

# Door Closers



## Door Closers

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# Door Closers

A door closer is a mechanical device that closes a door in a controlled manner, preventing it from slamming, after someone opens it.

The force used to open the door is stored in the spring and when released this energy is then utilised to return the door to its original starting position.

## The necessity for door closers

### Security

The door needs to lock automatically whenever the users uses the same in a hurry or their hands are full. The closed doors protect against unauthorised access, break in and theft. Self-closing door are necessary for the applications such as HR cabin in office, OPD room in hospital etc.



### Energy Conversation and saving

Energy needs to be conserved not only to cut costs but also to preserve the resources for longer use. There should be less opportunity for the air of different temperatures to enter. E.g.: Air conditioned rooms, R&D labs at factory etc.



### Fire and smoke Protection

Fire doors can help compartmentalize a building, prevent the spread of smoke and flames, and protect egress routes to allow for safe escape. Hence the door closer must be properly specified, installed, and maintained to provide the necessary protection. A door is potential gap for fire and smoke to pass through .If not functioning properly it will cause the thick smoke To choke and blind people trying to escape hence causing a great damage to property and lives.



### Acoustics / Sound control

Sound is present in all buildings and affects people in a space just as other types of energy, such as heat and light. Controlling all aspects of sound entering or leaving a room or building space is the essence of good acoustical design. Unwanted sound that is allowed to enter from outside of a building can be distracting or even harmful to people inside.

E.g.: Recording room in a studio, Office cabins in commercial spaces etc.



### Avoid Contamination

Walls and doors are used to separate clean and unclean areas, but improperly sealed doorways can defeat the protection these barriers provide. High-speed doors and minimal opening time mean doorways are closed as much as possible, maintaining air balance. Hence without door closers it would be botheration to the people working in that environment to always ensure the door was closed after every movement through it.



### Privacy

It must ensure the privacy of different sections within a building by separating them by accurate closing of the door. The privacy function is ideal for bathrooms, bedrooms, toilet facility, staff kitchen and any room where privacy is needed.



## Types of door closers

The controlled door closers are further classified as:

### Overhead Door closers

Overhead or surface-mounted door closers come in four variations: slide-track arm, regular arm surface mounted, parallel arm surface mounted, and top jamb mounted, most are surface mounted although some manufacturers offer concealed models too



### Frame Concealed Door closers

The concealed, jamb-mounted type door closer, which fits in morticed recesses in the door and door frame and is totally concealed when the door is closed. They are fitted into the door from the hinge side.



### Transom closers

When door closers are mounted in the header they are known as transom closers. They can be HO (hold open) or NHO (none hold open). Door closers that are hidden in the header of the door frame generally considered to be throw-a-way sealed units



### Floor springs

Door closers that are mounted in the floor directly under the pivot point beneath a decor plate are referred to as floor springs and come in two variations, single action for doors opening one way (right and left hand) and double action for doors that open inward and outward, both types can either be none hold open (NHO) or hold open (HO).



## Door closer Mechanism

### Rack and Pinion Mechanism

A rack and pinion is a type of linear actuator that comprises a circular gear engaging a linear gear, which operate to translate rotational motion into linear motion.

The Rack & Pinion mechanism can be used for slide as well as regular arm door closers. The force required to open is slightly more in case of Rack & Pinion Door Closers.



### CAM Action Mechanism

A cam is a rotating or sliding piece in a mechanical linkage used especially in transforming rotary motion into linear motion. It is often a part of a rotating wheel or shaft that strikes a lever at one or more points on its circular path. The door is easier to open and closes more efficiently.

The CAM mechanism is ideal for slidearm door closers. The force required to open is less in case of CAM efficient Door Closers.



## Operation & features of door closer

### Adjustment (Closing - & Latching - Valve)

The latch action on a door closer is the speed at which the door closer closes the door that may be adjustable by up to three adjustment valves. These valves often adjust the sweep speed and the latch speed of the door.

Closing speed (Valve C): The closing speed can be adjusted 180 - 10 .

Latching speed (Valve L): The latching speed can be adjusted 10 - 0 .

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### Back Check (BC)

An inbuilt buffer which helps to prevent a door leaf being flung wide open by providing adjustable cushioning effect when the door is thrown open. The back check function slows (and some cases, stops) the door in its opening cycle so that it can't be thrown open violently and damage door, closer, walls adjacent to doorway.

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### Delayed Action

An inbuilt function that allows the door closing device to be retarded for an adjustable period of time before resuming controlled closing, allowing the disabled, elderly people or long trolleys, stretchers to pass through the door unhindered . Delayed closing slows down the movement of the door from fully open (180) to approximately 70, after passing this point the door closes at normal speed. The ending angle can be adjusted by selecting desired arm position. Closing speed can be adjusted by adjustable valve D. Adjustable valve enables the adjustment of closing speed. Recommended for internal doors

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### Adjustable Closing Force

The door closers are equipped with adjustable spring power which ensures the pre-setting of spring. Due to adjustable spring power, the same door closer can be used in various applications.

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### Hold Open Arm door closer (HO )

Hold Open is the ability of the door closer to hold the door in the open position. Most overhead door closers achieve this function via a special type arm (Hold Open Arm). The Hold Open Arm is suitable for both standard and parallel mounting.

A mechanical hold open requires the door to be moved to a specific opening angle, where a physical catch engages the arm.

When the door is given a sharp tug this overrides the catch and the door closes normally.

It is not suitable for usage on the fire doors.

## Various Fixing Positions for door closer

### Standard Installation – Scissor Arm

The mounting of the door closer on the pull face of the door as shown in the image. It is the common position of fixing the door closer. It is the most commonly fixing position of the door closer.



### Parallel Arm Fixing

Parallel arm door closers are less noticeable because of the way they are installed. The closer body is installed on the push side of the door and the arm is installed to the soffit on the head of the frame. Many parallel arm closers allow doors to travel up to 180 degrees. When the door is closed, the parallel closer arm folds so that it is parallel to the face of the door making it less noticeable and is preferable when aesthetics are a concern. Parallel arms also travel in such a way to allow built-in closer arm stops to be added allowing more control at the opening.



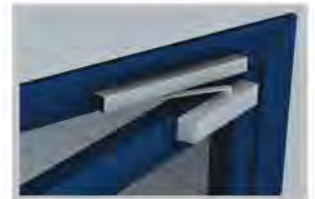
### Transform Fixing

The door closer is fitted upside down on the push side of the door. Transform mounted closers are used where the top rail of the door is narrow and the closer needs to be installed on the push side of the opening. With the closer body mounted to the face of the frame head and arm attached to the face of the door, it is somewhat more aesthetically pleasing.



### Slide Arm Fixing

Slide arm closers have a roller that runs along a metal channel track as the door opens and closes. The slide track arm can be mounted on the push or the pull side of the opening. In both cases the closer body is mounted to the face of the door. For push side mounting the track is attached to the soffit of the frame head. When installed on the pull side the track is mounted to the face of the frame head. However, the closing power on a track arm is not always as strong as traditional closer arms.



### Concealed Closers

The alternate fixing position for the overhead door closers narrow enough to fit into minimum 40mm thick door leaf. They are available with either slide arm or projecting arm. The large power size door closers requires thicker doors since the door need to larger to accommodate larger springs.



# BS EN 1154 - Controlled Door Closing Devices

The standard provides details on product types, classification by use, test cycles, door mass, corrosion resistance, as well as definitions, product performance requirements, test apparatus, test methods and marking of products.

Door closers have to be classified according to the six digit coding system:

## DIGIT 1 – CATEGORY OF USE

For all internal and external doors for use by the public, and others, with little incentive to take care, i.e. where there is some chance of misuse of the door.

Grade 3 – For closing doors from at least 105 degrees open

Grade 4 – For closing doors from 180 degrees open

Note 1: Grade 4 classification assumes standard installation according to manufacturer's instructions.

Note 2: Applications subject to extreme abuses or for particular limitations of opening angle, doors closers incorporating a back check function or provision of a separate door stop should be considered.

## DIGIT 2 – DURABILITY/NUMBER OF TEST CYCLES

Only one durability grade is identified for door closers manufactured to this standard.

Grade 8 – 500,000 test cycles

## DIGIT 3 – DOOR CLOSER POWER SIZE

Seven door closer power sizes are identified according to table 1 of this European standard. Where a door closer provides a range of power sizes both minimum and the maximum sizes should be identified.

## DIGIT 4 – FIRE BEHAVIOUR

Two grades of fire behaviour are identified for door closing devices manufactured to this standard:

Grade 0 – Not approved for use on fire/smoke resisting door assemblies.

Grade 1 – Suitable for use on fire/smoke resisting door assemblies, subject to satisfactory assessment of the contribution of the door closer to the fire resistance of specified fire/smoke door assemblies. Such an assessment is outside the scope of this European standard.

## DIGIT 5 – SAFETY

All door closers are required to satisfy the Essential Requirement of safety in use.

Grade 1 – Satisfies the safety-in-use requirements contained in the "Construction Products Directive" issued by the EU.

Note 1: Door closers are required to satisfy the essential requirement of safe use. Therefore only grade 1 identified.

## DIGIT 6 – CORROSION RESISTANCE

Five corrosion grades are identified in accordance with BS En1670:

Grade 0 – No defined corrosion resistance

Grade 1 – Mild resistance

Grade 2 – Moderate resistance

Grade 3 – High resistance

Grade 4 – Very high resistance



## Selection chart for the door closer

Door Width mm	Max Door Weight	Closer Size	Closing Min	Torque Max
750	20 kg	1	9Nm	13Nm
850	40 kg	2	13Nm	18Nm
950	60 kg	3	18Nm	26Nm
1100	80 kg	4	26Nm	37Nm
1250	100 kg	5	37Nm	54Nm
1400	120 kg	6	54Nm	87Nm

Door Weight Calculation = Height of door (mm) x Width of Door (mm) x Thickness of door (mm) x Density of wood (kg/m<sup>3</sup>)

Example = 2.1x0.9x0.04x700  
 = 52.92kg  
 = 53kg (approx.)

Density of wood = 700kg/m<sup>3</sup> considered.



### CE MARKING

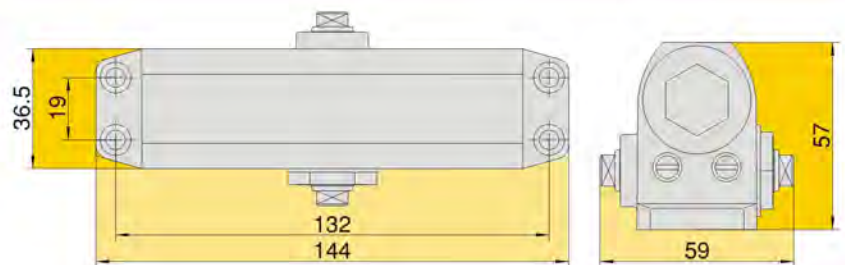
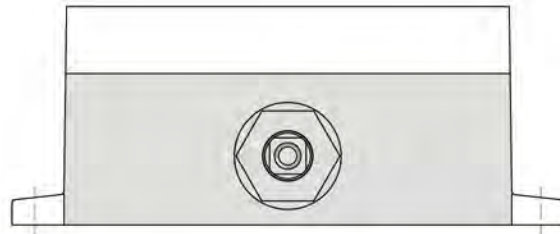
Door closers intended for use on fire resisting doors and smoke control doors are covered by a Construction Products Directive mandate issued by the European Commission. Consequently, this standard is regarded as a "harmonised" standard and compliance with it, supported by suitable evidence, allows the application of the CE mark. As closers for fire / smoke doors have a critical safety function, application of the CE mark will require the involvement of a notified certification body to provide verification of the compliance claims. This will involve initial type-testing of the product to EN1154, initial inspection of the manufacturer's factory production control.

A dark grey door with a silver handle and a silver surface-mounted door closer. A potted plant is visible in the background.

Surface  
Mounted  
Door Closers

# Surface Mounted Door Closer

DCR502



Details	Features
Product Description	Yale Surface Mounted Door Closer, EN Size 2, Standard Arm, Silver
Type	Rack & Pinion
Spring Sizes	EN 2
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Hold open / Slide Arm / Parallel Arm	NA
Standards	In compliance with EN 1154
UL Listed	Yes
Suitable for door width	750 – 850 mm
Suitable for door weights	45 kg
Cycle Tested	500000
Finishes	Silver

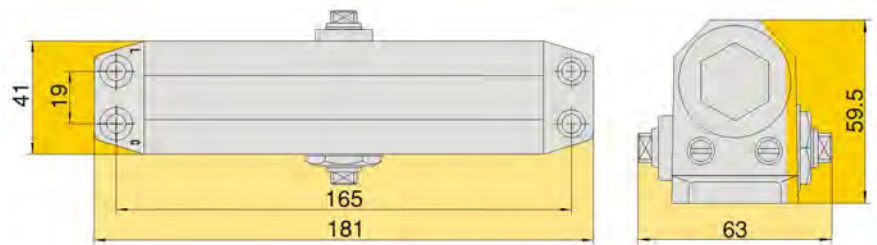
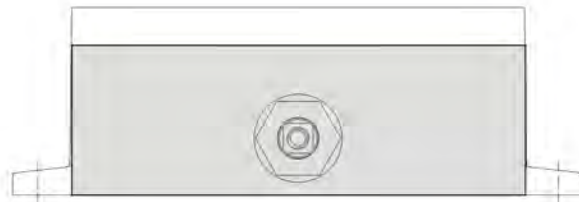
Warranty  
**5 years**

Std  
**Arm**

EN  
**2**

# Surface Mounted Door Closer

DCR503



Details	Features
Product Description	Yale Surface Mounted Door Closer, EN Size 3, Standard Arm , Silver
Type	Rack & Pinion
Spring Sizes	EN 3
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Hold open / Slide Arm / Parallel Arm	NA
Standards	In compliance with EN 1154
UL Listed	Yes
Suitable for door width	850 – 950 mm
Suitable for door weights	40-60 kg
Cycle Tested	500000
Finishes	Silver

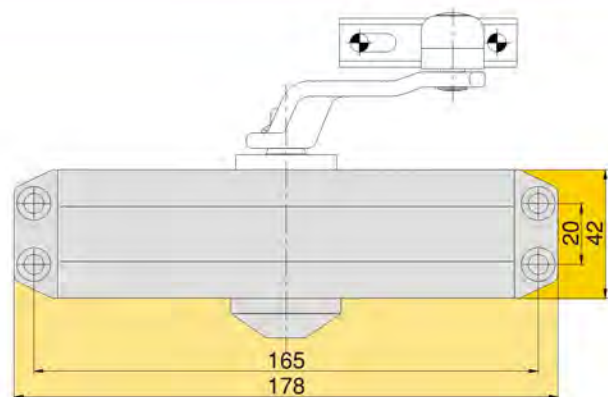
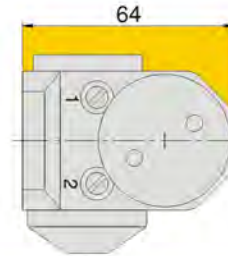
Warranty  
**3 years**

Std  
**Arm**

EN  
**3**

# Surface Mounted Door Closer

## DCR504 Premium



Details	Features
Product Description	Yale Surface Mounted Door Closer, EN Size 2-4, Standard Arm, Silver
Type	Rack & Pinion
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Hold open / Slide Arm / Parallel Arm	NA
Suitable for door width	750 – 1100 mm
Suitable for door weights	80 kg
Cycle Tested	500000
Finishes	Silver

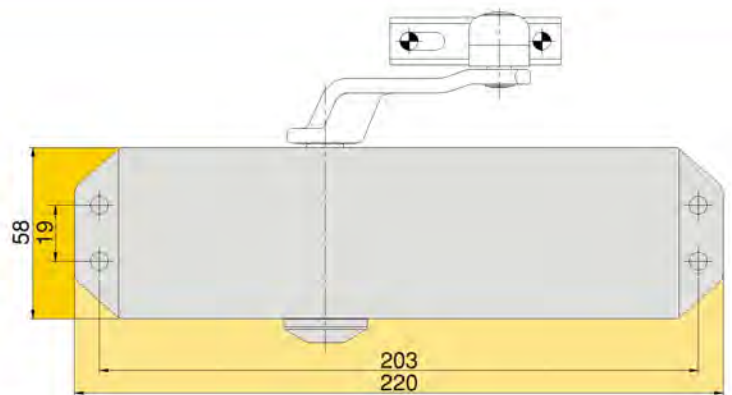
Warranty  
**3 years**

Std  
**Arm**

EN  
**2-4**

# Surface Mounted Door Closer

YDC 2022



Details	Features
Product Description	Yale Surface Mounted Door Closer, EN Size 2-4, Standard Arm, Silver
Type	Rack & Pinion
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Hold open / Slide Arm / Parallel Arm	NA
Standards	In compliance with EN 1154
Suitable for door width	750 – 1100 mm
Suitable for door weights	80 kg
Cycle Tested	500000
Finishes	Silver

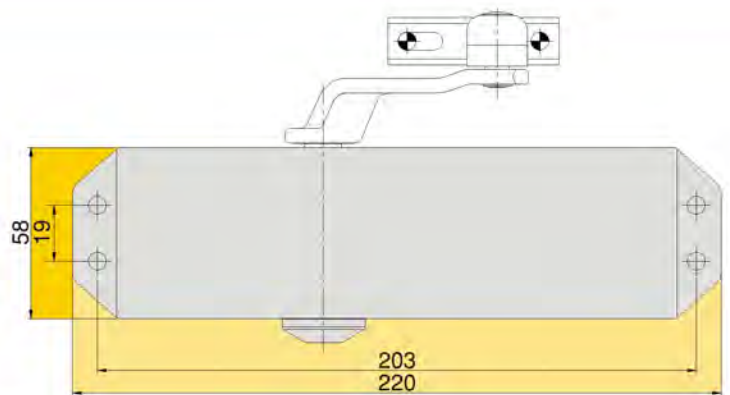
Warranty  
**3 years**

Std  
**Arm**

EN  
**2-4**

# Surface Mounted Door Closer

YDC 2022 HO



Details	Features
Product Description	Yale Surface Mounted Door Closer, EN Size 2-4, Hold Open Arm, Silver
Type	Rack & Pinion
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Slide Arm / Parallel Arm	NA
Standards	In compliance with EN 1154
Suitable for door width	750 – 1100 mm
Suitable for door weights	80 kg
Cycle Tested	500000
Finishes	Silver

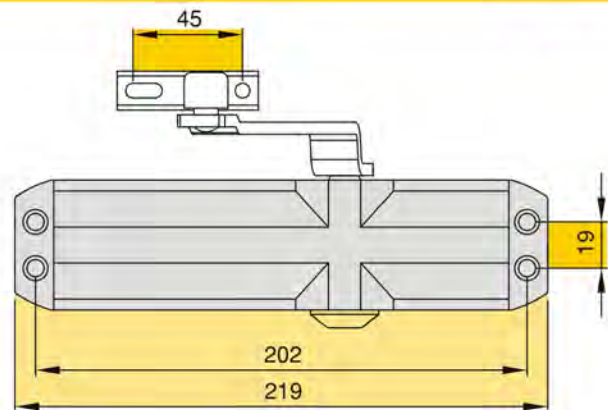
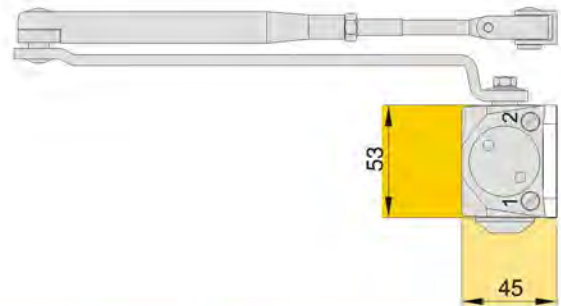
Warranty  
**3 years**

Hold  
**Open**

EN  
**2-4**

# Surface Mounted Door Closer

DCR-1824FR



Details	Features
Product Description	Yale Surface Mounted Door Closer - Size 2-4, Standard Arm, Fire Rated, Silver
Type	Rack & Pinion
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Slide Arm / Parallel Arm	NA
Standards	UL listed and Fire rated
Suitable for door width	750 – 1100 mm
Suitable for door weights	45-68 kg
Cycle Tested	1,000,000
Finishes	Silver

Warranty  
**2 years**

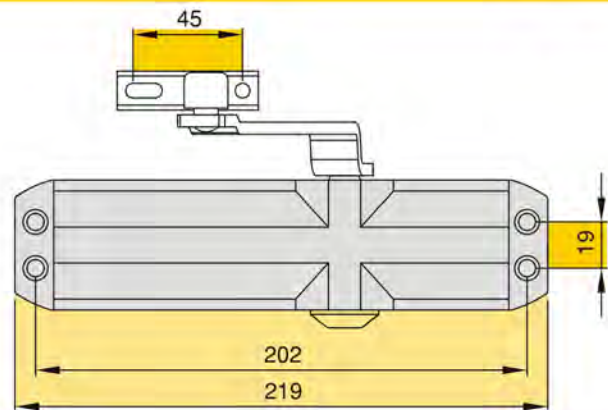
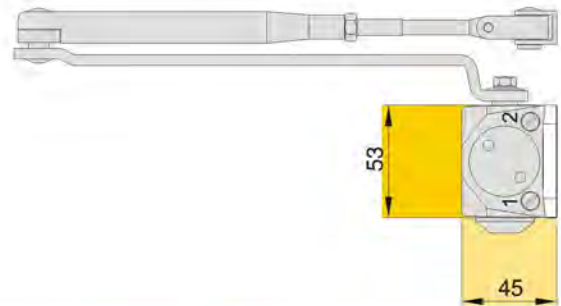
Std  
**Arm**

EN  
**2-4**



# Surface Mounted Door Closer

DCR-1824HO



Details	Features
Product Description	Yale Surface Mounted Door Closer, EN Size 2-4, Hold Open Arm, Silver
Type	Rack & Pinion
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	NA
Slide Arm / Parallel Arm	NA
Standards	UL listed
Suitable for door width	750 – 1100 mm
Suitable for door weights	45-68 kg
Cycle Tested	1,000,000
Finishes	Silver

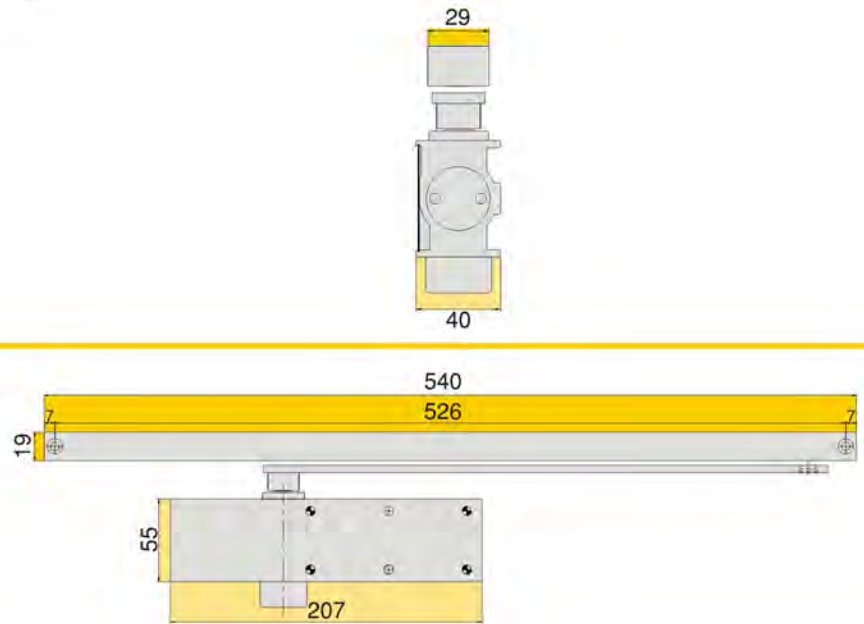
Warranty  
**2 years**

Hold  
**Open**

EN  
**2-4**

# Surface Mounted Door Closer

## DCR-3003SH SLIM SS



Details	Features
Product Description	Yale Door Closer - Size 3, Sliding Arm, Slim, HO (Surface)
Type	Rack & Pinion
Spring Sizes	EN 3
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Slide Arm – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden Doors
Back check	NA
Slide Arm / Parallel Arm	Slide Arm
Standards	In compliance with EN 1154
Suitable for door width	950 mm
Suitable for door weights	80 kg
Cycle Tested	1,000,000
Finishes	Silver

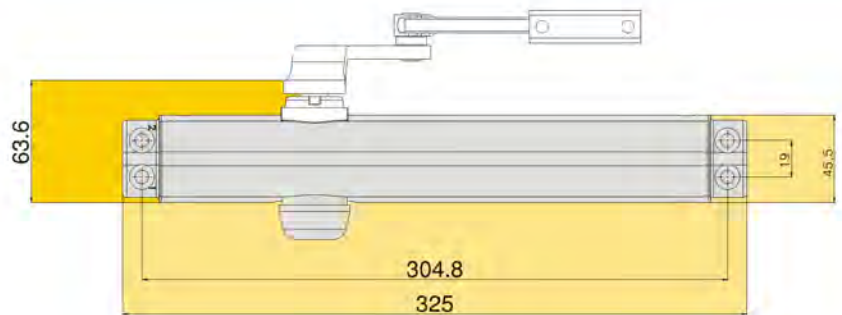
Warranty  
**2 years**

Hold  
**Open**

EN  
**3**

# Surface Mounted Door Closer

K990BC



Details	Features
Product Description	AssaAbloy King Door Closer Size 1~6, STD Arm(Surface) With backcheck Silver (Body Cover Included)
Type	Rack & Pinion
Spring Sizes	EN 1-6
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Standard Arm
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden or Metal Doors
Back check	Yes
Delayed Action	NA
Slide Arm / Parallel Arm	Parallel Arm Bracket included
Standards	In compliance with ANSI GRADE1
Suitable for door width	1400 mm
Suitable for door weights	15-120 kg
Cycle Tested	2,000,000
Finishes	Silver

Warranty  
**1 year**

Std  
**Arm**

EN  
**1-6**



Concealed  
Door Closers

# Concealed Door Closer

YIC5333



Details	Features
Product Description	Yale Concealed Cam Action Door Closer - Size EN3 With Hold Open Arm, Silver
Type	Cam Action
Spring Sizes	EN 3
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Concealed Slide Rail – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden Doors
Back check	NA
Standards	In compliance with EN 1154
Suitable for door width	950 mm
Suitable for door weights	60 kg
Cycle Tested	500000
Finishes	Silver

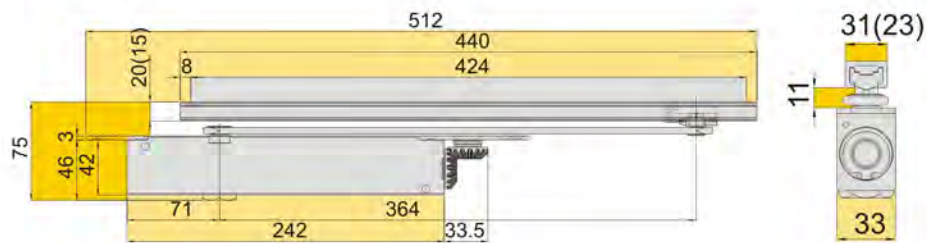
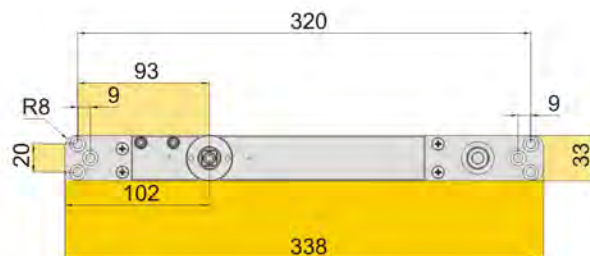
Warranty  
**3 years**

Hold  
**Open**

EN  
**3**

# Concealed Door Closer

## YIC 5324 FT SLIM



Details	Features
Product Description	Yale Concealed Cam Action Door Closer - Size EN 2-4 With Hold Open Arm, Silver
Type	Cam Action
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Concealed Slide Rail – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden Doors
Back check	NA
Standards	In compliance with EN 1154
Suitable for door width	750 – 1100 mm
Suitable for door weights	80 kg
Cycle Tested	500000
Finishes	Silver

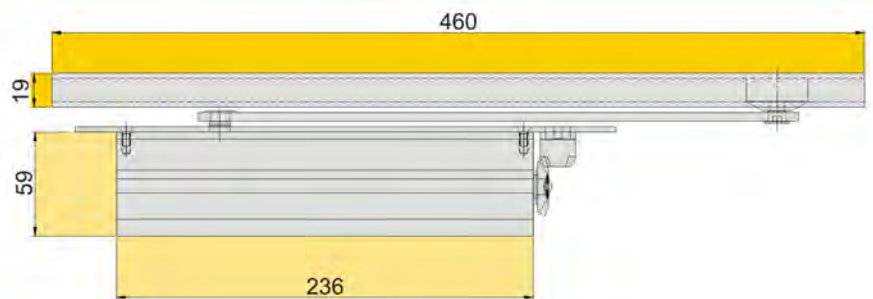
Warranty  
**2 years**

Hold  
**Open**

EN  
**2-4**

# Concealed Door Closer

YIC 5124 HO



Details	Features
Product Description	Yale Concealed Cam Action Door Closer - Size EN 2-4 with Hold Open Arm, Silver
Type	Cam Action
Spring Sizes	EN 2-4
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Concealed Slide Rail – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden Doors
Back check	NA
Standards	In compliance with EN 1154
Suitable for door width	750 – 1100 mm
Suitable for door weights	80 kg
Finishes	Silver

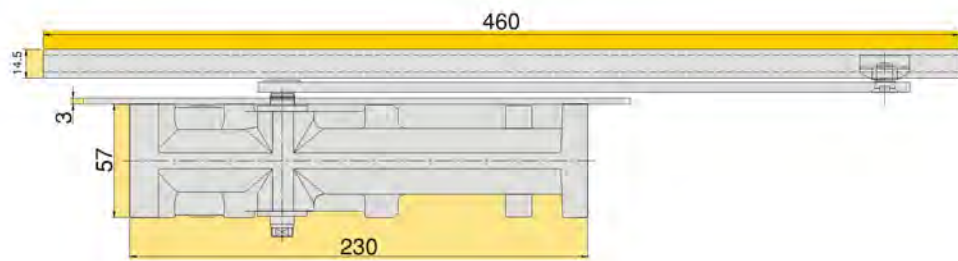
Warranty  
**3 years**

Hold  
**Open**

EN  
**2-4**

# Concealed Door Closer

DCR-8003H



Details	Features
Product Description	Yale Concealed Door Closer - Size EN 3 With Hold Open Arm, Silver
Type	Rack and Pinion
Spring Sizes	EN 3
Arm Assembly Type ( Standard / Slide Channel Arm / Hold Open Type )	Concealed Slide Rail – Hold Open Type
Adjustments Facility	Closing speed and latching action are adjustable
Area of application	Wooden Doors
Back check	NA
Standards	In compliance with EN 1154
Suitable for door width	950 mm
Suitable for door weights	60 kg
Finishes	Silver

Warranty  
**2 years**

Hold  
**Open**

EN  
**3**











The world's favourite lock

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