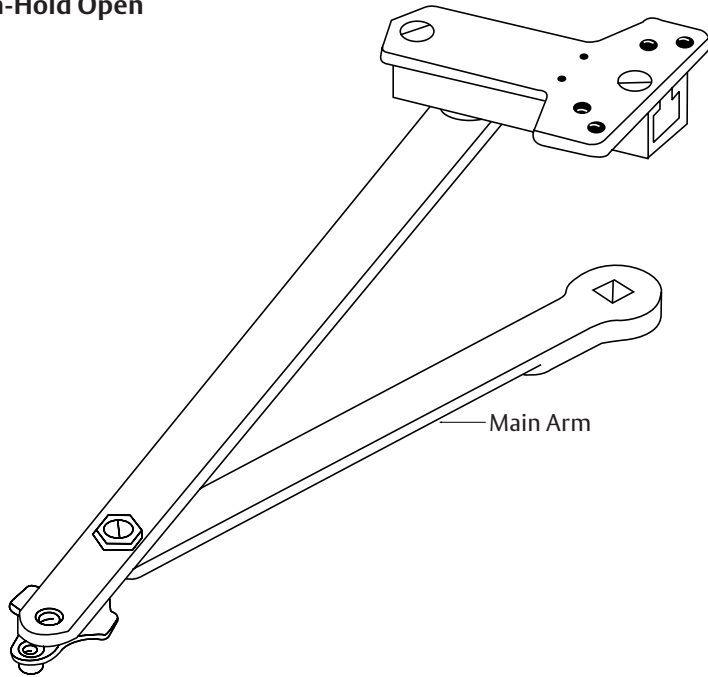
Note: Mounting hardware included with all parts ordered

| Arm Function | Complete Arm Assembly | Jackscrew |
|---------------|-----------------------|-----------|
| Non-Hold Open | 78PRA-5 | N/A |
| Hold Open | 78PRA-8R (Right Hand) | 1543R |
| | 78PRA-8L (Left Hand) | 1543L |

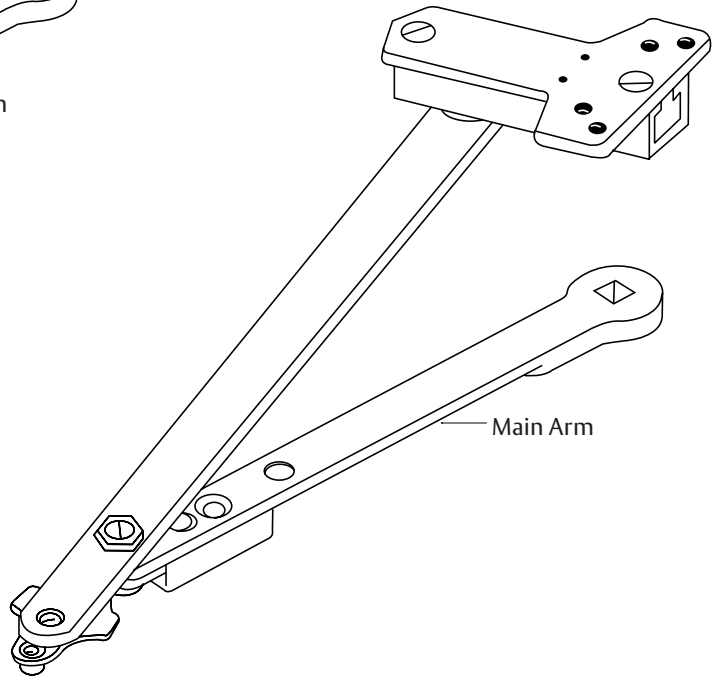
78-B/F SERIES
TRADITIONAL DOOR CLOSERS

UNITROL® ARM ASSEMBLIES

Non-Hold Open



Hold Open



Note: Mounting hardware included with all parts ordered

| Door Width (cm) | Main Arm Length (mm) | Complete Arm Assembly | |
|-------------------------|-------------------------|-----------------------|-----------|
| | | Non-Hold Open | Hold Open |
| 28"- 32" (71 - 81) | 9-1/2" (241) | 6130-17 | 6130-7 |
| 33"- 41" (84 - 104) | 11" (279) | 6130-18 | 6130-8 |
| 42"- 48" (107 - 122) | 12-1/2" (318) | 6130-19 | 6130-9 |

Only available in painted finishes.

FASTENERS

| Standard Fasteners | With Arms Specified Below | | |
|----------------------------|---------------------------|---------------------|---------------|
| | Regular Parallel | Parallel Rigid (PR) | Unitrol (UNI) |
| Door | | | |
| Self Drilling Self Tapping | S | S | S |
| Machine Screw | S | S | S |
| Sleeve Nut/Sex Nut | | S | S |
| Frame | | | |
| Self Drilling Self Tapping | S | S | S |
| Machine Screw | S | S | S |

S = Standard

Fasteners are standard (included) with closer package.

Examples:

78B/D RA includes self drilling, self tapping and machine screws

78B/D PRA includes self drilling, self tapping, machine screws and sleeve nut/sex nuts

| Optional Fasteners | Description | With Arms Specified Below | | |
|--------------------|---------------------------|---------------------------|---------------------|---------------|
| | | Regular Parallel | Parallel Rigid (PR) | Unitrol (UNI) |
| Door | | | | |
| SN^ | Sleeve Nut/Sex Nut | O | | |
| TBGN^ | Thru Bolts & Grommet Nuts | O | O | O |

O = Optional

^ When SN or TBGN are ordered, standard screw packs are also furnished.

Examples:

78B/D RA x SN includes self drilling, self tapping, machine screws and sleeve/sex nuts

SN are for use on hollow metal doors and can also be used for thru bolting on wood doors. When selected, SNs 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. When selected an add-on option, TBGNs are supplied standard for 1-3/4" (44mm) thick doors. They can be specified for 1-3/8" (35mm) thick doors.

FINISHES

Sprayed Finishes

| Description | Specify (BHMA) Designation | Complements the following finishes | Old Designation |
|---------------------------------------|----------------------------|------------------------------------|-----------------|
| Aluminum | 689 | 628, 625, 629, 630, 651, 652 | AL |
| Statuary Bronze | 690 | 640, 613 | STAT |
| Dull Bronze | 691 | 612, 637, 639 | DB |
| Black | 693 | 315 | 315 |
| Medium Amber | 694 | 313 | 312 |
| Gold | 696 | 605, 606, 632, 633 | GB |
| Prime Coat | 600* | — | SRI |
| Dark Oxidized Satin Bronze Equivalent | 613E | — | — |
| Black Suede Powder | BSP | — | — |
| White Suede Powder | WSP | — | — |

Available Finishes

All door closers are painted in water borne acrylics. All steel parts, arms, bracket and mounting plates are powder coated. The closers will withstand 100 hours of salt spray. ANSI requires 25 hours.

*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: 78-B/D x 600 x 689).

MISCELLANEOUS PARTS

| Springs | |
|-------------|-------------|
| Part Number | Description |
| 24BD | B/D Spring |
| 56EF | E/F Spring |

| Wrenches | |
|-------------|----------------|
| Part Number | Description |
| 78-SW | Spanner Wrench |