

# How to Choose Door Closer

Door closer is a mechanical device mounted to a door that will assist with automatically closing a door for security, privacy and maintenance of temperature control. While this device may appear fairly simplistic, it is actually one of the most difficult pieces of hardware to work with. If you choose a closer that is too powerful for your door, it will slam the door and shut noisily with great force. If you choose a closer that is not powerful enough, the door may not be closed and latched correctly. When choosing a closer, consider factors such as size(power), mounting, application and special functions etc., so you can find the right closer for your doors.

## Door Closer Size

When speaking about closing force, we say that a door closer is of a certain size. Door closer size does not refer to actual dimensions, but to spring strength. From the practical viewpoint, door closers are available in sizes 1 to 6 – 1 being the weakest and 6 capable of exerting the strongest closing force.

1. Size #1 = 2 pounds of closing force, minimum
2. Size #2 = 3 pounds of closing force, minimum
3. Size #3 = 5 pounds of closing force, minimum
4. Size #4 = 8 pounds of closing force, minimum
5. Size #5 = 11 pounds of closing force, minimum
6. Size #6 = 14 pounds of closing force, minimum

A size 4 closer is usually recommended for an exterior, 3-foot wide door, whereas a size 3 closer is deemed appropriate for an interior door of the same dimensions. The assumption here is that the exterior door is more likely to be expected to close a door against a wind or negative or positive air pressure. Anyhow, the size of door closer is mainly depended on the width and weight of the door, details as follows:

Door Closer Size		#2	#3	#4	#5	#6
Interior Door	Door Width (mm)	850	950	1100	1200	1500
	Door Weight (kg)	25-45	40-65	60-85	80-120	100-150
Exterior Door	Door Width (mm)	800	850	950	1100	1200
	Door Weight (kg)	15-30	25-45	40-65	60-85	80-120

Depending on whether the closing force can be adjusted, door closer is divided into [Adjustable Door Closer](#) and [Fixed Size Door Closer](#).



[Adjustable Door Closer D4016](#)



[Fixed Size #3 Door Closer D903](#)



[Concealed Door Closer D30](#)

Many of our most popular door closers have an adjustable Spring/Power setting.

Example: for our door closer Model No. D4016, it is one of D4000 series listed with a Spring Size of 1-6, adjustable through the Power range of #1 (2 pounds of force) to #6 (14 pounds of force).

If the door closer is non adjustable Spring/Power, meaning it is a Fixed Size, usually, there is no way to adjust the door to open or close lighter/stronger.

Normally the standard adjustable door closer will be set at size 3 before ex-factory.

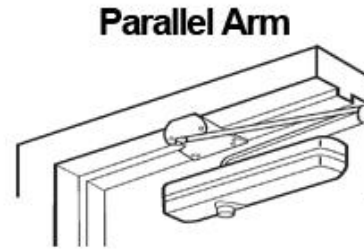
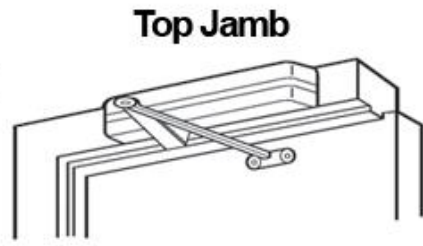
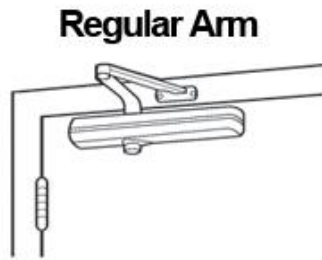
Depending on different mounting method, door closer can be classified into surface mounted door closer and [Concealed Door Closer](#).

Surface mounted closers are installed on the surface of the door and frame, and are highly visible. They are the more economical for the two options and also the easiest way for installation. Concealed closers are mounted within the door and are not visible when the door is closed. They are much more expensive and difficult to be installed than surface-mounted units.

## Mounting of Overhead Door Closers

Overhead door closers are the most common, and they're widely used throughout commercial properties. For example, interior doors in offices, conference rooms, they are typically affixed with a door closer that automatically closes the door. Additionally, commercial front doors are also installed with a closer unit, and overhead units are a popular choice. There are four common mounting types of overhead door closers as below:

- **Regular Arm Mounting:** The regular arm, or standard arm, closer is with a pull-side application, meaning it is located on the exterior of the door. In these applications, the arm is consist of main arm and forearm, forearm attached to the frame and main arm to door closer body on the pull-side of the door. When the door is closed, the main arm is perpendiculary from the door, which is less attractive than other applications. This is the most power-efficient option available.
- **Top Jamb Mounting:** Top jamb mount door closers, the same with regular arm closers which the main arm is perpendiculary from the door. But the biggest difference is that the door closer body is mounted on the face of the door frame. These are often used for aluminum or glass store front doors, because these doors generally have narrow top rails. Like regular arm closers, top jamb closers are fairly power efficient.
- **Parallel Arm Mounting:** With a parallel arm application, the main arm is parallel with the door when the door closer is mounted. Parallel arm door closers are one of the most common applications, particularly in commercial properties and schools, because they reduce the risk of vandalism to the arm and they are more attractive than other overhead options. Due to the geometry of the arm, it is approximately 25% less power efficient than Regular Arm or Top Jamb mounting.
- **Sliding Track Arm Mounting:** normally the door closer body is mounted on the door, while the sliding track arm is mounted on or under the frame of the door. Compared with the above three mounting methods, its power efficiency is the lowest, approximately 50% less than Regular Arm or Top Jamb mounting.



## Application and Products Standard

1. **American National Standards Institute (ANSI)** : ANSI / BHMA A156.4, UL10C 3 hours fire rating

Door closers are generally classified in an ANSI Grade or Duty Cycle. This is to assist with choosing the right closer for the right application. They are 3 classes as below:

**ANSI Grade 1** - 2 million cycles required, best for medium to high traffic such as a store entrance, office or school. All of our [American Style Door Closer](#) are certified with Grade 1.

**ANSI Grade 2** - 1 million cycles required, best for medium traffic such as a small office, or public restroom.

**ANSI Grade 3** - 500,000 cycles required, best for low traffic such as closets, or residential applications.

**Select the right grade:** Door closer is typically listed as Grade 1, 2 or 3. Choose Grade 1 door closer for commercial applications or for doors subject to high levels of abuse. Grade 2 door closer can be used for light commercial and standard residential doors. Grade 3 door closer should be used on light residential applications, such as guest rooms or storage rooms. All of our [UL Listed Door Closer](#) meet the standard of Underwriter's Laboratories.

<b>Door Operation Frequency Chart</b>			
<b>Application</b>	<b>Daily</b>	<b>Yearly</b>	<b>Frequency</b>
Large Department Store Entrance	5,000	1,500,000	HIGH
Large Office Building Entrance	4,000	1,200,000	
Theater Entrance	1,000	450,000	
School Entrance	1,250	225,000	
School Restroom Door	1,250	225,000	
Store or Bank Entrance	500	150,000	
Office Building Restroom Door	400	118,000	
School Corridor Door	80	15,000	MEDIUM
Office Building Corridor Door	75	22,000	
Store Restroom Door	60	18,000	
Residential Entrance Door	40	15,000	
School Janitor Closet	40	7,500	LOW
Residential Restroom Door	25	9,000	
Residential Hallway Door	10	3,600	
Residential Closet Door	6	2,200	



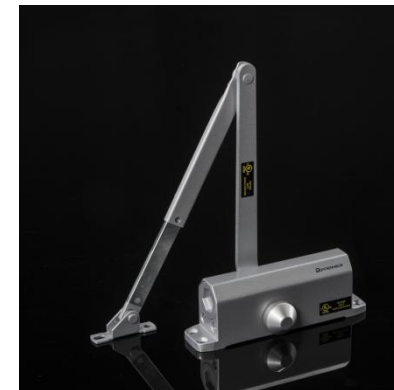
[American Style Door Closer](#)



UL Listed Door Closer



CE Certified Door Closer



Economic Door Closer

2. **European Standard - CE:** EN 1154 (Performance Test) and EN 1634 (**Flammability Testing**), rated for 500,000 cycles. All of our [CE Certified Door Closer](#) are more than 500,000 cycles.
3. **Chinese Industrial Standard: QB/T 2698-2005**, “Door Closer for Fireproof Door” GA 93-2004 fire testing standard issued by the Ministry of Public Security of China.
  - a. Primary Standard (high operating frequency):  $\geq 1$  million cycles
  - b. Secondary Standard (medium operating frequency):  $\geq 0.5$  million cycles  
Most of our [Economic Door Closer](#) and [CCC Certified Door Closer](#) are of Garde II.
  - c. Standards of Grade 3 (low operating frequency):  $\geq 0.2$  million cycles

### **Special Functions Optional**

Except for adjustable closing (sweeping) speed and latching speed, there are more functions to be optional:

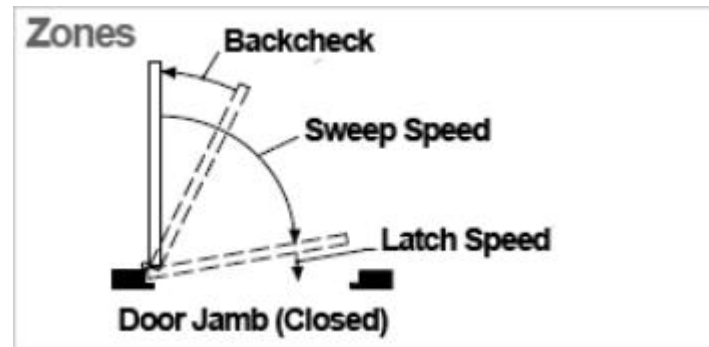
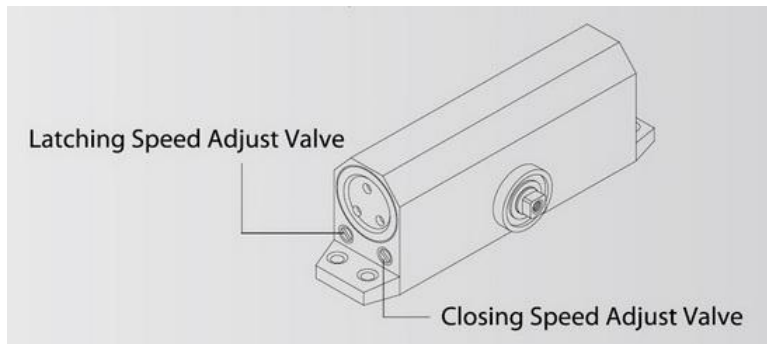
1. **Sweep speed control**

Sweep speed (door closing speed) is the time frame from the start of the door closing to a couple inches before the door hits its latch point. The last few inches of closing are controlled via the latch speed valve if one is included.

2. **Latch speed Control**

The Latch Zone is the last few inches before the door hits its latch point. This closing zone is controlled via the latch speed valve.

Note: A properly adjusted door closer latch speed should never slam the door closed causing stress on the door and frame.



### 3. Hold Open (HO) Arm

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](#)).

**Warning Note:** Most local building codes do not allow the installation of any type of door hardware that holds "**Fire Doors**" in the open position.

### 4. Back Check (BC)

Backcheck slows the door during open the door in the opening swing to keep it from hitting an adjacent wall or having wind throw it out of your control.

Backcheck resistance should only be felt near the fully open position, details see installation instructions.

Notes: **Backcheck is not a door stop.** Most of our Grade 1 door closers offer fully adjustable Backcheck.

All closers on exterior doors should have backcheck as well as doors that may swing into a nearby cabinet or wall.

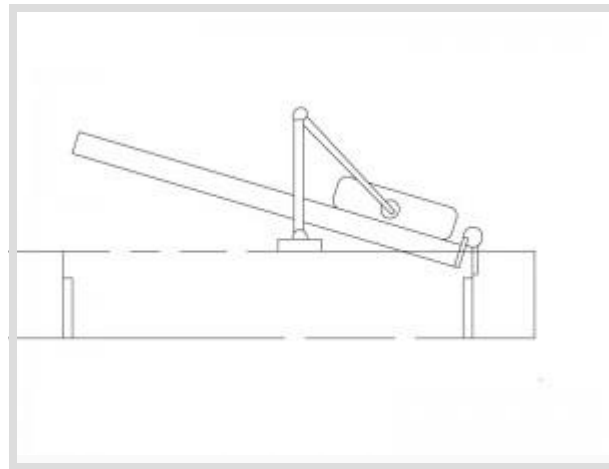
### 5. Delayed Action (DA) and ADA Standard

A delayed action closer offers a period of delay from when the door begins the close function. This is helpful for doors that are used by wheelchair users or people pushing strollers or chopping carts. It is also required for many entrance doors that are subject to ADA (Americans with Disabilities Act) standards. Check the ADA website or consult with your local building inspector to determine if delayed action is needed.

## Key Point of Design & Choosing

1. **Usage occasion:** please refer to “Guide for selection of Dorrenhaus door closer”
2. **Operating frequency:** Grade I for high working frequency, for example: station, hotel, shopping mall, restaurant, exhibition center, **workshop** of plant, landing-answer doors; Grade II for medium working frequency, such as office of commercial building, meeting room, school, chamber or club; Grade III for low working frequency, for instance: machine room, warehouse etc.
3. **Material of door :** different door material need different door closer accessories (screw).
4. **Width and weight :**

If you look at a door hung on butt hinges and equipped with a door closer from above, it looks something like this:



VIEW FROM THE CEILING

You see from the illustration that the door closer closes the door by exerting force on a point about eight or ten inches from the hinge side of the door. To see what this means, find a door without door closer and open the door. Now put your hand a foot away from the hinge side of the door and push the door to close. Pretty difficult, isn't it? If your door was wider, it would be even harder to close from that point. This is why door closer size – that is, spring strength – is determined by the width of the door rather than the weight.



For a three foot wide exterior door, you would normally adjust your door closer to be a size four. For a four foot wide exterior door you would adjust your door closer to be a size five. Therefore, if you have a four foot wide exterior door, you had better buy a closer that can be adjusted to a size five.

5. **Size of door frame:** if the frame is narrow, no space to install door closer arm, then parallel-mounting plate is needed for parallel arm installation.
6. **Opening angle of door:** if 180 degree opening angle is needed, then [European Style Door Closer](#) or [CE Certified Door Closer](#) is recommended.
7. **Installation methods:** regular (standard) installation, top jam installation, parallel arm installation, sliding arm installation ([Sliding Arm Door Closer](#)), concealed installation.
8. **Special function:** including Back check (BC), Hold open (HO), Delayed action (DA) and ADA standard etc. HO & BC function are optional for all of our European Style Door Closer; BC, HO & DA function are optional for most of our [American Style Door Closer](#).



[European Style Door Closer](#)



[CE Certified Door Closer](#)



[Sliding Arm Door Closer](#)



[American Style Door Closer](#)

## Guide for Selection of Door Closer

Usage Occasion	Door Width (mm) & Weight (kg)	Installation Methods	Size (Spring Strength)	Typical Door Closer Model No.
<b>Light-duty Fire Door</b>	<850 (25-45)	Regular/top jam	#2	<a href="#">D302S</a>
	<850 (25-45)	Parallel arm	#3	<a href="#">D203, D303S, D303, D503</a>
	<850 (25-45)	Sliding arm	#4	<a href="#">D2004</a>
<b>Medium-duty Fire Door</b>	<950 (40-65)	Regular/top jam	#3	<a href="#">D503, D603, D703, D803, D903</a>
	<950 (40-65)	Parallel arm	#4	<a href="#">D304, D604, D904, D2004</a>
	<950 (40-65)	Sliding arm	#5	<a href="#">D2005</a>
<b>Heavy-duty Fire Door</b>	850-1200 (25-120)	All 3 methods	#2 - #5	<a href="#">D2025</a>
	800-1500 (15-150)	All 3 methods	#1 - #6	<a href="#">D4016, D8016, D9016, D3036</a>
<b>Light-duty Landing-answer Door &amp; Non- fireproof Door</b>	<950 (40-65)	Regular/top jam	#3	<a href="#">D503, D603, D703, D803, D903</a>
	<950 (40-65)	Parallel arm	#4	<a href="#">D304, D604, D904, D2004</a>
	<950 (40-65)	Sliding arm	#5	<a href="#">D2005</a>
<b>Medium &amp; Heavy Duty Landing-answer Door and Non-fireproof Door</b>	850-1200 (25-120)	All 3 methods	#2 - #5	<a href="#">D2025</a>
	800-1500 (15-150)	All 3 methods	#1 - #6	<a href="#">D4016, D8016, D9016, D3036</a>
<b>Guest Room Door of Hotel</b>	<850 (25-45)	Concealed	#2	<a href="#">D20</a>

	<950 (40-65)	Concealed	#3	<a href="#">D30</a>
Light-duty Residential Interior Door	<850 (25-45)	Regular/top jam	#2	<a href="#">D302S</a>
	<950 (40-65)	Regular/top jam	#3	<a href="#">D203, D303S, D303, D503</a>
Access Door for the Disabled	850-1200 (25-120)	All 3 methods	#2-5, #1-6	<a href="#">D2025, D4016, D8016</a>

**Remarks:**

1. For doors with weight of less than 25kgs, width of less than 600mm, if automatically door closing is needed, then spring hinge is recommend to use.
2. The above fixed size door closer is suitable for interior door. For exterior door, the size of door closer should be #1 or #2 higher; for door closer used in higher pressure tightness room, the size of door closer shall also be #1 or #2 higher.
3. For fire door, hold open function is not allowed.