

SARGENT®

ASSA ABLOY

421 Series

Cam Action Door Closer



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The 421 Cam Action Closer has been engineered to meet the demands of architects and building owners.

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

On The Cover

- SARGENT 421-CTB Door Closer with EN powder coated finish

General Information

421 Series

Innovation

SARGENT's cam action technology provides superior power and efficiency with the aesthetics of a track type door closer.

Performance

The 421 door closer's high efficiency provides strong closing forces with exceptionally low resistance to opening.

All Weather Fluid

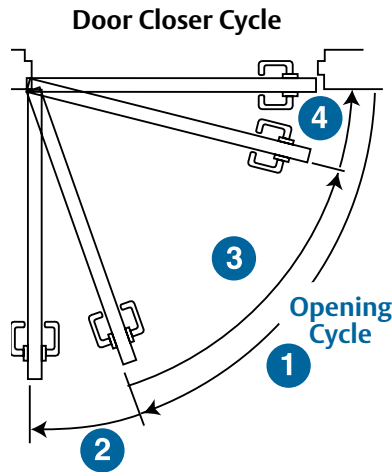
All 421 Series closers are equipped with fluid that allows the units to operate effectively in extreme temperatures without readjustment.

Finishes

Powder coated and plated finishes are available. See How to Order page 7.

ANSI/BHMA Specifications

- Complies with UL-10C and UBC 7-2C (1997) Positive Pressure Fire Test



1 Closer Spring Adjustment

- Affects the entire cycle of the door closer movement
- Determines the amount of force with which the door closes and the amount of force required to open the door
- Adjustable to compensate for door size and draft conditions

2 Backcheck valve

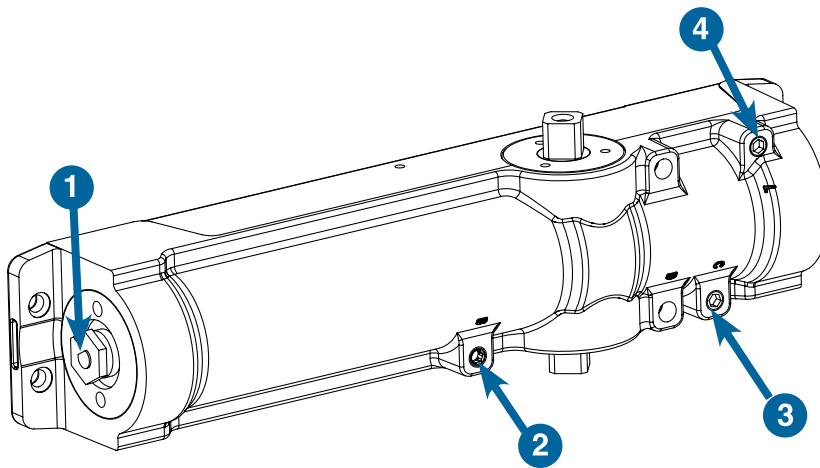
- At approximately 70° of the open cycle, the Backcheck valve begins to slow the door's motion
- Valve is used to control the intensity of the Backcheck
- Note: A Positive stop is required for abusive environments

3 Closing speed valve

- Controls how fast the door closes from fully open to approximately 8" from the closed position

4 Latching speed valve

- Controls the speed of the door during the final 8" of door swing
- Note: This adjustment is critical for door latching



How to select the proper closer

Things to consider

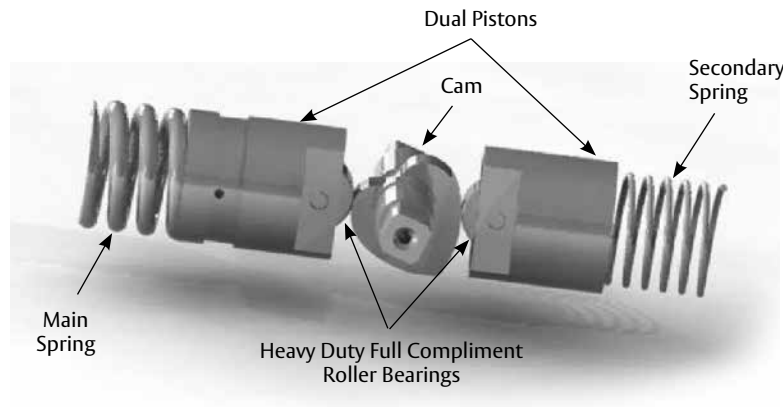
The 421 Cam Action Door Closer provides the highest performance of any track type door closer made today. Its innovative cam action design applies the closing forces in exactly the proper locations for smooth and efficient operation. The result is a door that is light to open and still has more than enough power to close.

Function

The 421 Cam Action Door Closer is equipped standard with an integral adjustable rubber bumper and stop. This bumper works with the backcheck for enhanced door control. An adjustable hold open latch is available as an option.

Special Conditions

SARGENT engineers are available for support when special conditions exist requiring specialized hardware (e.g., unique hinges, overhead holders, etc.)



The SARGENT 421 is a revolutionary door closer that provides unheard of performance in track arm applications. The dual piston cam design provides high efficiency and smooth operation with the clean appearance of a track arm.

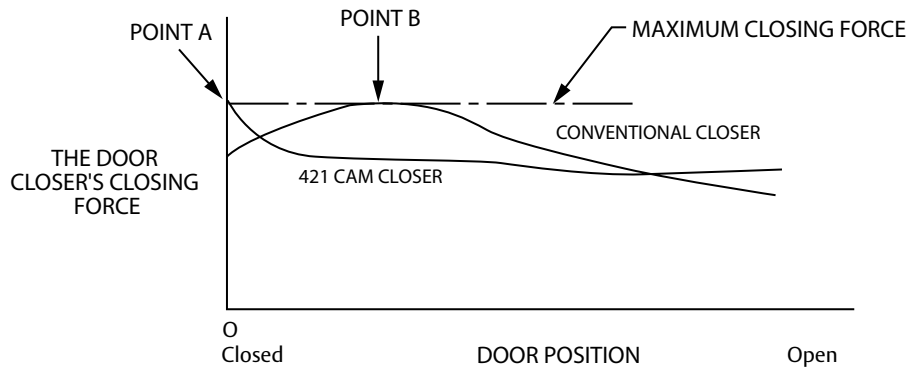
Conventional door closers are restricted by the linear gear ratio of the rack and pinion. This results in a constant application of spring force as the door opens and closes. While this is very effective in double lever arm applications, single lever track arm applications have limitations.

The shape of the cam is the heart of the cam action door closer. The cam controls the application of the spring forces and is carefully designed to apply those forces in the most effective manner for track type applications.

The SARGENT 421 closer has the highest efficiency of any surface mounted door closer on the market today. This means that a door equipped with this closer will feel light to open and have plenty of power to overcome stack pressure or other problems at latch.

The high efficiency of the 421 comes from its advanced design. Closing forces are applied to the spindle through the continuous smooth surface of the cam and hardened roller bearing follower. The dual pistons' simplified design provides a superior internal seal and reduced friction within the closer.

The 421 cam action closer exerts the strongest closing force at the latching point (point A), unlike a conventional closer, where its maximum force is in the middle of the door cycle (point B). The graph below shows the closing cycle of a conventional closer verses a 421 Cam Closer.



Point A - The Cam Closer has the maximum closing force at the point the door is closing.

Point B - The Conventional Closer has the maximum closing force in the middle of the cycle rather than at the closing point where the latch engages the strike.

421 Designed to Aid the Physically Challenged



The 421 Cam Action door closer is designed to meet the opening force requirements established by the American with Disabilities Act (ADA) limiting the opening force to 5 pounds for interior doors and 8 pounds for exterior doors.

CAUTION: The entire opening should be reviewed when ADA requirements must be met. Heavy doors add to the opening force while requiring more force to close. Poor quality hinges will add frictional resistance to the door and require more force to open and close. HVAC imbalances can cause a wind load that may also add to the opening forces. In these applications, a manual door closer may be unable to reliably close and latch a door when adjusted to ADA requirements and a SARGENT low energy door operator should be used.

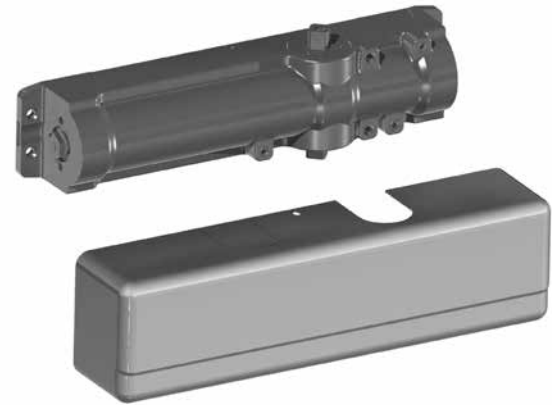
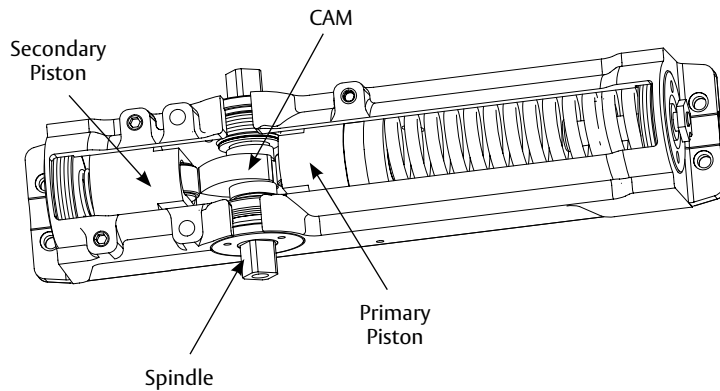
Features and Benefits

421 Series

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The 421 Series complies with ADA to meet opening requirements



Features

- UL 10C listed for positive pressure fire test
- UL / cUL listed for use on fire rated doors
- 10 Year Warranty
- While meeting the 5 lb. ADA requirements, the 421 still provides exceptional force to close and latch door
- Square spindle provides fool proof arm installation, Push side application utilizes a handed arm
- Push or pull installations with the same closer body
- Adjustable spring power allows 421 closers a size range of 1 through 6
- Closer bodies are non-handed, except push applications require a handed arm
- Designed to meet ADA requirements in push or pull track applications
- Standard pressure relief valves for both opening and closing cycles protect the door & frame from damage caused by abuse
- High impact non-corrosive one piece plastic covers standard (metal handed covers available)
- Cover secured by machine screws
- All weather fluid allows closer to operate effectively in extreme heat and cold without readjustment

Heavy Duty Construction

- Heavy duty one piece high silicon content aluminum alloy body provides corrosion resistance, superior strength and wear resistance
- Dual pistons provide superior door control and high efficiency
- 1/2" arm engagement over a 7/16 square spindle ensures a wear-resistant tight joint
- Full complement roller bearings provide resistance to abuse

Fasteners

- Machine Screws and self tapping screws provided for closer and arm
- In addition, wood screws supplied when installed on wood doors without through bolts

Valves

- Separate low sensitivity brass control valves offer ability to separately regulate door speed, latching, backcheck
- All valves are captured to prevent accidental removal; adjustable with a 5/32" Allen wrench
- Adjustable backcheck protects the door and hardware from damage during the opening cycle

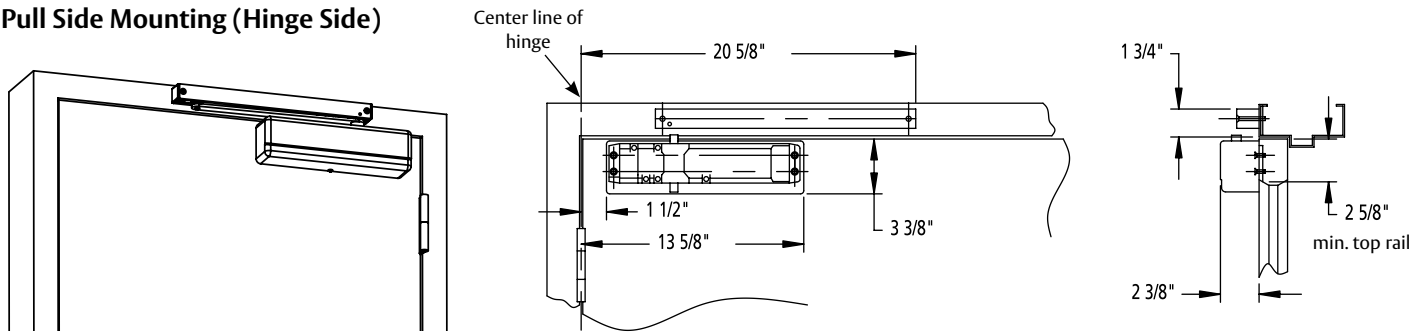
Innovation

- Innovative cam and dual piston design provides superior performance with the aesthetics of a track type closer

Pull Side Track Type Applications

421 Series

Pull Side Mounting (Hinge Side)



The pull side application of the 421 cam closer provides an aesthetically pleasing appearance with the functionality of pull side mounting.

In the pull side application, the closer body mounts to the face of the door and the track mounts to the face of the frame. All cam action closers are equipped with a short track which provides superior door control with a clean appearance.

421-CTB

- Bumper stop track
- Maximum door swing 125°
- Adjustable steel stop included in track that provides dead stop positions between 70° and 125°
- Rubber bumper included to cushion door before stop
- Auxiliary stop required for abusive environments
- Stop may be easily remove when not required
- Non handed closer body
- 2-5/8" minimum door top rail

421-CTHB

- Holder track with bumper
- Maximum door swing 125°
- Adjustable hold open positions between 85° and 120°
- Adjustable bumper provides cushion to stop door after hold open
- Auxiliary stop required for abusive environments
- Stop may be easily remove when not required
- Non handed closer body
- 2-5/8" minimum door top rail

Track

- One piece extruded aluminum track
- End caps finished to match track
- Non handed

Arm

- Forged steel
- Oiled bronze bearing in roller
- Non handed

Bumper

- Mounts in track to assist backcheck
- Auxiliary stop is required in abusive environments
- Included with both regular or hold open tracks

Holder (Optional)

- Mounts within the track (adjustable)

Finishes

POWDER COAT

- EAB, EB, ED, EN, EP powder coat on all exposed surfaces

Plated Hardware Finishes:

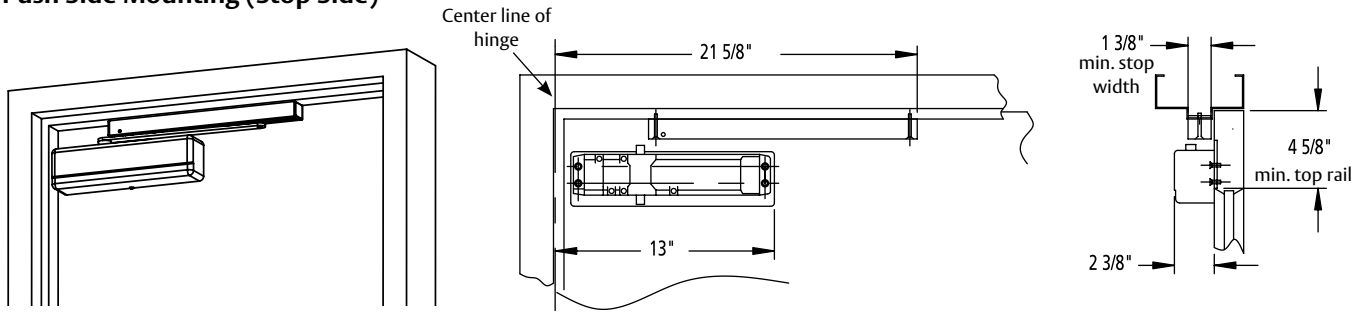
- Plated finishes (except 26D) are supplied with the handed covers and arms polished and plated; the track will be powder coated to match
- With 26D finish, the handed covers and arms are polished and plated; the track is polished and clear coated

Arm & Track	Description/Options
421-CTB	Pull with Bumper
421-CTHB	Pull with Holder and Bumper

Push Side Track Type Applications

421 Series

Push Side Mounting (Stop Side)



The push side application of the 421 cam closer provides the most aesthetically pleasing appearance of any surface mounted closer. With both the closer and compact track tucked under the door frame, the 421 closer in the push application almost disappears into the opening. In this application, the closer body mounts to the face of the door and the track mounts to the soffit under the frame. All cam action closers are equipped with a short track further minimizing the appearance of the closer.

421-PCTB

- Bumper stop track
- Maximum door swing 125°
- Adjustable steel stop included in track that provides dead stop positions between 70° and 125°
- Rubber bumper included to cushion door before stop
- Auxiliary stop required for abusive environments
- PCTB arm is handed, the closer body is non handed
- 4-5/8" minimum door top rail

421-PCHTB

- Holder track with bumper
- Maximum door swing 125°
- Adjustable hold open positions between 85° and 120°
- Adjustable bumper provides cushion to stop door after hold open
- Auxiliary stop required for abusive environments
- PCHTB arm is handed, the closer body is non handed
- 4-5/8" minimum door top rail

Track

- One piece extruded aluminum track
- End caps finished to match track
- Non handed

Arm

- Forged steel
- Oiled bronze bearing in roller
- Handed (Specify hand when ordering)

Bumper

- Mounts in track to assist backcheck
- Auxiliary stop is required in abusive requirements
- Available for both regular or hold open tracks

Holder (Optional)

- Mounts within the track (adjustable)

Finishes

POWDER COAT

- EAB, EB, ED, EN, EP powder coat on all exposed surfaces

Plated Hardware Finishes:

- Plated finishes (except 26D) are supplied with the handed covers and arms polished and plated; the track will be powder coated to match
- With 26D finish, the handed covers and arms are polished and plated; the track is polished and clear coated

Arm & Track	Description/Options
421-PCTB	Push with Bumper
421-PCHTB	Push with Holder and Bumper

-SPECIFY HAND WHEN ORDERING-

Architectural Specifications

1. All closers for both interior and exterior doors shall be the product of one manufacturer and be matched in style.
2. Closers shall be of the cam and roller design with independently controlled closing, latch and backcheck.
3. Surface closers shall be adjustable to provide sizes 1 through 6 and comply with ADA.
4. Closing speed, latching speed and backcheck shall be controlled by key operated valves.
5. The one piece closer body shall be manufactured of high-performance cast aluminum silicon alloy.
6. Arm shall be finely finished heavy duty forged steel.
7. Closer covers shall be of high impact plastic material of flame retardant grade, secured by machine screws.
8. Projection of closer body from door shall not exceed 2-3/8" with standard cover.
9. Specify desired options such as: Metal Cover (MC-), Security Screws (36-), Special Rust Inhibitor Process (SRI-) or Through-bolting (TB-).
10. Closers should have two pressure relief valves (opening and closing cycles).
11. All closers to have a 10 year limited warranty.
12. Closers must comply with UL-10C and UBC 7-2 (1997) Positive Pressure Fire Test.

General Information

Special Conditions

The SARGENT Website (www.sargentlock.com) contains templates for all standard applications of SARGENT Door Closers with SARGENT overhead door holders. To ensure a satisfactory installation for other holders, it is recommended that complete details be submitted as follows:

- Type, size and make of holder
- Holding position (maximum door opening)
- Submit holder template being used
- Closer application being used
- Size and type of hinge

In the case of an unusual door, frame and/or hinge condition where regular products do not meet requirements, submit drawings and complete details specifying the degree of door openings required, the type and size of hinge and the maximum door opening angle to SARGENT engineering department.

Note: The UL10c listing is void for door closers with a hold open feature that does not have an automatic release.

Special Rust Inhibitor Process (SRI)

The aluminum body and track of the 421 provides a high level of corrosion protection in many environments. An additional process (SRI) is available to provide the arms an extra layer of protection for extreme corrosive environments. Specify SRI- as option when ordering.

Through-bolting and Mortise Nuts

- When through-bolting is ordered, factory will furnish mortise nuts for use with the machine screws furnished with the closer
- Nuts are sized to accommodate 1-3/4" (44mm) standard or 1-3/8" (35mm) thick doors when specified on order
- For 2-1/4" (57mm) thick doors, through-bolts will be furnished with mortise nuts
- Through-bolting for 2-1/4" (57mm) thick hollow metal doors require bridge type reinforcement to prevent collapse of top rail when through-bolts are tightened

How to Order

421 Series

How to Order

Options	Series	Closer Arm	Finish	Hand
36- MC- SG- SRI- TB-	421	CTB CTHB PCTB** PCHTB**	EB ED EN EP EAB 03* 04* 09* 10* 10B* 10BE* 10BL* 15* 20D* 26* 26D*	LH RH

* Closer Arm & Handed Cover will be hardware finished, track will be Powder Coated to match (except for 26D, the track will be polished and clear coated)

** Closer Arms are handed

Notes: Lead Line Covers are available

How to Order: 421 x CTHB x EN x RH x Lead Line Cover.

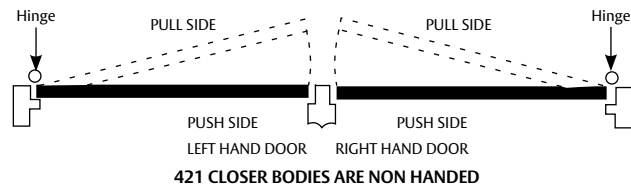
Orders will be handled as "special".

Options Available

Specify	Detailed Description
36-	Security Torx Screws
MC-	Handed Metal Cover
SRI-	Special Rust Inhibitor finish (arm and body)
TB-	Through Bolt (1-3/4" Std) For others, specify TB- & door thickness

Note:

- The MC- option is also used when a metal cover is desired
- When MC- is added to a plated finish, the MC- option indicates that only the cover is to be plated, the arms will be powder coated to match
- Do not specify the MC suffix if both the cover and arms are to be plated



How To Order Accessories

Example

For individual parts and assemblies, please check the price book for availability and pricing.

Cover for 421 & 1431 closers

Specify: 1431C x finish

Metal Cover for 421 & 1431 closers

Specify: 1431CMC x finish x hand

Closer Body only

Specify: CB-421

Note: When complete closer assembly is ordered with an accessory, order accessory as a separate item

Note: 421 and 1431 are identical covers and are interchangeable.

Finish Options

Finishes	ANSI/BHMA	Description
EB	695	Bronze powder coated to match finish 10B
EN	689	Aluminum powder coated
ED	693	Black powder coated to match finish 20D
EAB	696	Brass powder coated
EP	691	Bronze powder coated to match finish 10
03	605	Bright brass, clear coated
04	606	Satin brass, clear coated
09	611	Bright bronze, clear coated
10	612	Satin bronze, clear coated
10B	613	Dark oxidized satin bronze, oil rubbed
10BE	613E	Dark oxidized satin bronze - equivalent
10BL	614	Oxidized satin, bronze, clear coated
15	619	Satin nickel, clear coated
20D	624	Statuary dark bronze, clear coated
26	625	Bright chromium plated
26D	626	Satin chromium plated

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ASSA ABLOY is the global
leader in door opening solutions,
dedicated to satisfying
end-user needs for security,
safety and convenience