



Section 08 71 00 – Door Hardware

## Waterson Multifunction Closer Hinges K51 (Stainless Steel) Series



### GENERAL

#### DESCRIPTION

Waterson multifunction closer hinges combine up to four door hardware functions into a single attractive and economical product: 1) Hinge, 2) Closer, 3) Hold-Open, and 4) Door Stop.

Our K51 Series closer hinges are fabricated from stainless steel for outstanding performance, even in harsh environments.

Models with an all-mechanical action withstand 1,000,000 open-close cycles and can be used with 3-hour fire-rated doors.

Models with a hybrid mechanical and hydraulic action enhance control for quieter, softer closing.



Waterson closer hinges eliminate the cost and complexity of using surface or floor closers. They are especially useful for arched doorways.

#### USES

Waterson closer hinges perform multiple functions so you can reduce:

- Costs of purchasing, handling, and installing unnecessary hardware.
- Clutter, visual and physical, of using multiple devices.
- Maintenance problems associated with overhead surface and recessed floor closers.

They are especially useful where other types of closers are difficult to use:

- Doorways with arched tops where surface closers require awkward brackets.
- Pairs of communicating doors (such as between hotel guest rooms) where space for surface closers is limited.
- Doorways where limited height or side clearance restricts use of surface closers.
- Where surface closers are prone to abuse or damage.
- Where floor closers are difficult to install and maintain.
- Where concealed closers are not practical or affordable.
- Where salt water or pollutants could cause corrosion of surface or in-floor closers.
- Tall doors where an overhead or in-floor closer may not generate enough torsion to operate over full height of door.

- On existing doors where adding a surface closer requires reinforcing the door and frame, and where adding a floor closer requires cutting into floor.
- Anywhere a surface closer would look out of place, including historical and residential buildings.



Waterson K51M full mortise closer hinges are the standard for high-quality and fire-rated doors and entrances.



Waterson K51L swing clear closer hinges and can be used to increase clear width of doorways.

If you are already familiar with Waterson Hinges, go right to Product Selection Table to pick the products you need. See other data sheets for information about Waterson closer hinges made from aluminum (W41M Series), for glass doors (K51GG Series) and for gates (K51P and K51MP Series).

# FOUR FUNCTIONS

## 1 HINGE FUNCTION

The K51 Series is available in two styles:

**K51M** is a full mortise (butt) hinge; its leaves are fully concealed when a door is closed. (It is also available with a protective, screw-on, weather-resistant cap for use in exposed, wet locations. See product data sheet for K51MP gate hinges for more information.)

**K51L** is a swing-clear hinge; its L-shaped leaves provide extra clearance to allow wide equipment to pass through a doorway.

The hinges are nonhanded. Both styles have low-friction washer to handle heavy doors with ease. Leaves are permanently assembled to perform like hinges with Maximum Security Pins (MSP). Corners can be square, 1/4" radius, or 5/8" radius.

As hinges, they comply with:

- **ANSI/BHMA A156.7-**

*American National Standard for Template Hinge Dimensions*

Our closer hinges are interchangeable with conventional door hinges, so normal frame and door preparations can be used. This also means our closer hinges can be used as direct replacements for existing hinges.

- **ANSI/BHMA A156.17-**

*American National Standard for Self Closing Hinges & Pivots*

Although standard defines our product as a "spring hinge," our closer hinges are engineered to outperform ordinary spring hinges.

## 2 CLOSER FUNCTION

Our closer hinges comply with:

- **ADA- Americans with Disabilities Act** and **ICC A117.1-Standard for Accessible and Usable Buildings and Facilities**

Our closer hinges are adjustable

for force required to open door and for swing (closing) speed.

Unlike surface closers, closer hinges do not project into the path of travel.

- **ANSI/BHMA A156.17-**

*American National Standard for Self Closing Hinges & Pivots*

Although this standard defines our product as a "spring hinge," our closer hinges outperform ordinary spring hinges.

We offer two types of closing mechanisms:

**All Mechanical:** These closer hinges contain both torsion springs and disk springs. They are certified for use on fire-rated doors when provided without optional hold-open:

- **ANSI/BHMA A156.17-**

*American National Standard for Self Closing Hinges & Pivots,*

Grade 1 (tested to 1,000,000 cycles).

- **UL-Certified**

For up to 3-hour fire-rated doors; see UL GVEV.R26997 and ULC GVEV7.R26997.

- **Compliant with NFPA 80-**

*Standard for Fire Doors and Other Opening Protectives*

**Hybrid -Hydraulic and Mechanical:** In addition to mechanical springs, hybrid hinges contain a small reservoir of hydraulic fluid that provides dynamic braking for quieter, softer closing.

Our hybrid mechanism is safer than the all-hydraulic mechanisms in surface and in-floor closures. When all-hydraulic closers leak, they can slam shut and injure users. In the unlikely event that one of our closer hinges leaks, springs continue to reduce closing speed.

Further, leaks from overhead closures can stain clothing and create slip hazards on floor. The small quantity of fluid in closer hinges, however, will remain next to the door jamb to avoid these hazards.

Hybrid closer hinges cannot be used to close fire-rated doors.

They can, however, be used in fire-rated door assemblies when combined in sets with Waterson mechanical closer hinges certified for use in fire-rated doors. See Product Selection Table.

Hybrid closer hinges are sensitive to temperature changes. **DO NOT USE OUTDOORS** or where ambient temperatures fluctuate more than 20°F (11°C).

In controlled environments, however, they can be adjusted to operate at stable temperatures between -30°F (-34°C) and 180°F (82°C).

## 3 HOLD-OPEN FUNCTION

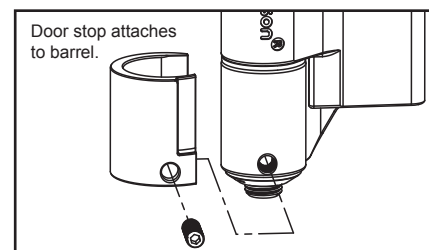
Many of our closer hinges have a hold-open feature that can be set in field. It holds the door open at a 90° (85°±5°) angle until a gentle push releases hold. Do not use hold-open on fire-rated doors.

## 4 DOOR-STOP FUNCTION

Optional door stops are available for K51 Series closer hinges: Use 90° stops to prevent doors from hitting adjacent walls; use 120° stops to prevent doors from over opening.

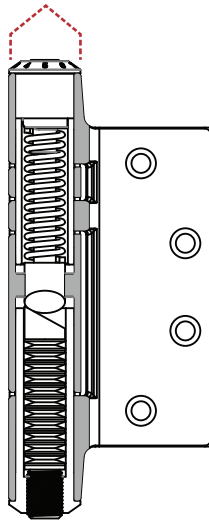
The stops fit onto the closer hinge barrels. This prevents them from being a trip hazard and interfering with floor maintenance like floor or wall mounted stops are. And they are much easier to install than overhead stops.

Most doors require stops on the top and bottom closer hinges. Stops can be installed at factory or job site. If ordered separately, specify which closer hinge models the stops will be used with.



### Weather-Resistant Cap (Optional)

- Tension Control
- Torsion Spring
- Low-Friction Washers
- Interactive Braking Mechanisms
- Disc Springs
- Speed Control



This cut-away illustration shows the interior of an all-mechanical closer hinge. Hybrid units also contain a hydraulic reservoir.

### SUSTAINABILITY AND WELLNESS

By helping to ensure that doors close, closer hinges:

- Conserve energy by reducing heat loss through open doors.
- Improve indoor air quality and hygiene by reducing entry of airborne particles, noise, and vermin.
- Improve building security.
- Reduce spread of pathogens by eliminating need to touch doors to close them.

### DELIVERY, HANDLING, AND STORAGE

**Packaging:** Our closer hinges are wrapped in paper to protect surfaces against scratching, and then packed in cardboard cartons marked with contents of each package.

Whenever practical, all closer hinges for a particular door are packed together as a set. Orders are then assembled and shipped in corrugated cardboard boxes.

Large orders can be palletized to

simplify jobsite logistics. Contact us for additional information.

Paper and cardboard contain recycled content and are readily recyclable. The quantity of plastic used for packaging is minimal.

**Availability:** Waterson closer hinges are available globally from our facilities in Alpharetta, Georgia (USA), and Taipei (Taiwan). Products are also available from distributors, hardware dealers, and online.

**Delivery:** Please specify when products are required so we can accommodate your schedule with the most economical method of shipping. The most popular products are in inventory and can be shipped on short notice.

**Storage:** Store inside in a cool, dry location. Small, high-value items like closer hinges should be stored in secure location.

### LIMITATIONS

- Opening closer hinges beyond 120° may shorten expected service life and void warranty.
- Contact Waterson prior to using on: (A) Large exterior doors subject to high wind gusts at locations such as rooftops or building corners. (B) Doors over ten feet tall.
- At wet locations, specify optional screw-on, weather-resistant caps.

### LIMITED WARRANTY

Waterson provides a limited warranty of three to five years depending on product and conditions of use.

### SAFETY PRECAUTIONS

**Installation:** Use personal protective equipment similar to that used when installing other door hardware. Note that installing and adjusting closer hinges is intrinsically safer than working on overhead door closers since less work has to be performed from ladders.

**Protection:** Prior to adjusting swing speed, protect door against operation by children and individuals who may be injured if door



Ideal for frameless and flush doors.

slams shut. If closer hinges are damaged or operating outside of normal parameters, promptly adjust or replace closer hinges.

### COST

Pricing is available directly from Waterson and from our distributors, dealers, and online retailers.

The total cost of Waterson closer hinges can be surprisingly affordable compared to surface or in-floor closers.

That's because our closer hinges install with the same preparation and fasteners used for conventional hinges. This eliminates the dozens of parts that must be separately handled to install other types of closers plus separate hold opens and door stops.



None of this hardware is required with closer hinges. This surface closer, for example, requires installing 45 pieces plus drilling, significantly increasing the labor to install a door.



# PRODUCTS

## Materials:

- Standard: Type 304 stainless steel.
- Optional: Type 316 stainless steel for greater corrosion resistance.
- Custom: Type 316L marine-grade stainless steel.

## Sizes:

The leaves of our closer hinges comply with BHMA template sizes. The barrels of closer hinges are 6 inches tall x approximately 1-1/8 inch diameter. Contact Waterson for other sizes meeting international standards.

## Finishes:



- Satin Stainless Steel: BHMA 630 (US32D).
- Flat Black: BHMA 631 (US19)- Powder coating.
- Dark Satin Bronze: BHMA 695 (US10B) - Powder coating.
- Satin Brass: BHMA 731(US4)- Physical vapor deposition (PVD) coating.

View manufacturer's samples before making final finish selection. Custom finishes are also available.

MODELS TABLE			
Mechanism			Functions
DS	S	Spring Power	Double spring model - both ends provide closing force.
	S	Spring Power	
SA	S	Spring Power	Provides closing force.
	A	Swing Speed	Controls speed from 90 to 20 degrees of closing.
SA1	S	Spring Power	Provides closing force.
	A1	Latching Speed	Controls speed during final 20 degrees of closing.
SB	S	Spring Power	Provides closing force.
	B	Hold-Open <sup>1</sup>	Holds door open at 85 +/-5 degrees.
HA	H	Hydraulic Damping <sup>2</sup>	Control either swing or latch speed or in-between.
	A	Swing Speed	Controls speed from 90 to 20 degrees of closing.
HS	H	Hydraulic Damping <sup>2</sup>	Control either swing or latch speed or in-between.
	S	Spring Power	Provides closing force.

Closer hinges are usually installed with the mechanism listed first on top. Inverting closer hinges can change what is visible at the top or bottom of the barrel.

<sup>1</sup> Do not use on fire rated doors.

<sup>2</sup> Can be used on fire rated doors if combined with non-hydraulic models.

ADJUSTMENT SETTINGS TABLE		
A - Swing Speed ▼ A1 - Latch Speed ▼ B - Hold Open ▼	H - Hydraulic Damping ▲	S - Spring Power ▲ DS - Double Spring ▲▼
<b>5 mm Hex Socket</b> Adjusts speed or engages / disengages hold-open.	<b>Nested Hex Sockets</b> 8 mm: Factory use only. 5 mm: Adjusts hydraulic action zone. 3 mm: Adjusts hydraulic damping.	<b>5 mm Hex Socket</b> Adjusts swing speed (tension). N is neutral position.
Installation: ▲ Usually in upward position. ▼ Usually in downward position. ▲▼ Both positions. Adjustments: Read installation instructions for more about adjusting closer hinges.		

## MODELS

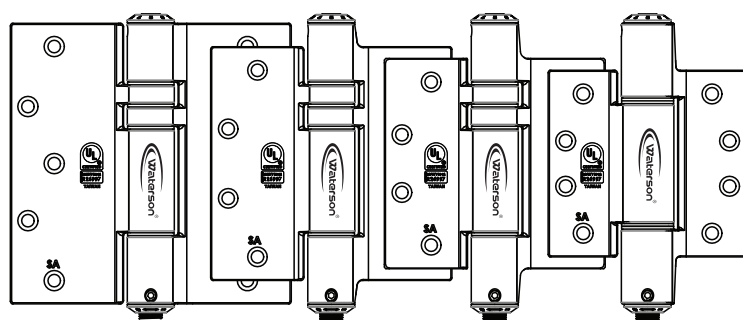
Each closer hinge contains two separately-adjustable closing mechanisms. See Models Table for combinations we offer.

Mechanisms are adjusted at tops and bottoms of the closer hinges. See Adjustment Settings Table.

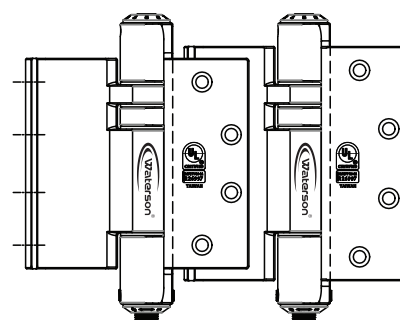
## CLOSER HINGE SETS

Each door typically requires several types of closer hinges working together as a set.

Product Selection Table describes sets that are suitable for many common doors, and Waterson will be glad to engineer sets for doors with unique requirements.



Hinge Size 6" x 6" 5" x 5" 4.5" x 4.5" 4" x 4"  
 Door Thickness 2-1/4" and up 1-3/4" to 2-1/4" 1-3/4" 1-3/8"  
 K51M - Full Mortise Closer Hinge Sizes



Hinge Size 4.5" x 4.5" 5" x 4.5"  
 Door Thickness 1-3/4" 1-3/4" to 2-1/4"  
 K51L - Swing Clear Closer Hinge Sizes

Waterson closer hinges set a new standard for entrance hardware.



When assembled into a set, each device is labeled Top, Middle, or Bottom corresponding to the first, middle, and last types shown in the set's configuration. Installing the devices in the indicated positions will simplify adjustments.

*Example:* A 1-3/4" thick x 36" wide x 6'-8" tall non-fire door can use closer hinge set K51M-450-C3 with three closer hinges, types SB.SA.SA1.

All three have the S function to provide enough spring power to close the door. The A function adjusts the swing speed and the A1 controls the latching speed. The B function provides a hold-open capability.

## ACCESSORIES

Each carton contains:

Fasteners: Type 304 stainless steel, flat head with phillips drive.

- Sheet Metal Screws: #12 x 1-1/4", and
- Machine Screws: #12-24 x 1/2".

Installation Aids:

- Shims: 1 mm thick x 3.5" long stainless steel strip with adhesive and strippable film on one side.
- Spreader Bar: Simplifies installation by temporarily holding hinge leaves apart.
- Hex Keys: For adjusting closer hinges; zinc-plated steel.

## HOW TO SPECIFY

**1 Manufacturer : Waterson Group**  
([www.watersonusa.com](http://www.watersonusa.com))

**2 Type and Size:**

**Full Mortise: Waterson K51M:**

[4 x 4 inches (BHMA A40M).]  
[4.5 x 4.5 inches (BHMA A45M).]  
[5 x 5 inches (BHMA A50B).]  
[6 x 6 inches (BHMA A60M).]

**Swing Clear: Waterson K51L:**

[4.5 x 4.5 inches (BHMA A45M5).]  
[5 x 4.5 inches.]

**3 Material:** Type [304] [316] stainless steel.

**4 Closer Hinge Sets:**

**Doors with Three Closer Hinges:**

[Set A3: Configuration SA.SA.SA1.]  
[Set B3: Configuration DS.HA.SA1.]  
[Set C3: Configuration SB.SA.SA1.]  
[Set D3: Configuration DS.HA.SB.]

**Doors with Four Closer Hinges:**

[Set A4: Configuration DS.SA.SA.SA1.]  
[Set B4: Configuration DS.SA.HA.SA1.]  
[Set C4: Configuration SA.SB.SA.SA1.]  
[Set D4: Configuration DS.SB.HA.SA1.]

**5 Corners:** [Square.] [ [1/4-inch] [5/8-inch] radius.]

**6 Finish:**


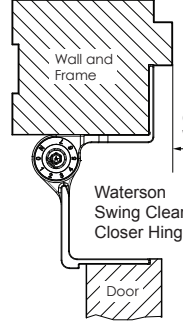



















[Satin Stainless Steel: BHMA 630 (US32D).]  
[Flat Black: BHMA 631 (US19) – Powder coating.]  
[Dark Satin Bronze: BHMA 695 (US10B) – Powder coating.]  
[Satin Brass: BHMA 731 (US4) – Physical vapor deposition (PVD) coating.]

**7 Options:**

[Door Stops: Two per door.]  
[Weather-Resistant Cap: Provide at exterior and wet areas.]

# PRODUCT SELECTION TABLE

Stainless Steel Closer Hinges, Waterson K51 Series

Door (Maximums)			Operation		Closer Hinges		Sets of Closer Hinges (Style-Size-Set)			
Thick. (inches)	W X H (feet)	Weight (pounds)	Fire Door Hold Open	Mechanical: All locations. Hybrid: Softer closer, interior only.	Per Door	Configuration (See Models Table)	Full Mortise - Series K51M		Swing Clear - Series K51L-SWRH	
							Size, inches (BHMA Template)	Recommended <i>Useable with fire- rated doors.</i>	Size, inches (BHMA Template)	Recommended <i>Useable with fire- rated doors.</i>
1-3/8	4 x 7	260		Mechanical	3	SA.SA.SA1	4 x 4 x 0.130 (A40M)	<i>K51M-400-A3</i>		Swing clear closer hinges increase clear width of door- way to improve accessibility and allow pas- sage of wider equipment.
				Hybrid	3	DS.HA.SA1	-	<i>K51M-400-B3</i>		
				Mechanical	3	SB.SA.SA1	-	K51M-400-C3		
				Hybrid	3	DS.HA.SB	-	K51M-400-D3		
	4 x 8	260		Mechanical	4	SA.SB.SA.SA1	-	K51M-400-C4		
				Hybrid	4	DS.SB.HA.SA1	-	K51M-400-D4		
		330		Mechanical	4	DS.SA.SA.SA1	-	<i>K51M-400-A4</i>		
				Hybrid	4	DS.SA.HA.SA1	-	<i>K51M-400-B4</i>		
1-3/4	4 x 7	260		Mechanical	3	SA.SA.SA1	4.5 x 4.5 x 0.134 (A45M)	<i>K51M-450-A3</i>	4.5 x 4.5 x 0.134 (A45M5)	<i>K51L-SWRH-450-A3</i>
				Hybrid	3	DS.HA.SA1	-	<i>K51M-450-B3</i>	-	<i>K51L-SWRH-450-B3</i>
				Mechanical	3	SB.SA.SA1	-	K51M-450-C3	-	K51L-SWRH-450-C3
				Hybrid	3	DS.HA.SB	-	K51M-450-D3	-	K51L-SWRH-450-D3
	4 x 8	260		Mechanical	4	SA.SB.SA.SA1	-	K51M-450-C4	-	K51L-SWRH-450-C4
				Hybrid	4	DS.SB.HA.SA1	-	K51M-450-D4	-	K51L-SWRH-450-D4
		330		Mechanical	4	DS.SA.SA.SA1	-	<i>K51M-450-A4</i>	-	<i>K51L-SWRH-450-A4</i>
				Hybrid	4	DS.SA.HA.SA1	-	<i>K51M-450-B4</i>	-	<i>K51L-SWRH-450-B4</i>
1-3/4 to 2-1/4	4 x 7	260		Mechanical	3	SA.SA.SA1	5 x 5 x 0.190 (A50B) 5 x 5 x 0.146 (A50M)	<i>K51M-500D-A3</i>	5 x 4.5 x 0.146 (Not in BHMA)	<i>K51L-SWRH-545-A3</i>
				Hybrid	3	DS.HA.SA1	-	<i>K51M-500D-B3</i>	-	<i>K51L-SWRH-545-B3</i>
				Mechanical	3	SB.SA.SA1	-	K51M-500D-C3	-	K51L-SWRH-545-C3
				Hybrid	3	DS.HA.SB	-	K51M-500D-D3	-	K51L-SWRH-545-D3
	4 x 8	260		Mechanical	4	SA.SB.SA.SA1	-	K51M-500D-C4	-	K51L-SWRH-545-C4
				Hybrid	4	DS.SB.HA.SA1	-	K51M-500D-D4	-	K51L-SWRH-545-D4
		330		Mechanical	4	DS.SA.SA.SA1	-	<i>K51M-500D-A4</i>	-	<i>K51L-SWRH-545-A4</i>
				Hybrid	4	DS.SA.HA.SA1	-	<i>K51M-500D-B4</i>	-	<i>K51L-SWRH-545-B4</i>
2-1/4 up	4 x 7	260		Mechanical	3	SA.SA.SA1	6 x 6 x 0.160 (A60M)	<i>K51M-600-A3</i>	Contact Waterson for other door configurations and special conditions. • <b>Material:</b> 304 is standard, 316 is option. • <b>Corners:</b> Square is standard, 1/4 or 5/8" radii are options. • <b>Door Stops:</b> Optional. • <b>Weather-Resistant Cap:</b> Optional.   Stainless Steel  Dark Bronze  Satin Brass  Flat Black	
				Hybrid	3	DS.HA.SA1	-	<i>K51M-600-B3</i>		
				Mechanical	3	SB.SA.SA1	-	K51M-600-C3		
				Hybrid	3	DS.HA.SB	-	K51M-600-D3		
	4 x 8	260		Mechanical	4	SA.SB.SA.SA1	-	K51M-600-C4		
				Hybrid	4	DS.SB.HA.SA1	-	K51M-600-D4		
		330		Mechanical	4	DS.SA.SA.SA1	-	<i>K51M-600-A4</i>		
				Hybrid	4	DS.SA.HA.SA1	-	<i>K51M-600-B4</i>		



# INSTALLATION

## PREPARATION

Doors and frames should be prepared according to Builders Hardware Manufacturers Association (BHMA), Steel Door Institute (SDI), and other applicable standards.

## INSTALLATION

Install as you would conventional hinges and in accordance with manufacturer's instructions, available at [www.watsonsonusa.com](http://www.watsonsonusa.com). No special tools are required.

## ADJUSTMENT

Adjust opening force, closing speed, hold open (if required), and door stop (if required) in accordance with manufacturer's instructions.

## MAINTENANCE

Waterson closer hinges provide years of maintenance-free performance under normal use.

Periodically inspect closer hinges. If necessary: remove contaminations that may cause corrosion or wear, adjust opening tension and closing speed, correct sagging, and tighten screws. Replace damaged hinges.

Waterson closer hinges fit standard hinge templates. Doors and frames do not require special preparation and installation is simple.



**Waterson®**  
Multifunction Closer Hinges



## ABOUT WATERSON



Management System  
ISO 9001:2015  
[www.tuv.com](http://www.tuv.com)  
ID 0910079107



Waterson USA is part of Waterson Group, an international corporation with expertise in designing and manufacturing engineered metal products. After six years of research and development, we introduced Waterson closer hinges in 2011. Since then, we have sold hundreds of thousands to discriminating construction companies, developers, and building owners worldwide.



**Waterson USA**  
4205 Trotters Way  
Alpharetta, Georgia  
30004-7829, USA

Phone: +1-770-343-2788  
Website: [watersonusa.com](http://watersonusa.com)  
Email: [hinges@watersonusa.com](mailto:hinges@watersonusa.com)