



Hinges

ASSA ABLOY

Experience a safer
and more open world

Features & Benefits

Door Hinges

Key features:

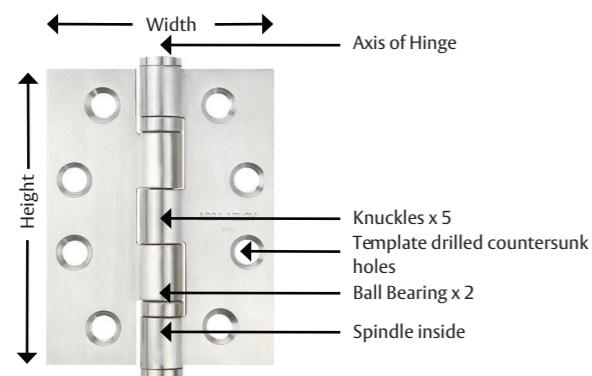
- EN Series – Standard Imperial Hole Pattern
- ANSI Series – made to ANSI template hinge dimensions A156.7
- Fire Rated
- SS304 standard, SS316 option
- EN Series 200,000 cycles tested
- ANSI A156.1 Grade 1 2.5 Million cycles tested
- Compliant or tested and passed EN1935; ANSI A156.1

Technical details:

- EN Series
- ANSI Series
- 2 Ball Bearing
- 4 Ball Bearing
- Full Mortise
- Fully Concealed
- Suitable for high traffic and commercial application
- Suitable for door weight up to 120kg
- 2 Knuckles (Lift – off)
- 3 Knuckles
- 5 Knuckles
- Hospital Tip
- Non-removal pin (NRP)
- Electric Wires (CC4, CC6, CC8)

General Finish:

- Satin Stainless
- Polish Stainless Steel
- Polished Brass
- Antique Bronze



Benefits:

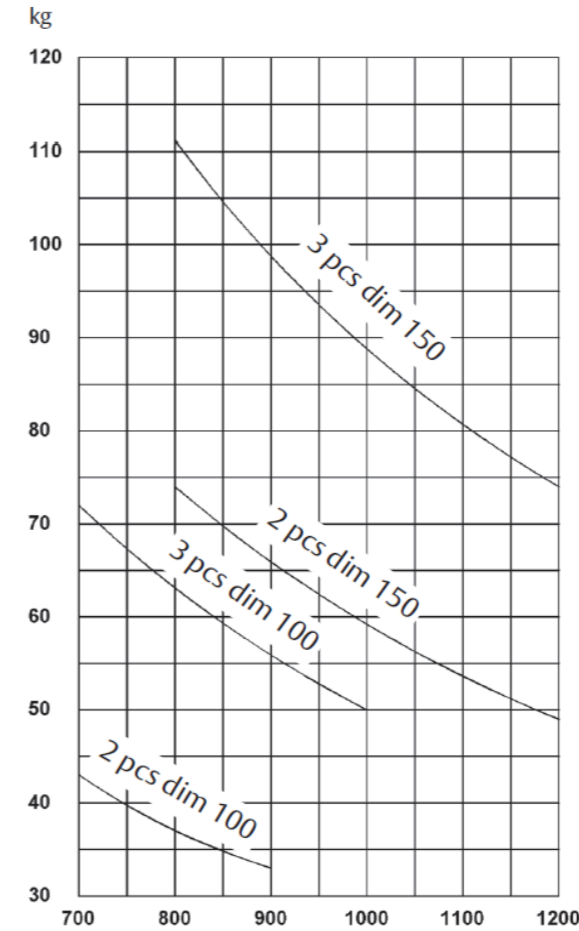
- Suitable for Interior and Exterior doors (Wooden & Metal)
- High corrosion resistance
- Suitable for fire rated doors
- High durability
- Friction resistance



***Note:** Some of the abovementioned features may not be applicable for all models of hinges.
CE Marking and Fire Rating is applicable for only Stainless Steel SS 304 Grade Ball Bearing hinges.

ASSA ABLOY offers a comprehensive range of hinges meeting all requirements, from the simplest case to the most demanding security door.

ASSA ABLOY hinges are available with a number of security enhancing functions, e.g. security pins that make it impossible to lift the door off.



Height and number of hinge recommended in Sweden.

When door closer is fitted, 20% is added to the door weight.

When back-check door closer is fitted, +75% is added to the door weight.

Maintenance

As with all designs that include moving parts, hinges need some maintenance to function faultlessly over their entire life time. The amount of maintenance needed depends on exp. frequency, strain and environment.

Maintenance consist of:

- Overhaul
- Cleaning
- Lubrication

Overhaul

Overhaul of hinges should be carried out frequently. The overhaul is determined by opening frequency and load.

You should control the following at least once a year:

- Function
- Need for lubrication
- Possible loose screws

This can be carried out in connection with the overhaul and control of locks, door closer, weather seals, glass panes, putty and painting.

Cleaning

As hinges wear, a fine black dust is spread around the bearing. The dust also often settles on the frame and the door window/hatch. The best way to avoid the dust is to keep the hinges well-lubricated.

Lubrication

For lubrication of hinges, a water-free mineral or synthetic grease should be used. Do not use oil unless it is absolutely impossible to apply grease. It is very important to use right kind of lubricant, since stresses can be very high, especially on journal-supported hinges.

Function

Hinges should function easily, be undamaged and securely fastened in both frame and door. The door should not touch frame or threshold when it is closed. Damaged or worn-out hinges should be replaced. Loose screws should be tightened. Loose hinges impair the door function, increase wear on the hinges and make breaking-in easier.

Screws in newly installed doors must always be tightened after a few months when the wood in the frame and the door has dried.

When necessary, the hinges are adjusted according to the instructions below. However, the reason for adjustment should be carefully analysed before the actual adjustment is carried out. Hinges often get the blame for a badly functioning door, when in fact the real reason is a carelessly mounted frame or subsidence in the house. It is useless for example to adjust the hinges of a heavy door if the frame is not fixed to the wall property.

Before adjusting the hinges, check the following:

- Is the frame straight and level?
- Are the diagonal dimensions of the frame correct?
- Is the frame side straight in the rebate (does not bulge inwards or outwards)?
- Is the frame rebate width correct?
- Is the frame rebate width the same at different heights?
- Is frame side straight?
- Is the frame securely mounted in the wall?
- Is the wall stable enough to hold the frame?
- Is the frame mounted so that it cannot warp?
- Are the hinges securely fastened in the frame and door?
- Is the door leaf straight and level?

Do not attempt to adjust the hinges if you cannot answer all the above questions in the affirmative.



Ball Bearing Hinges

Specifications

Application:

There are a few variables which must be considered and guidelines to be observed, in order to determine hinge selection for individual doors. It is recommended that the guidelines contained in this catalogue are followed. When reading dimensions, the first figure always indicates the height and the second indicates the width and the third indicates the thickness. e.g. 102mm x 76mm x 3mm

Hinge height:

The appropriate hinge height for any job is dependent upon the door width, thickness and weight. The height of the hinge is the length of the flap, not including the tips of the pin, as shown in the below diagram.

Fixing screws:

Each butt hinge is supplied with the appropriate sized wood screws. Metal door screws are optional

- 8 Gauge screws for 76mm width hinges
- 10 Gauge screws for 102mm and greater width hinges

Hinge width:

The door thickness and door jamb width (also trim size if applicable) determine the width of the hinge required. The width is measured across the leaves when the hinge is fully opened as shown in the below diagram.

Table 1 Reference NFPA-80 Table 6.4.3.1 2010 Builders Hardware Mortise, Surface, and Full-Length Hinges, Pivots or Spring Hinges for Swinging Doors

Mortise and Surface Hinges, Pivots or Spring Hinges for Swinging Doors. Doors up to 60" (1.52m) in height shall be provided with two hinges and an additional hinge for each additional 30" (0.76m) of door height or fraction thereof. The distance between hinges shall be permitted to exceed 30" (0.76m). Where spring hinges are used, at least two shall be provided.

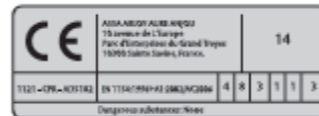
Maximum Door Rating Hours	Maximum Door Size		Minimum Hinge Size		Type Hinge
	Width ft. (m)	Height ft. (m)	Height in. (mm)	Thickness in. (mm)	
For 1¾ (44.5mm) or Thicker Doors					
3 or less	4 (1.22)	10 (3.05)	4 ½" (114.3)	0.180 (4.57)	Steel, Mortise or Surface
3 or less	4 (1.22)	8 (2.44)	4 ½" (114.3)	0.134 (3.40)	Steel, Mortise or Surface
1½ or less	3 1/6 (0.96)	8 (2.44)	6" (152.4)	.225 (5.72)	Steel-Olive Knuckle or Paumelle
3 or less	4 (1.22)	10 (3.05)	4" (101.6)	.225 (5.72)	Steel Pivots (including top, bottom and intermediate)
1½ or less	3 (0.91)	5 (1.52)	4" (101.6)	.130 (3.30)	Steel, Mortise or Surface
1½ or less	2 (0.61)	3 (0.91)	3" (76.2)	0.092 (2.34)	Steel, Mortise or Surface
3 or less	3 (0.91)	7 (2.13)	4 ½" (114.3)	0.134 (3.40)	Steel, Mortise or Surface (labeled self closing spring type)
3 or less	3 (0.91)	7 (2.13)	4" (101.6)	.105 (2.67)	Steel, Mortise or Surface (labeled self closing spring type)

Standard Duty Two Ball-Bearing Stainless Steel Hinge

Model No. & Dimensions: 2BB 4.0" X 3.0" X 3.0mm, 2BB 4.0" X 4.0" X 3.0mm, 2BB 4.5" X 4.0" X 3.0mm, 2BB 4.5" X 4.5" X 3.4mm

- Technical Details:**
- 2 Ball-Bearing 304 Stainless Steel
 - Non-rising pin
 - Template holes
 - ANSI GRADE 2
 - EN1154 483113

Finish: 605; 629; 630; AB



Heavy Duty Four Ball-Bearing Stainless Steel Hinge

Model No. & Dimensions: 4BB 4.5" X 4.0" X 4.6mm, 4BB 4.5" X 4.5" X 4.6mm, 4BB 5.0" X 5.0" X 4.8mm

- Technical Details:**
- 4 Ball-Bearing 304 Stainless Steel
 - Non-rising pin
 - Template holes
 - ANSI GRADE 1

Finish: 605; 629; 630; AB



Standard Duty Two Ball-Bearing Electric Hinge

Model No. & Dimensions: 2BB 4.5" X 4.0" X 3.4mm CC4/CC6/CC8, 2BB 4.5" X 4.5" X 3.4mm CC4/CC6/CC8

- Technical Details:**
- 2 Ball-Bearing 304 Stainless Steel
 - Non-rising pin
 - Template holes
 - ANSI GRADE 2
 - EN1154 483113

Finish: 605; 629; 630; AB

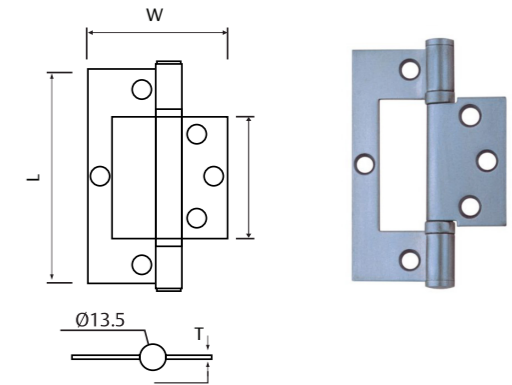


Flush Hinge

Model No.: AA-FH-01

Description: Stainless Steel Flush hinge

Model No.	L	W	T	Door Mass
AA-FH-01	101	79	2.5	40 kg

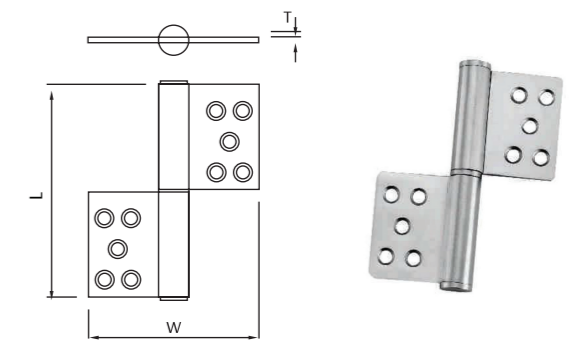


Lift Off Hinge

Model No.: AA-LH-01, AA-LH-02

Description: Stainless Steel Lift Off hinge

Model No.	L	W	T	Door Mass
AA-LH-01	100	88	3	40 kg
AA-LH-02	127	100	3	40 kg

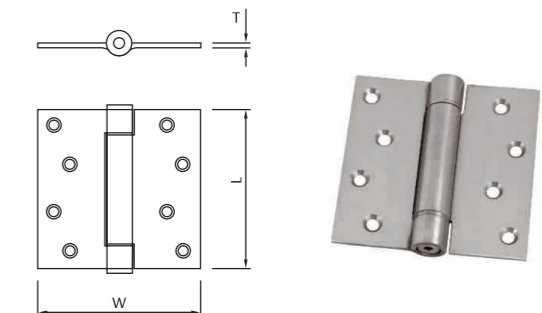


Spring Hinge

Model No.: AA-SH-01, AA-SH-02

Description: Stainless Steel Single Action Spring hinge

Model No.	L	W	T	Door Mass
AA-SH-01	102	102	3	40 kg
AA-SH-02	102	76	3	40 kg

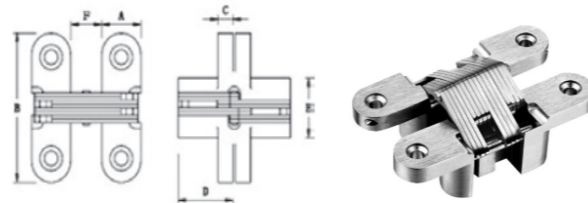


Concealed Hinge

Model No.: CH007-01Z, CH007-02Z, CH007-03Z, CH007-04Z, CH007-05Z, CH007-06Z, CH007-07Z

Description: Zinc Die Cast Concealed Hinge

Finish: Satin Nickel Finish



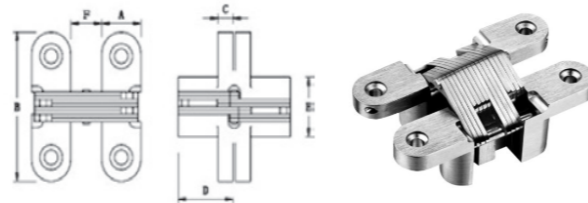
Model	Size	A	B	C	D	E	F
CH007-01Z	12x60	12	60	5.8	17.5	29	8
CH007-02Z	13x45	12.5	44.5	5.2	18.5	18.3	7.5
CH007-03Z	16x70	16	69.5	7	23	33.2	10.5
CH007-04Z	19x95	19	95	9.2	26.6	51	11.5
CH007-05Z	25x117	25.2	117	11.2	36	64	18
CH007-06Z	28x118	28	118	9.8	41	61.5	21
CH007-07Z	34x140	34	138	11.2	50	75	27.5

Concealed Hinge

Model No.: CH007-04S, CH007-05S, CH007-06S, CH007-07S

Description: Stainless Steel Concealed Hinge

Finish: Satin Stainless Steel Finish



Model	Size	A	B	C	D	E	F
CH007-04S	19x95	19	95	10	27.5	50.2	12.5
CH007-05S	25x117	25.2	116.5	11.2	36	64	15.6
CH007-06S	28x118	28	118	10.5	41	60.5	20
CH007-07S	34x140	34	138	12.3	50	75	26.5

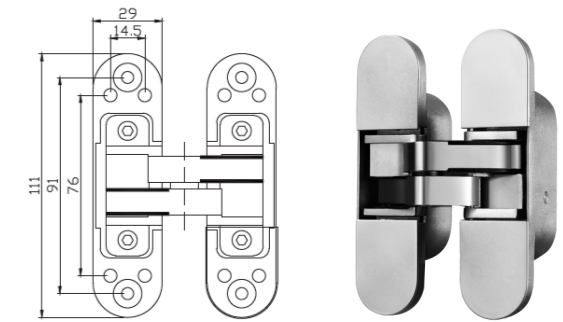
2D Concealed Adjustable Hinge

Model No.: CH007-I08S

Description: Stainless Steel
Plastic Cover in Silver Finish
Wooden door and frame application

2D Adjustment: Left/Right +/- 1.5mm
Fore/Rear +/- 1.5mm

180 Deg Max
Max Loading: 80kg (2Nos)
Minimum Door Thickness: 40mm
Minimum Door Width: 1000mm
Arc of Hole Cut: 20mm Dia
Hole Cut: 112mm front x 70mm underneath
Hole Depth: 7mm front x 38mm underneath



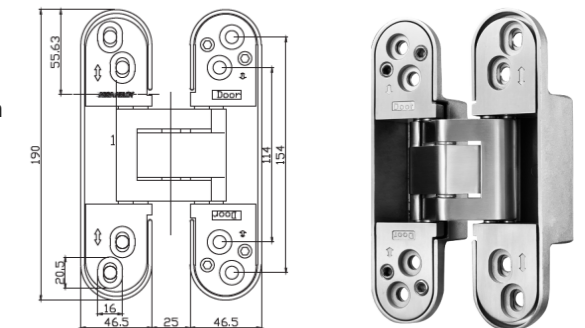
2D Concealed Adjustable Hinge

Model No.: CH007-I10S

Description: Stainless Steel
Wooden door and frame application

2D Adjustment: Left/Right +/- 1.5mm
Fore/Rear +/- 1.5mm

180 Deg Max
Max Loading: 200kg (2Nos)
Minimum Door Thickness: 60mm
Minimum Door Width: 1000mm
Arc of Hole Cut: 30mm Dia
Hole Cut: 190mm front x 90mm underneath
Hole Depth: 11.5mm front x 48mm underneath



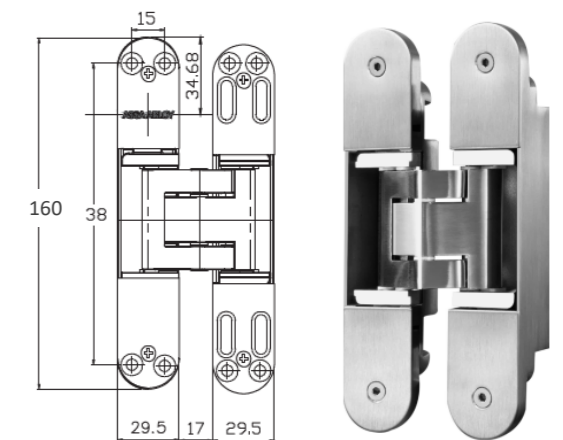
3D Concealed Adjustable Hinge

Model No.: CH007-I09S

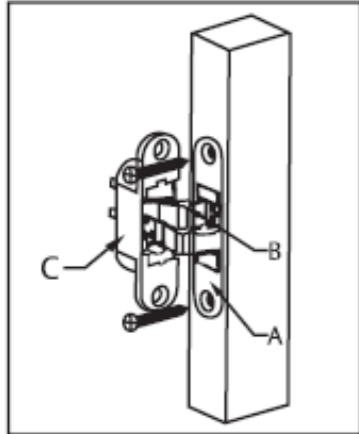
Description: Stainless Steel
Plastic Cover in Silver Finish
Wooden door and frame application

2D Adjustment: Up and Down : +/- 2mm
Left/Right +/- 1.5mm
Fore/Rear +/- 2mm

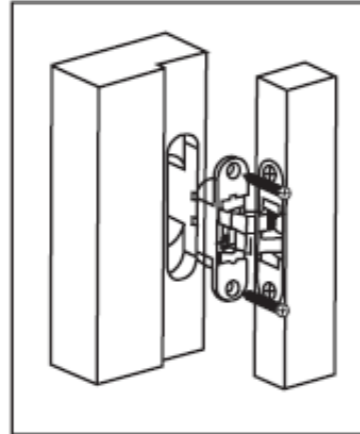
180 Deg Max
Max Loading: 120kg (2Nos)
Minimum Door Thickness: 40mm
Minimum Door Width: 1000mm
Arc of Hole Cut: 20mm Dia
Hole Cut: 160mm front x 126mm underneath
Hole Depth: 10mm front x 33mm underneath



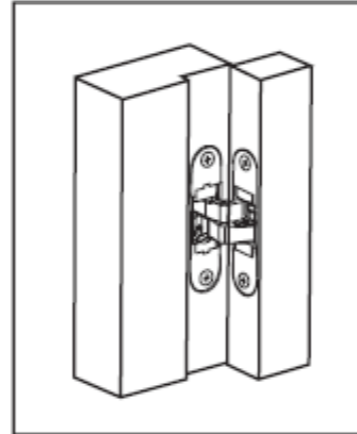
Door Hinge Installation



1. Install hinge on the door leaf, with adjusting hole B always up, hinge part A on door leaf & hinge part C on the door frame.

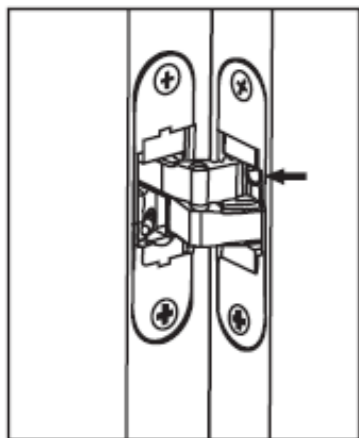


2. Install hinge on door frame.

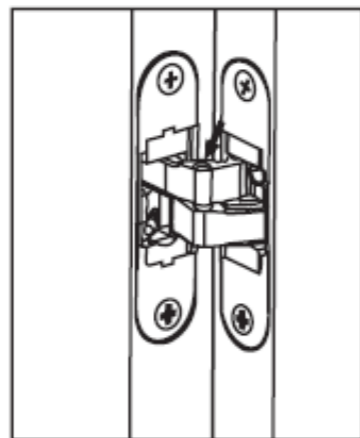


3. Stick the self-adhesive cover plates on the hinge after completion of adjustment.

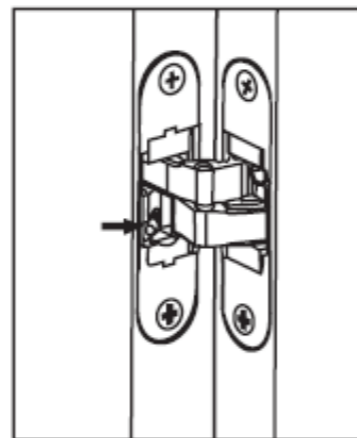
Hinge Adjustment



Depth Adjustment:
Use an allen key to twist the screw (arrow marked).
Depth adjustment: $\pm 1.0\text{mm}$



Height Adjustment:
Use an allen key to twist the screw (arrow marked).
Depth adjustment: $\pm 1.0\text{mm}$



Side Adjustment:
Use an allen key to twist the screw (arrow marked).
Depth adjustment: $\pm 1.0\text{mm}$

Markar Continuous Hinges



Hinge failure most commonly begins when doors are opened beyond stop device limits. The resulting kickback shock to the hinges can surpass 1000 lbs. of force. Subsequent racking eventually loosens screws, distorts hinge leaves, pulls open knuckles, damages bearings or creates other serious damage to standard butt hinges as well as the door frame itself.

Markar Continuous Hinges provide the answer by distributing shock forces evenly, significantly reducing wear and tear to the frame and door.

Other important benefits include:

- Enhanced security - prevents insertion of objects between the door and frame
- Easy alignment of electrical transfers and monitoring switches
- Reduced binding.
- Less force required to open than butt hinges

There are many different models to choose from with a variety of configurations, options and materials.



About Markar Continuous Hinges

Fire Rated Continuous Hinges

Markar stainless steel (3500 Series and 300 Series) and carbon steel (200 Series) hinges are available with two labelling options: Underwriters Laboratories Inc. (standard) and Warnock Hersey Int'l. (available upon request)

20 minutes - wood doors

90 minutes - hollow metal and composite wood fire doors

3 hours-hollow metal doors

Maximum Door Opening

Single Doors: 4' 0" x 10'0"

Pair of Doors: 8'0" x 10'0"

In accordance with Uniform Building Code Standard 7-2 "Fire Test Door Assemblies" and Standard UL10C for positive pressure.

Medical Bearings

Medical Bearings are standard on the 3500, 300, 200, and 100 Series pin and barrel hinges. They provide permanently lubricated hinges with no metal-to-metal contact, improving the life and overall function of the hinge.

Unique Adjust-A-Screw Fastener

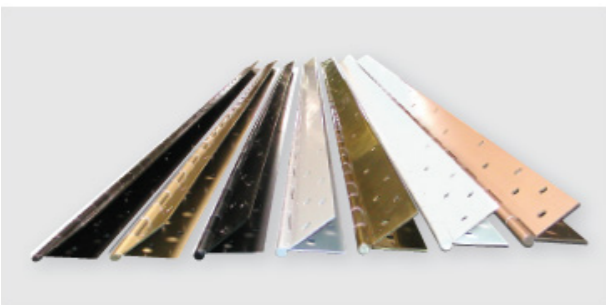
Optional Adjust-A-Screw "fasteners can be added to most hinge guard models to permit up to 3/8" width adjustment. Full door length adjustment allows doors to be squared accurately and easily in new installations and existing frames can be used in retrofits. Maintenance staff can make future adjustments to the door by repositioning the Adjust-A-Screw" fasteners.

Hinge Finishes:

- Standard powder coat finishes
- Over 84 custom powder coat finishes available. RAL colors available
- Special finishes include polished aluminum and polished stainless
- Special anodized finishes include gold, light bronze, medium bronze, and black

Hinge Modifications:

- Special length (Spliced hinge)
- Hospital tip
- Dutch door prep
- Wide throw
- Blank
- Welded end pins
- Plug weld
- Automatic Door Bottom Cut
- Raised barrel (swaged)
- Standard edge guard cut-outs
- Security studs
- Sheared leaf
- Custom hole pattern or design
- Lead lined cover
- ElectroLynx Current Transfer
- Electrical Transfer Access Prep
- Security Fasteners (Torx)
- Current Transfer Prep
- Electric Power Transfer Units
- Adjustable Monitoring Switch



Pin & Barrel Stainless Steel Security Hinges



The Markar 3500 Series hinges are used for high-traffic, high-abuse doors suited for correctional facilities and other high-security locations. Examples include prison doors, gates, extremely tall doors, and extra heavy doors.

Standard Features:

- 3/16" diameter stainless steel rod
- Life-long medical bearings Hospital tips
- Heavy-duty 12-gauge stainless steel

Models Available:

- Edge mount
- Full surface 1/8" inset Hinge guard

Fire Rating:

- Classified in accordance with Uniform Building Code Standard 7-2 for positive pressure
- 20 minutes - wood doors
- 90 minutes - hollow metal and composite core wood fire doors
- 3 hours-hollow metal doors

Certifications:

As part of the integrated system, meets Federal Emergency Management Agency (FEMA) 320 and 361 and ICC 500 requirements, as certified by Underwriters Laboratory. Consult factory for system requirements. ANSI/BHMA A156.26 Grade 1



Pin & Barrel Stainless Steel Continuous Hinges

The Markar 300 Series is manufactured from heavy-duty 14-gauge stainless steel and are well suited for high-traffic, high-abuse doors. These hinges save on special door and frame preparation charges and makes the installer's job easier. A wide variety of configurations are available, including models with optional Adjust-A-Screw fasteners. Edge guards with Adjust-A-Screw fasteners allow even more flexibility in retrofits and new installations.

Standard Features:

- 3/16" diameter stainless steel rod
- Life-long medical bearings
- Heavy-duty 14-gauge stainless steel

Models Available:

- Edge mount
- Full surface/flush mount
- Full surface 1/8" inset
- Half surface
- Half mortise
- Hinge guard
- Edge guard
- Full surface / swing clear
- Custom hinges available

Fire Rating:

- 20 minutes - wood doors
- 90 minutes - hollow metal and composite core wood fire doors
- 3 hours-hollow metal doors

Certifications:

As part of the integrated system, meets Federal Emergency Management Agency (FEMA) 320 and 361 and ICC 500 requirements, as certified by Underwriters Laboratory. Consult factory for system requirements. ANSI/BHMA A156.26 Grade 1



Pin & Barrel Carbon Steel Continuous Hinges

The Markar 200 Series hinge is used on many of today's high-traffic, high-abuse interior doors. It can be used on both fire-labelled and non-labelled openings. Zinc plating is standard on all 200 Series hinges.

Standard Features:

- 3/16" diameter stainless steel rod
- Life-long medical bearings
- Heavy-duty 14-gauge stainless steel
- Zinc-Plated

Models Available:

- Edge mount.
- Full surface/flush mount
- Full surface 1/8" inset
- Half surface

Fire Rating:

- Classified in accordance with Uniform Building Code Standard 7-2 for positive pressure
- 20 minutes - wood doors
- 90 minutes - hollow metal and composite core wood fire doors
- 3 hours-hollow metal doors

Certifications:

As part of the integrated system, meets Federal Emergency Management Agency (FEMA) 320 and 361 and ICC 500 requirements, as certified by Underwriters Laboratory. Consult factory for system requirements. ANSI/BHMA A156.26 Grade 1



Pin & Barrel Aluminium Continuous Hinges

The Markar 100 Series hinge is extruded using 6063-T6 aluminum alloy, giving it exceptional strength and durability.

Standard Features:

- 3/16" diameter stainless steel rod
- Life-long medical bearings
- Extruded aluminum 6063-T6 alloy

Models Available:

- Edge mount.
- Full surface/flush mount
- Full surface 1/8" inset
- Half surface
- Edge guard
- Hinge guard

Certifications:

ANSI/BHMA A156.26 Grade 2



General Information, How to Select Product

Pivot sets provide the best possible means of hanging a door. They are designed to work with the laws of physics to provide long-lasting performance and reliability.

The weight of the door is supported at the bottom by the floor

- Uses principles of gravity to its advantage
- Door swings with less resistance
- Heavier doors can be accommodated

Reduced stress on frame

- Fasteners are in shear, not tension
- Eliminates door sag
- Vertically adjustable

Heavy-duty hardened steel spindles

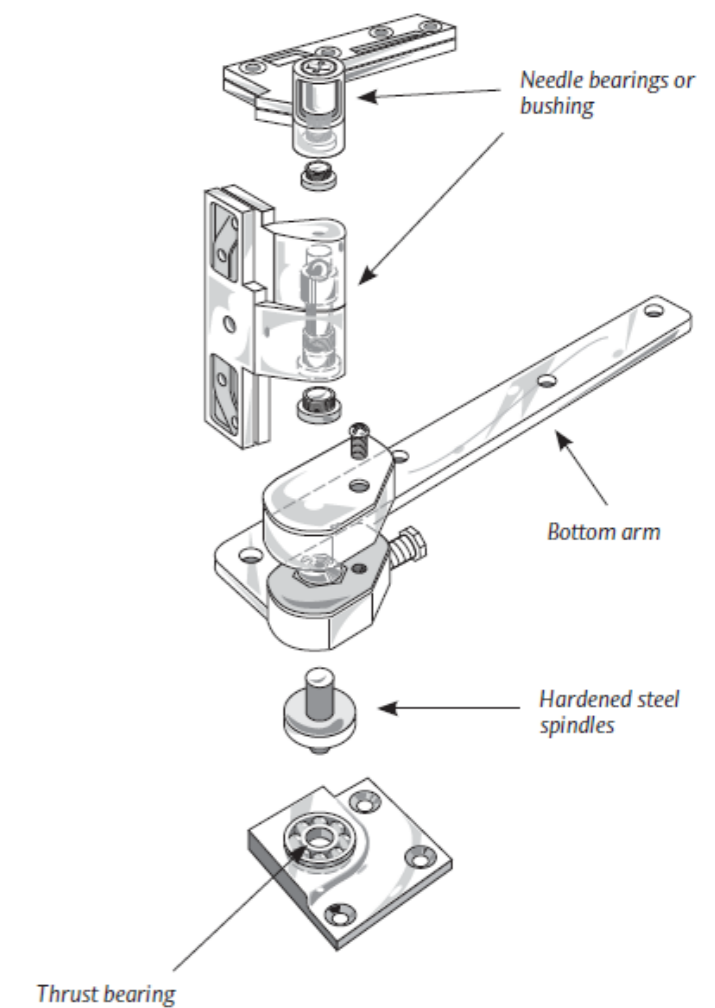
- Thrust bearing supports vertical load
- Needle bearings and bushings for lateral force
- Extra heavy-duty models also have an additional surface applied thrust bearing to handle heavier or high-traffic doors

Offset pivots provide better weight distribution and can accommodate taller doors.

Intermediate pivots are used for alignment and to ensure proper installation of bottom pivot or floor closer.

Center hung pivots are used for aesthetics or if the pivot point is going to be moved nearer the lock edge of the door.

PIVOTS DO NOT RETURN DOORS TO CENTER. Pivots in this section are for door hanging means only. For door control see door closer catalog sections.



147 Pivot set and M19 Intermediate pivot shown (recommended)

Offset Hung

Application

- Exterior or Interior Doors
- Lead-Lined, Heavy, High Traffic Doors
- Weight to 1,750 lbs.
- Door Width up to 4'0" (1219mm)
- Handed

Product Description & Features

- 180 top pivot included
- ML19 intermediate pivot required (order separately)
- 3/4" (19mm) offset (measured from centerline of pivot to face of door)
- Door edges must be beveled in 1/8 in 2
- Bottom pivot mortised into floor
- Available to accommodate lead in door thicknesses 1-3/4" (44mm). 2 (51mm). 2-1/4" (57mm). 2-1/2" (64mm), or 3" (76mm) - specify when ordering
- Additional thrust bearing for greater load capacity
- Doors will swing 180°, trim permitting
- Non-ferrous base material for top pivot
- Doors 6' (1524mm) to 9' (2286mm) in height should use one intermediate pivot. Each additional 30" (762mm) of door height warrants another intermediate pivot
- Furnished with wood and machine screws

Optional Features

- Extended spindles available in 1/2" (13mm) increments up to 2" (51mm) longer than standard.

Compliance

- Available for fire door assemblies up to three hours (ferrous material). Specify FL117. Intermediate pivot required by UL. Specify FML19 (order separately). Note:UL listing for 1-3/4" thick doors only
- For 20-minute label suffix"-20" to the part number
- ANSI/C07111

**Door size & weight guidelines are determined using the appropriate number of intermediate pivots.*

