

ADVANTAGE[®]

HINGE & TRIM



Always Striving. philhardware.com **BHMA**
CERTIFIED™

Hinges

ADVANTAGE® commercial and residential hinges are manufactured according to latest US standard with quality and service. The popular range of full mortise hinges in a variety of materials, finishes, sizes, and weights to meet most of load bearing applications. These include five knuckle type, swing clear hinge, and single acting spring hinges.

ADVANTAGE® template hinges conform to Government Standard CS9-65 and SDI as well as following ANSI/BHMA standards.

ANSI/BHMA A156.1 Butts and Hinges.

In addition, all residential hinges are complying the “Light Weight” requirements.

ANSI/BHMA A156.7 Template Hinge Dimensions.

ANSI/BHMA A156.17 Self Closing Hinges & Pivots.

ANSI/BHMA A156.18 Material and Finishes.

ADVANTAGE® steel or stainless steel based commercial bearing Hinges and spring hinges conform to use on labeled door applications, please consult NFPA 80 section 6.4.3.1 concerning hinge requirements for fire doors.



GENERAL INFORMATION

Full Mortise Hinge

Both leaves are mortised. One leaf mortised into the edge of a door, another leaf mortised into the rabbet of a frame.

Half Mortise Hinge

One leaf mortised into the hinge edge of a door and the other leaf attached to the face of a frame.

Full Surface Hinge

One leaf attached to the face of a door and the other leaf attached to the face of a frame.

Half Surface Hinge

One leaf attached to the face of a door and the other leaf mortised into the rabbet of a frame.

Ball Bearing

Anti-Friction Bearing ball between hinge knuckle. Standard gauge hinges are supplied with two ball bearings (0.870”~0.146”), Heavy gauge are supplied with four ball bearings (0.180”~0.190”).

Plain Bearing

When no bearing ball between hinge knuckles.

Swing Clear Hinge

A hinge that swings a door completely clear of the opening when the door is opened 90 to 95 degrees.

Hinge Tips

Button – Flat button tips and plugs are standard, except for residential plain bearing hinges which are flush.

Flush pins – standard for residential plain bearing hinges.

Hospital tips – feature a one-piece non-removable pin with tapered tips. Special order this option suffix the hinge number by “HT”.

Hinge Knuckles

5 knuckle is standard for mortise hinges.

6 knuckle is standard for residential plain bearing hinges, non-handed.

3 knuckle concealed ball bearing is available by special order.

Template

Hinge dimensions, screw hole locations and tolerances in accordance with ANSI/BHMA Standard A156.7.

GENERAL INFORMATION

Non-removable Pins

A set screw is driven into the hinge barrel to prevent pin from being removed when door is closed.

Available on all butt hinges.

Aligning Tabs

Door side leaf contains locating tabs, they are designed to assist in accurate assembly alignment.

Safety Buckle Feature

One leaf with buckle rotate into a cavity on opposite leaf when the door is closed.

This function preventing the removal of the door even if pin is removed.

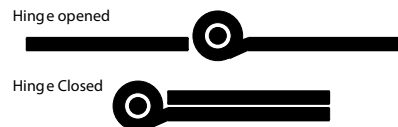
Round Corner Options

1/4” or 5/8” radius may be specified on full mortise hinges.

Hinge Swaging

The slight offset between hinge leaves at the barrel that allow hinge close to a parallel position when door is closed.

The swaging on standard weight and heavy weight full mortise hinges is 1/16” clearance between leaves.



Spring Hinge

Leaves attach to the door and jamb and are connected to the hinge pivot point(s) (barrel). Springs provide energy to close a door from the open position.

Single Acting

When a door swing in one direction only.

Double Acting

When a door is so arranged to swing in either direction.

Electrified Hinge

Transferring power from the frame into the door as well as provides to monitor the opening.

4, 6 and 8 wire available for ball bearing standard weight, heavy weight in all sizes.

Hinges

SELECT HINGE TYPE

The weight of the door and frequency of use determine whether a heavy weight, standard weight, ball bearing, or plain bearing hinge should be used. Heavy weight hinges should always be used on heavy doors, or doors where high frequency is expected. Hinges are placed into following groups.

Heavy Weight - Ball Bearing (e.g. CH4632 4-1/2" x 4-1/2" 4BB US32D, gauge: 0.180) High Frequency.

Standard Weight - Ball Bearing (e.g. CH4516 4-1/2" x 4-1/2" 2BB US26D, gauge: 0.134) Medium Frequency.

Standard Weight - Plain Bearing (e.g. CH4501 4-1/2" x 4-1/2" USP, gauge: 0.134) Low Frequency.

Light Weight - Plain Bearing (e.g. CH3506 3-1/2" x 3-1/2" 2BB US26D, gauge: 0.123) Low Frequency.

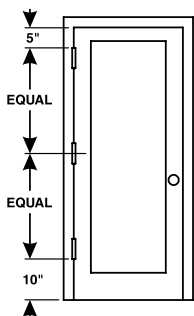
- Use ball bearing hinges on doors equipped with closers.

SELECT HINGE SIZE

Hinge size always show in two dimensions, the 1st dimension given is the height. The 2nd dimension is the width when open.

Select Height of Hinge

Door Thickness	Door Width	Full Mortise Hinge Height	Hinge Gauge	Hinge Quantity for Door Height per Door 3'0" Wide
1-3/8"	To 32"	3-1/2"	0.123"	To 60": 2 Hinges
1-3/8"	32" to 36"	4"	0.130"	60" to 90": 3 Hinges
1-3/4"	To 36"	4-1/2"	0.134"	
1-3/4"	36" to 48"	5"	0.146"	90" to 120": 4 Hinges
1-3/4"	Over 48"	6"	0.160"	
2"-2-1/2"	To 42"	5"	0.190"	* An additional hinge is required for each additional 30". * Door width greater than 37" ~ 48", an extra hinge might be used for giving extra strength.
2"-2-1/2"	Over 42"	Heavy Weight 6" Heavy Weight	0.203"	



Location of Hinges on Doors
(For US standard hinge application)
Top hinge 5" from frame rabbet to top of barrel.
Bottom hinge 10" from bottom edge of barrel to finished floor.
Third hinge centered between top and bottom hinges.

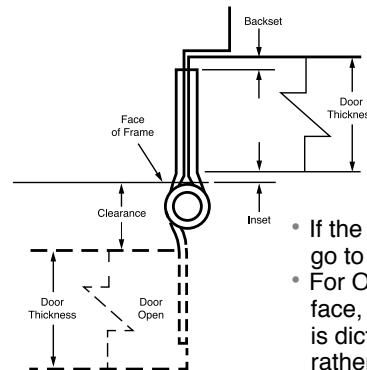
- Heavy Weight hinges should be used on all extra heavy doors or those exposed to high frequency use. Five knuckle heavy weight hinges are four bearing, the following gauges of metal may apply:
Heavy weight 4-1/2" (114) high = 0.180 gauge
Heavy weight 5" (127) high = 0.190 gauge
Heavy weight 6" (152) high = 0.203 gauge
- Door up to 5' in height should use two hinges and an additional hinge for each additional 2.5'.
- Where spring hinges are used, at least two shall be provided.

Select Width of Hinge

There are four dimensions to determine the width of hinge, this is based on full mortise hinges.

1. Door Thickness
 2. Backset
 3. Max. Clearance required
 4. Inset
- (Door thickness – Backset) x 2 + Required Clearance + Inset (if applicable) = the proper hinge width

Door Thickness	Standard Backset	Max. Clearance	Inset	Hinge Width
1-3/8"	1/4"	1-1/8"	1/8" (Hollow Metal)	3-1/2"
		1-1/4"		3-1/2"
		1-3/4"		4"
1-3/4"	1/4"	1"		4"
		1-3/8"	1/8" (Hollow Metal)	4-1/2"
		1-1/2"		4-1/2"
		1-7/8"	1/8" (Hollow Metal)	5"
		2"		5"
		3"		6"
2"	1/4"	1"		4-1/2"
		1-1/2"		5"
		2-1/2"		6"
2-1/4"	1/4"	1"		5"
		2"		6"
2-1/4"	3/8"	3/4"		5"
		1-3/4"		6"



- If the hinge is not standard width, go to the next larger width.
- For Other Full Surface, Half Surface, Half Sur face, Half Mortise hinges clearance is dictated by the amount of offset rather than hinge width.

Select Hinge Material

Material	Feature	For Door Used
Steel	Great Strength Corrosive	Interior doors or a controlled environment Interior labeled doors
Stainless Steel PHG Standard is Grade 304	Great Strength Rust Resistant	Interior labeled doors Interior doors in a corrosive environment * Grade 316 recommended for highly corrosive area
Brass	Less Strength Noncorrosive	Interior doors in a corrosive environment Exterior doors Often used where appearance is of great concern

Evaluate Door Weight and Frequency of use

Standard Door Size: 3'0" x 7'0".

Full Mortise Hinge Height	Frequency of Use	Max. Door Weight (Lbs.)	Hinge Grade	ADVANTAGE Model
3-1/2"	Low	45	3	CH35XX
4"	Low	60	3	CH400X
4"	Medium	125	1 & 2	CH401X
4"	High	125	1 & 2	
4-1/2"	Low	75	3	CH450X
4-1/2"	Medium	150	1 & 2	CH451X
4-1/2"	High	150	1 & 2	CH46XX
5"	Low	100	3	
5"	Medium	175	1 & 2	CN5216
5"	High	175	1 & 2	CN5616
6"	Low	125	3	
6"	Medium	230	1 & 2	
6"	High	230	1 & 2	

Minimum Cycle Requirements

Grade	Cycles	Requirement
Grade 1	2,500,000	Heavy Weight Ball Bearing
Grade 2	1,500,000	Standard Weight Ball Bearing
Grade 3	350,000	Plain Bearing

Hinges

Expected Frequency of Door Operation

Door Functions	Expected Daily	Frequency Yearly	Hinge Type
High Frequency/ Heavy Weight Door/Commercial			Heavy Weight
Commercial Store Entrance	5,000	1,500,000	
Office Building Entrance	4,000	1,200,000	
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	120,000	Standard Weight
Medium Frequency/ Standard Weight Door/Commercial			
School Corridor Door	80	24,000	
Office Building Corridor Door	80	24,000	
Store Restroom Door	60	18,000	Plain Bearing
Low Frequency/Light Weight Door/Residential			
Residential Entrance	40	14,000	
Residential Interior	25	9,000	

NOTE: PHG recommends that bearing hinges be used on all above categories other than residential.

Expected Door Weight

(Based on 3'0" x 7'0" Door Size), Lbs/ft2

Door Thickness	1-3/8"	1-3/4"	2"
Hollow Metal	4	5	6.5
Hollow Core	2	2.5	-
Solid Core	3.5	4.5	5.25
Mineral Core	3.5	4	-
Pine (White)/Fir	3	3.5	4
Oak	5	7	8
Ash	4	5	6
Birch	4.25	5.5	6.25
Mahogany	3.5	4.5	5.25

* Weights do not include hardware.

It is advisable to add the weight of additional hardware while evaluating the proper hinge be used

Example:

Oak door 3'0" x 7'0" x 1-3/4", medium frequency application.

Door Weight 7Lbs/ft2 x 3' x 7' = 147Lbs,

suggested using ADVANTAGE Model CH451X.

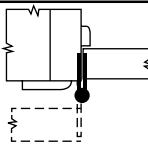


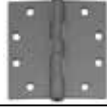



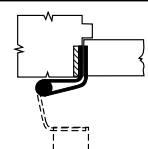

SPRING HINGE RECOMMENDATION

Grade	Spring Hinge Size	Recommended Max. Door Weight (Lbs)	Spring Hinge	Ball Bearing Hinge	Spring Hinge Location
For use on 1-3/8" thick door up to 3' 0" x 7' 0", ANSI K81071F					
Light Weight Residential	3-1/2" x 3-1/2" x 0.106"	45	1	2	Center
	3-1/2" x 3-1/2" x 0.106"	70	2	1	Top & Bottom
	3-1/2" x 3-1/2" x 0.106"	90	3	-	All
For use on 1-3/4" thick door up to 3' 0" x 7' 0", K81071F					
Light Weight Residential	4" x 4" x 0.106"	60	1	2	Center
	4" x 4" x 0.106"	85	2	1	Top & Bottom
	4" x 4" x 0.106"	110	3	-	All
For use on 1-3/4" thick door up to 3' 0" x 7' 0", K51071F K81071F					
Standard Weight Commercial	4-1/2" x 4-1/2" x 0.134	70	1	2	Center
	4-1/2" x 4-1/2" x 0.134	115	2	1	Top & Bottom
	4-1/2" x 4-1/2" x 0.134	150	3	-	All
	4-1/2" x 4-1/2" x 0.134	180	4	-	All

- Additional spring hinge may require because of the improper conditions, such as Strong wing or weather-stripping on door.
- Meets NFPA 80 standard for 3 hour fire doors, and requires a minimum of two (2) spring hinges on fire labeled doors.
- UL listed for doors up to 4' x 8', weighing up to 180 lbs.

ADVANTAGE PRODUCT RANGE

PHG is providing below types of hinges for the most popular market demand. Other types are available on request, please call to check.

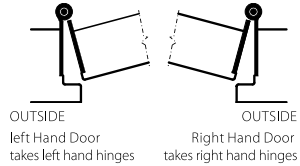
Application	ANSI Type number and description of hinges (Corresponding sizes and gauges a listed in ANSI/BHMA A156.1)	
		Heavy Weight Ball Bearing A5112 A8112 Grade 1 A5111 A8111 (suffix the hinge number by "G1") Full Mortise Hinge—Heavy weight—Anti-friction Bearing Equipped with bearing unit(s), button tips, non-rising removable pins. Highly polished and plated or phosphatized and primed.
		Standard Weight Ball Bearing A2112 A5112 A8112 Full Mortise Hinge—Standard weight—Anti-friction Bearing Equipped with bearing unit(s), button tips, non-rising removable pins. Polished and plated or phosphatized and primed.
		Standard Weight Plain Bearing A2133 A5133 A8133 Full Mortise Hinge—Standard weight—Plain Bearing Button tips, non-rising removable pins. Polished and plated or phosphatized and primed. (Not recommended for use with Door Closer)
		K51071F K81071F Full Mortise, Single Acting, Torsion Spring. For application to mortise prepared for 3-1/2" (89mm), 4" (114mm) and 4-1/2" (127mm) template full mortise hinges. Hinges K51071F and K81071F is for use on fire doors and listed by a nationally recognized independent laboratory and be under an in-plant following-up inspection service.
		Light Weight Plain Bearing A5134 A8134 A8184 Full Mortise Hinge—Light weight—Plain Bearing 6 knuckles, non-rising removable pins. Polished and plated, or phosphatized and primed. .087" (2.2mm) for 3-1/2" (89mm) .087" (2.2mm) or 0.098 (2.5mm) for 4" (102mm) high hinges.
		Light Weight Ball Bearing A5114 A8114 Full Mortise Hinge—Light weight—Ball Bearing Non-rising removable pins. Polished and plated, or phosphatized and primed. .087" (2.2mm) for 3-1/2" (89MM) and 0.98" (2.5mm) for 4" (102mm) high hinges.
		Standard Weight Swing Clear A5122 A8122 Full Mortise Hinge—Standard weight—Anti-friction Bearing—Swing Clear For use whenever a completely clear opening is desired when doors are opened to a 90-95 degree angle. Equipped with bearing unit(s), button tips, non-rising removable pins. Hinges shall be reversible. Polished and plated, or phosphatized and primed. Size 4-1/2" (114mm).

Hinges

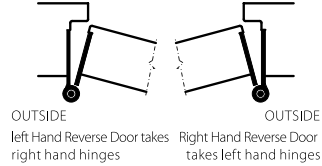
FOLLOW HANDING

Some hinges required correct hinge handing (e.g. Castlegate Hinge with one leaf square, ne leaf 5/8" radius)
Use suffix "RH" and "LH" to classify the handing.

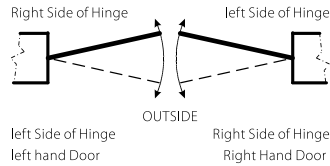
Regular Doors Opening In



Reverse Doors Opening Out



Double Acting Doors



PHG AND BHMA FINISH SYMBOLS

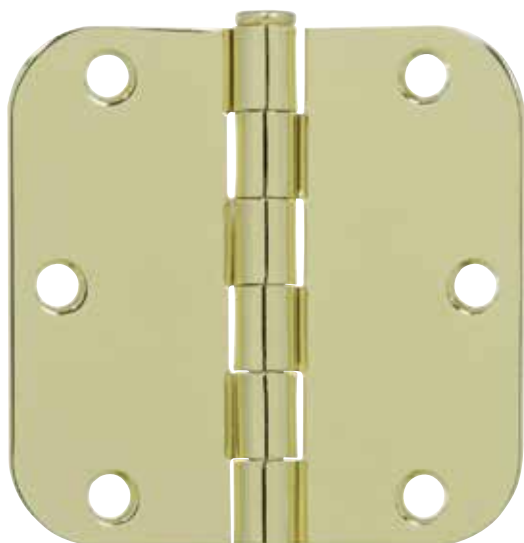
PHG Equivalent	BHMA Code on Based Material			Finish Description
	Steel	Brass	Stainless Steel 300 Series	
USP	600			Prime for Painting
US2G	603			Zinc Plated
US2D	604			Zinc Plated and Dichromate Sealed (Brass Tone)
US3	632	605		Bright Brass
US4	633	606		Satin Brass
US5	638	609		Antique Brass
US10B	640	613		Dark Bronze, Oiled
US15	646	619		Satin Nickel
US15A	647	620		Black Nickel
US26	651	621		Bright Chromium
US26D	652	626		Satin Chromium
US32			629	Bright Stainless Steel
US32D			630	Satin Stainless Steel

PHG STANDARD GAUGE AND FASTENERS

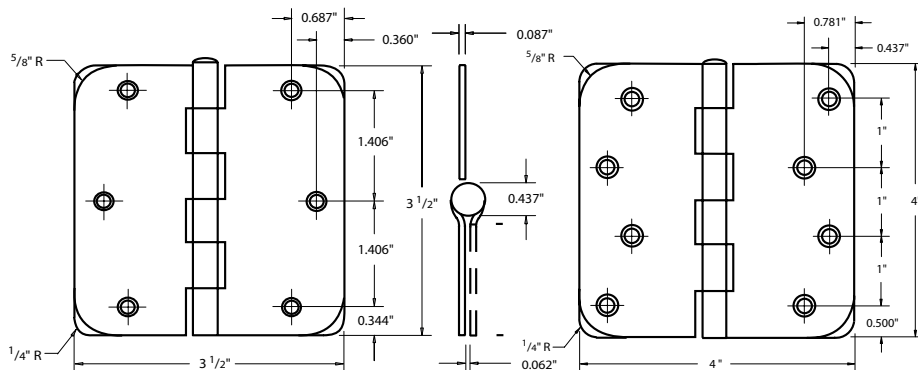
Using Phillips Head Machine screw & Phillip Head Wood Screw.
Commercial Screw sizes are conforming to ANSI/BHMA A156.7

Commercial				
Hinge Size	Gauge Inch(mm)	Screw Holes per Leaf	Machine Screw Flat Head	Wood Screw Flat Head
3-1/2" x 3-1/2"	0.123 (3.1)	3	1/2" x 10 - 24 x #10	1" x #10
4" x 4"	0.130 (3.3)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
4-1/2" x 4"	0.134 (3.4)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
4-1/2" x 4-1/2"	0.134 (3.4)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
4-1/2" x 4-1/2"	0.180 (4.6)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
5" x 4-1/2"	0.146 (3.7)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
5" x 4-1/2"	0.190 (4.8)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
5" x 5"	0.190 (4.8)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
4-1/2" Swing Clear	0.134 (3.4)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
Single Acting Spring Hinge				
3-1/2" x 3-1/2"	0.106 (2.7)	3	1/2" x 10 - 24 x #10	3/4" x #10
4" x 4"	0.106 (2.7)	4	1/2" x 10 - 24 x #10	1" x #10
4" x 4" Template	0.106 (2.7)	4	1/2" x 12 - 24 x #10	1" x #10
4-1/2" x 4-1/2"	0.134 (3.4)	4	1/2" x 12 - 24 x #12	1-1/4" x #12
Residential				
3-1/2" x 3-1/2"	0.087 (2.2)	3	--	3/4" x #9
4" x 4"	0.087 (2.2)	4	--	1" x #9
4" x 4"	0.098 (2.5)	4	1/2" x 10 - 24 x #10	3/4" x #10

Residential Hinges



RH3503
US3



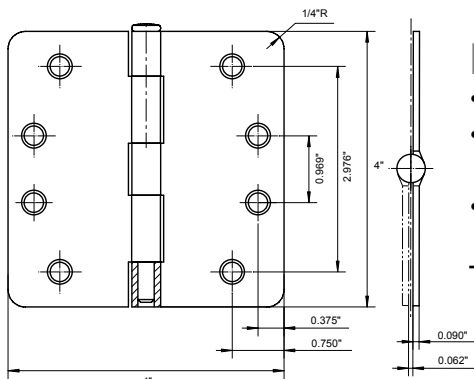
Plain Bearing

- 1/4" radius corner or 5/8" radius corner
- 3-1/2" and 4" Full mortise hinge
- 6 knuckles, reversible design
- Steel base metal
- Gauge: 0.087" (2.2mm)
- Packaging: bulk assembled

CODE	SIZE	RADIUS	SCREW
RH32	3-1/2" x 3-1/2"	1/4"	#9 x 3/4"
RH35	3-1/2" x 3-1/2"	5/8"	#9 x 3/4"
RH42	4" x 4"	1/4"	#9 x 1"
RH45	4" x 4"	5/8"	#9 x 1"

Stock Finish: USP, US2D, US3, US3/4, US4, US5, US10B, US12P, US15, US15A, US19, US26, US26D

* **Factory Special Order:** Satin Nickel non-brush (US15S)
Satin Chrome non-brush (US26S)



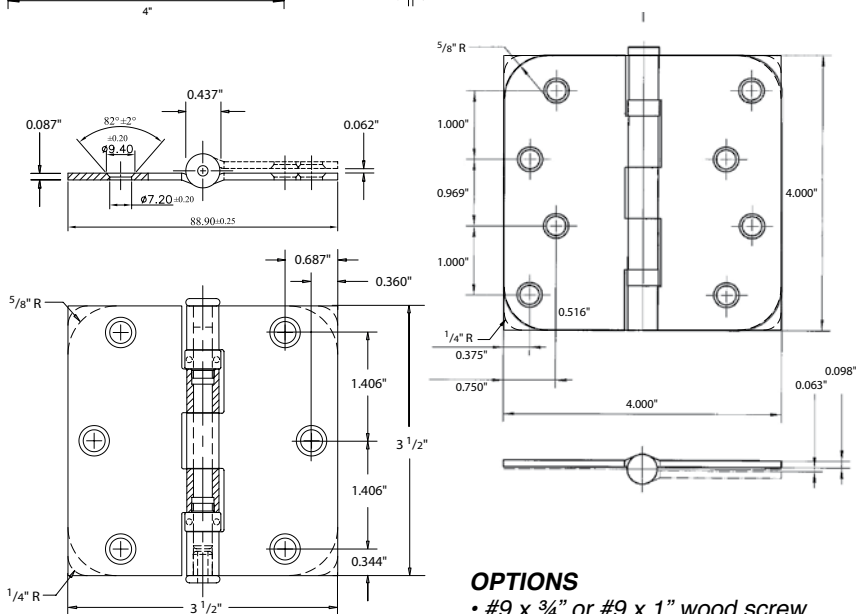
Plain Bearing

- 4" Full mortise hinge
- Full Mortise, template (ANSI A156.7)
- Steel

CODE	SIZE	RADIUS	GAUGE	SCREW
RH42	4" x 4"	1/4"	0.087" (2.2mm)	#10 x 1" Wood Screw

Stock Finish: US4, Duro, US26D

#10 x 1/2" Machine Screw (12-24NC)



Ball Bearing

- 1/4" radius corner or 5/8" radius corner
- 3-1/2" and 4" Full mortise hinge
- 5 knuckles, 2 bearing balls design
- Steel base metal
- Gauge: 3-1/2" 0.087" (2.2mm)
4" 0.098" (2.5mm)

CODE	SIZE	RADIUS	SCREW
RH62	3-1/2" x 3-1/2"	1/4"	#9 x 3/4"
RH65	3-1/2" x 3-1/2"	5/8"	#9 x 3/4"
RH72	4" x 4"	1/4"	#9 x 1"
RH75	4" x 4"	5/8"	#9 x 1"

Stock Finish: US3, US4, US5, US10B, US15, US15A, US26, US26D

* **Factory Special Order:** Satin Nickel non-brush (US15S)
Satin Chrome non-brush (US26S)

OPTIONS

- #9 x 3/4" or #9 x 1" wood screw
- Non-Removable pin (N.R.P.)
- Box pack (Prefix **RHB** instead of RH)

Residential Hinges

BENCHMARK

Plain Bearing

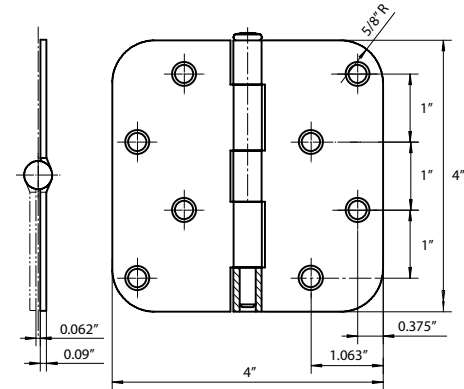
- 5 knuckle,
- 5/8" radius corner
- 4" Full mortise hinge
- Steel base metal
- Gauge: 0.09" (2.3mm)

CODE	SIZE	RADIUS	SCREW
BH45	4" x 4"	5/8"	#9 x 1"

Stock Finish: USP, US3, US4, US26D

OPTIONS

- #9 x 3/4" wood screw
- Non-Removable pin (N.R.P.)
- Box pack (Prefix BHB instead of BH)



MASONITE CASTLEGATE

Plain Bearing

- 5 knuckle, jamb leaf 5/8" radius, door leaf square
- 4" Full mortise hinge
- Steel base metal
- Gauge: 0.098" (2.5mm)

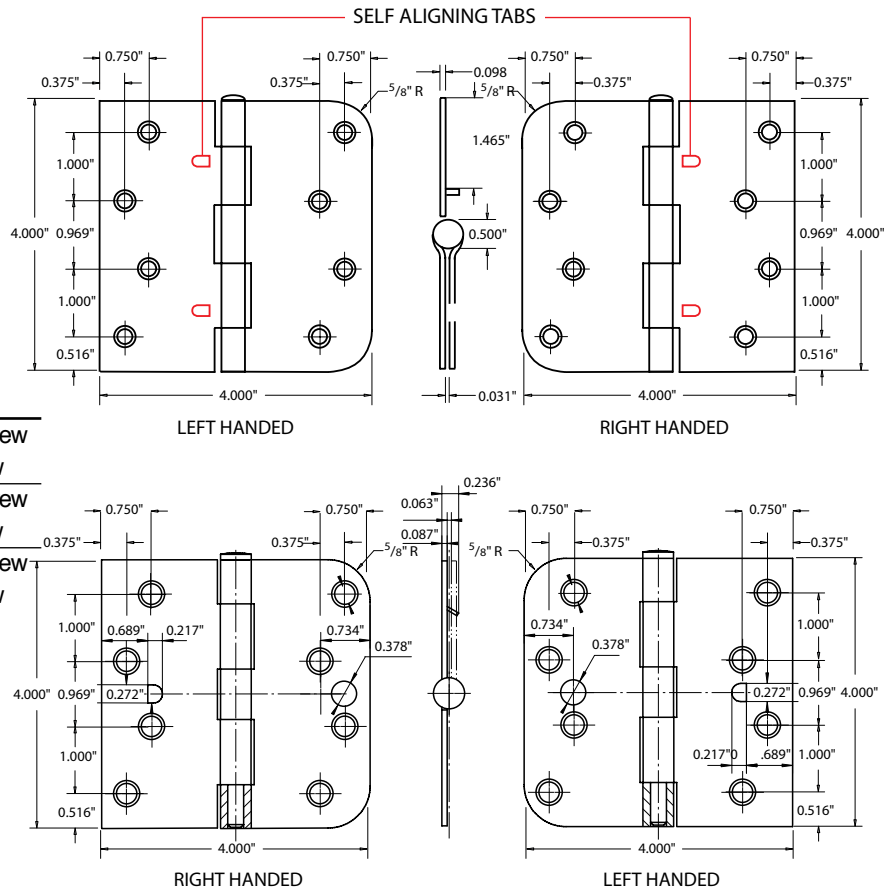
CODE	SIZE	RADIUS	SCREW
RH40	4" x 4"	5/8" Radius x Square	#10 x 1/2" Machine Screw #10 x 3/4" Wood Screw
RH41	4" x 4"	5/8" Radius x Square (with Self Aligning Tabs)	#10 x 1/2" Machine Screw #10 x 3/4" Wood Screw
SB40	4" x 4"	5/8" Radius x Square (with Safety Buckle)	#10 x 1/2" Machine Screw #10 x 3/4" Wood Screw

Stock Finish: USP, US2D, US3, US3/4, US4, US10B, US15, US15A, US26D

* Finish may not be available for all items, please refer to price book for stock finish availability.

OPTIONS

- #10 x 2" wood screw (limited color)
- #10 x 3/4" wood screw (limited color)
- Non-Removable pin (N.R.P.)
- Box pack (Prefix RHB instead of RH)



Spring Hinges

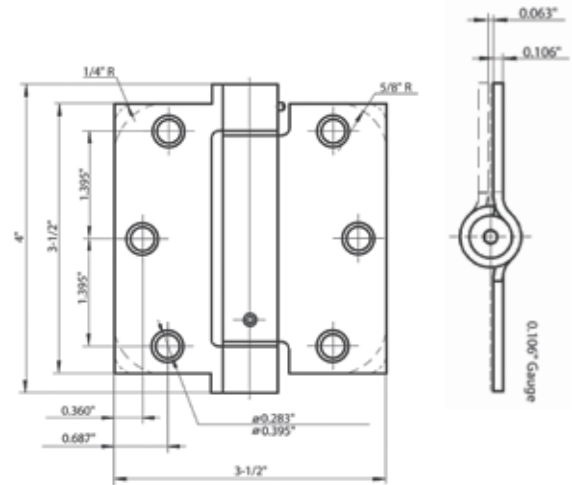


ANSI GRADE 1
ANSI A156.17
 Exceeds 1,000,000 cycles



for Fire Door applications
 UL10C Positive Pressure
 Rated. Conforms to UBC
 7-2 (1997). (Uniform
 Building Code Standard)

SP4510
US10B



Standard Spring Hinge

- Full Mortise, Single Acting, template mounting hole pattern (ANSI A156.7)
- Box Pack
 Furnished with screws and Allen wrench
- Steel ANSI K81071F, Stainless Steel ANSI K51071F

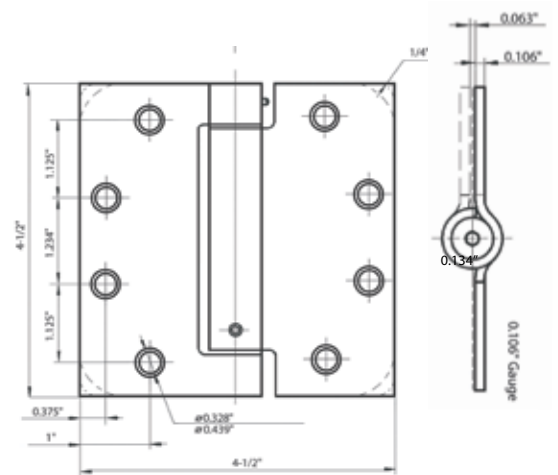
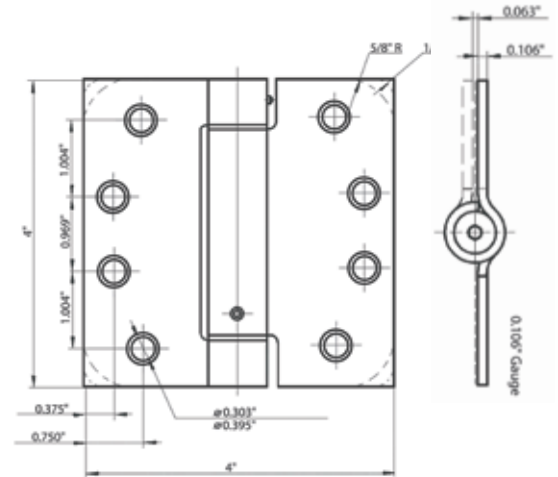
CODE	SIZE	RADIUS	MATERIAL	GAUGE
SP32	3-1/2" x 3-1/2"	1/4"	Steel	0.106" (2.7mm)
SP35	3-1/2" x 3-1/2"	5/8"	Steel	0.106" (2.7mm)
SP41	4" x 4"	Square	Steel	0.106" (2.7mm)
SP42	4" x 4"	1/4"	Steel	0.106" (2.7mm)
SP55	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)
SP5532	4-1/2" x 4-1/2"	Square	Stainless Steel	0.134" (3.4mm)

Stock Finish: USP, US3, US4, US10B,
 US15, US15A, US26, US26D, US32D

* Finish may not be available for all items,
 please refer to price book for stock finish availability.

- 3-1/2" x 3-1/2"#10 x 1/2" Machine Screw (10-24NC)
-#10 x 3/4" Wood Screw
- 4" x 4"#10 x 1/2" Machine Screw (12-24NC)
-#10 x 1" Wood Screw
- 4-1/2" x 4-1/2"#12 x 1/2" Machine Screw (12-24NC)
-#12 x 1-1/4" Wood Screw

* NFPA requires a minimum of two (2) spring hinges on labeled doors.
 ** For fire doors refer to NFPA-80.



Spring Hinges

ANSI GRADE 1

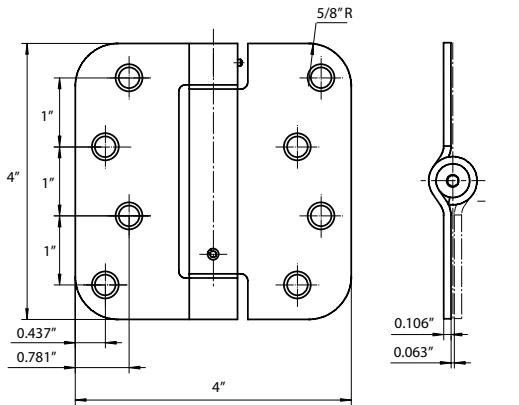
ANSI A156.17

Exceeds 1,000,000 cycles



LISTED

for Fire Door applications
UL10C Positive Pressure
Rated. Conforms to UBC
7-2 (1997). (Uniform
Building Code Standard)

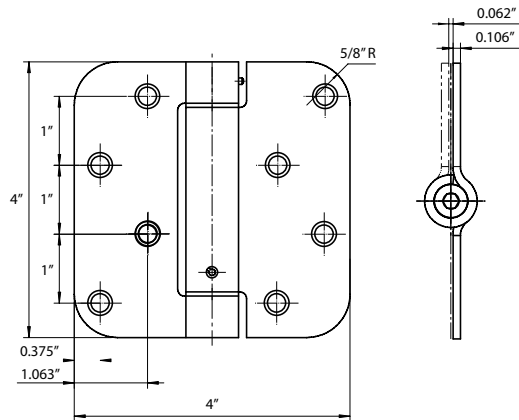


RESIDENTIAL SPRING HINGE

- Full Mortise, Single Acting
Residential mounting hole pattern
- Box Pack
Furnished with screws and Allen wrench
- Steel ANSI K81071F

CODE	SIZE	RADIUS	MATERIAL	GAUGE
RS45	4" x 4"	5/8"	Steel	0.106" (2.7mm)

Stock Finish: USP, US2D, US3, US3/4, US4, US10B, US15, US15A, US26D

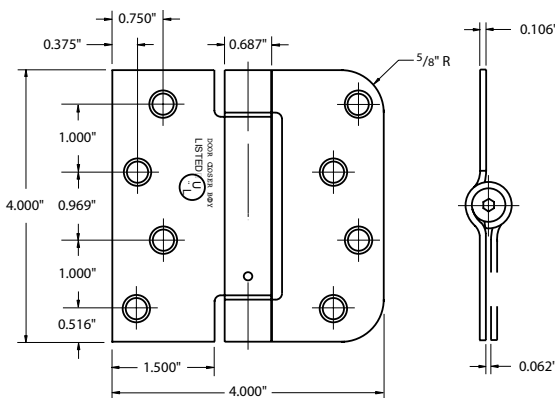


BENCHMARK SPRING HINGE

- Full Mortise, Single Acting
Residential mounting hole pattern
- Box Pack
Furnished with screws and Allen wrench
- Steel ANSI K81071F

CODE	SIZE	RADIUS	MATERIAL	GAUGE
BS45	4" x 4"	5/8"	Steel	0.106" (2.7mm)

Stock Finish: USP, US3, US4, US26D

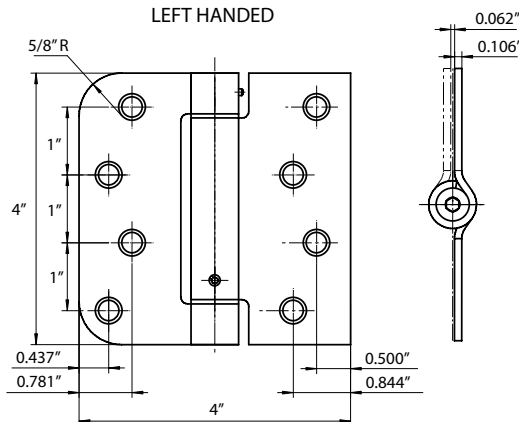


CASTLEGATE SPRING HINGE

- Full Mortise, Single Acting
- Box Pack
- Steel ANSI K81071F

CODE	SIZE	RADIUS	MATERIAL	GAUGE
CS40	4" x 4"	5/8"	Steel	0.106" (2.7mm)

Stock Finish: USP, US2D, US3, US3/4, US10B, US15, US15A, US26D



THERMA-TRU SPRING HINGE

- Full Mortise, Single Acting
- Box Pack
Furnished with screws and hex wrench
- Steel ANSI K81071F

CODE	SIZE	RADIUS	MATERIAL	GAUGE
TS48	4" x 4"	5/8"	Steel	0.106" (2.7mm)

Stock Finish: USP, US2D, US3, US3/4, US4, US10B, US15, US15A, US26D

Screws for Non Template hole pattern hinges above
4" x 4"#10 x 1/2" Machine Screw (10-24NC)
.....#10 x 1" Wood Screw

Commercial Hinges



ANSI/UL 10C, Positive Pressure Fire Tests of Door Assemblies. CAN/ULC S104, Fire Tests of Door Assemblies.



CH4501
USP

All Commercial Hinges are ANSI Template

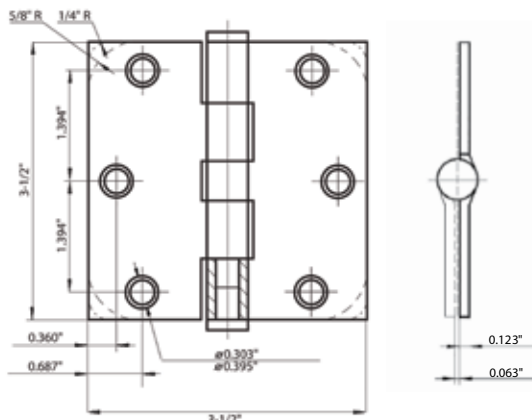
STANDARD COMMERCIAL Plain Bearing

- Non-rising removable pin with button tip and plug
- Full Mortise, template (ANSI A156.7)
- Steel ANSI A8133

CODE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
CH350	3-1/2" x 3-1/2"	Square	Steel	0.123" (3.1mm)	
CH320	3-1/2" x 3-1/2"	1/4"	Steel	0.123" (3.1mm)	
CH400	4" x 4"	Square	Steel	0.130" (3.3mm)	
CH402	4" x 4"	1/4"	Steel	0.130" (3.3mm)	
CH405	4" x 4"	5/8"	Steel	0.130" (3.3mm)	
CH450	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)	
CN350	3-1/2" x 3-1/2"	Square	Steel	0.123" (3.1mm)	N.R.P.
CN400	4" x 4"	Square	Steel	0.130" (3.3mm)	N.R.P.
CN402	4" x 4"	1/4"	Steel	0.130" (3.3mm)	N.R.P.
CN405	4" x 4"	5/8"	Steel	0.130" (3.3mm)	N.R.P.
CN450	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)	N.R.P.

Stock Finish: USP, US3, US4, US10B, US26, US26D

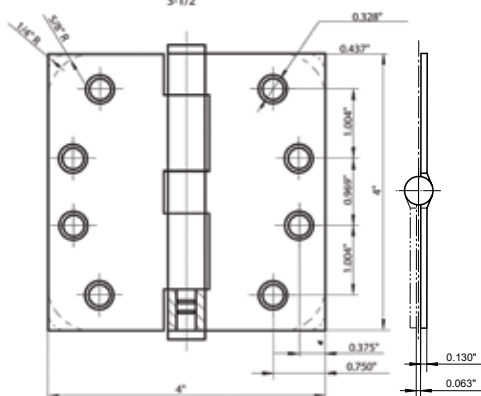
* Finish may not be available for all items, please refer to price book for stock finish availability.



- Brass ANSI A2133

CODE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
193503	3-1/2" x 3-1/2"	Square	Brass	0.123" (3.1mm)	
194003	4" x 4"	Square	Brass	0.130" (3.3mm)	
194203	4-1/2" x 4-1/2"	Square	Brass	0.130" (3.3mm)	
193553	3-1/2" x 3-1/2"	Square	Brass	0.123" (3.1mm)	N.R.P.
194053	4" x 4"	Square	Brass	0.130" (3.3mm)	N.R.P.
194253	4-1/2" x 4-1/2"	Square	Brass	0.130" (3.3mm)	N.R.P.

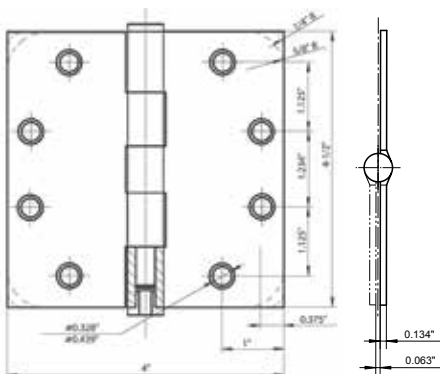
Stock Finish: US3



- Stainless Steel ANSI A5133

CODE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
144209	4" x 4"	Square	Stainless Steel	0.130" (3.3mm)	
145058	4-1/2" x 4-1/2"	Square	Stainless Steel	0.130" (3.3mm)	
144259	4" x 4"	Square	Stainless Steel	0.130" (3.3mm)	N.R.P.
145558	4-1/2" x 4-1/2"	Square	Stainless Steel	0.130" (3.3mm)	N.R.P.

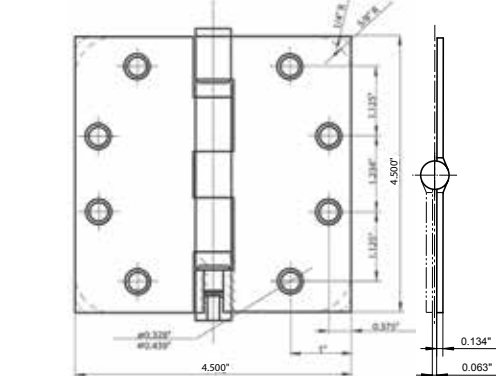
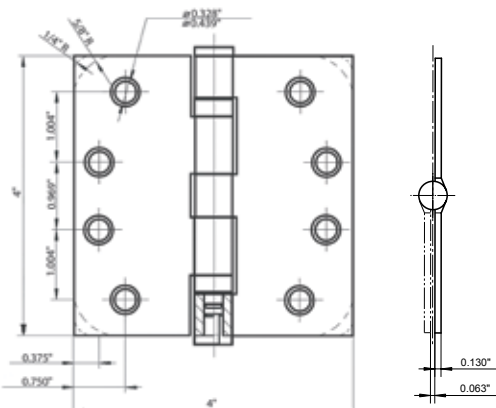
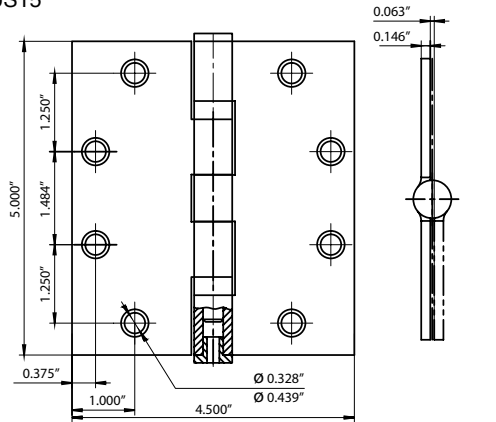
Stock Finish: US32D



Commercial Hinges



CH4117
US15



Standard Weight, Ball Bearing

- 5 Knuckles, 2 ball bearing
- Full Mortise, template (ANSI A156.7)
- Steel ANSI A8112



ANSI/UL 10C, Positive Pressure
Fire Tests of Door Assemblies.
CAN/ULC S104, Fire Tests of
Door Assemblies.

CODE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
CH401	4" x 4"	Square	Steel	0.130" (3.3mm)	
CH411	4" x 4"	1/4"	Steel	0.130" (3.3mm)	
CH415	4" x 4"	5/8"	Steel	0.130" (3.3mm)	
CH451	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)	
CN350	3-1/2" x 3-1/2"	Square	Steel	0.123" (3.1mm)	N.R.P.
CN401	4" x 4"	Square	Steel	0.130" (3.3mm)	N.R.P.
CN411	4" x 4"	1/4"	Steel	0.130" (3.3mm)	N.R.P.
CN415	4" x 4"	5/8"	Steel	0.130" (3.3mm)	N.R.P.
CN451	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)	N.R.P.
CN521	5" x 4-1/2"	Square	Steel	0.146" (3.7mm)	N.R.P.

Stock Finish: USP, US3, US4, US5,

US10B, US15, US15A, US26, US26D

* Finish may not be available for all items,
please refer to price book for stock finish availability.

- Brass ANSI A2112, Stainless Steel ANSI A5112

CODE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
194013	4" x 4"	Square	Brass	0.130" (3.3mm)	
194213	4-1/2" x 4-1/2"	Square	Brass	0.134" (3.4mm)	
194063	4" x 4"	Square	Brass	0.130" (3.3mm)	N.R.P.
194263	4-1/2" x 4-1/2"	Square	Brass	0.134" (3.4mm)	N.R.P.
144019	4" x 4"	Square	Stainless Steel	0.130" (3.3mm)	
146058	4-1/2" x 4-1/2"	Square	Stainless Steel	0.134" (3.4mm)	
144069	4" x 4"	Square	Stainless Steel	0.130" (3.3mm)	N.R.P.
146558	4-1/2" x 4-1/2"	Square	Stainless Steel	0.134" (3.4mm)	N.R.P.

Stock Finish: US3, US32D



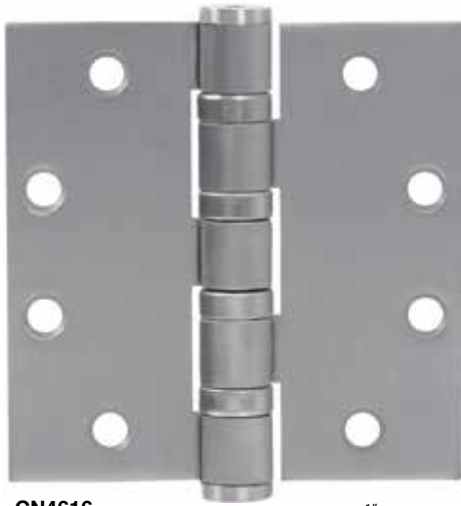
COMMERCIAL ELECTRIFIED HINGES Energy Transfer



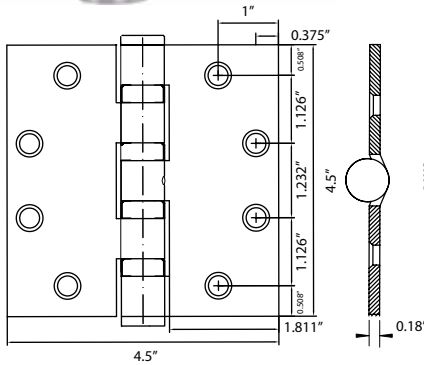
WIRE	SIZE	RADIUS	MATERIAL	GAUGE
4	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)
4	4-1/2" x 4-1/2"	Square	Stainless Steel	0.134" (3.4mm)
6	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)
6	4-1/2" x 4-1/2"	Square	Stainless Steel	0.134" (3.4mm)
8	4-1/2" x 4-1/2"	Square	Steel	0.134" (3.4mm)
8	4-1/2" x 4-1/2"	Square	Stainless Steel	0.134" (3.4mm)

Stock Finish: USP, US10B, US3, US26D, US26, US15, US32D

Commercial Hinges



CN4616
US26D



Heavy Weight, Ball Bearing

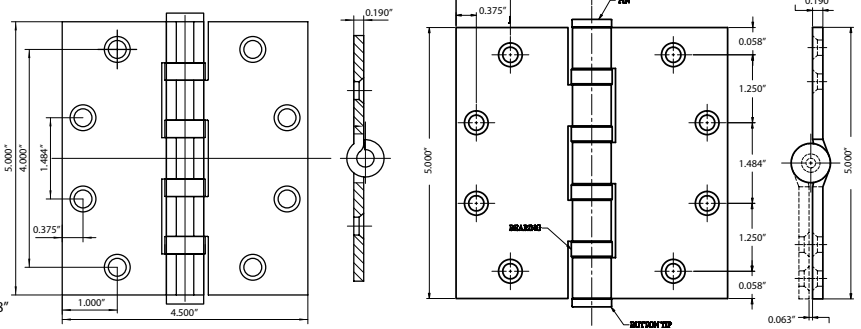
- 5 Knuckles, 4 ball bearing
- Full Mortise, template (ANSI A156.7)
- Steel ANSI A8111, Stainless Steel ANSI A5111



ANSI/UL 10C, Positive Pressure Fire Tests of Door Assemblies. CAN/ULC S104, Fire Tests of Door Assemblies.

CODE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
CN46	4-1/2" x 4-1/2"	Square	Steel	0.180" (4.6mm)	N.R.P.
CN4632	4-1/2" x 4-1/2"	Square	Stainless Steel	0.180" (4.6mm)	N.R.P.
CN56	5" x 4-1/2"	Square	Steel	0.190" (4.8mm)	N.R.P.
CN5632	5" x 4-1/2"	Square	Stainless Steel	0.190" (4.8mm)	N.R.P.
CN58	5" x 5"	Square	Steel	0.180" (4.6mm)	N.R.P.
CN5832	5" x 5"	Square	Stainless Steel	0.180" (4.6mm)	N.R.P.

Stock Finish: US26D, US10B or US32D



CH4516S
US26D



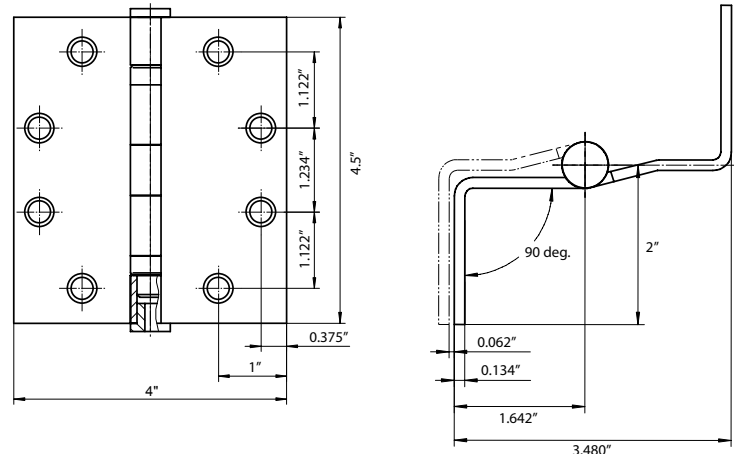
Standard Weight, Swing Clear

- 5 Knuckles, 2 ball bearing
- Dimensions & tolerances conform to ANSI - A156.7
- Packed with flat head wood and machine screws
- Steel ANSI A8122



CODE	SIZE	RADIUS	MATERIAL	GAUGE
CH4516S	4-1/2"	Square	Steel	0.134" (3.4mm)

Stock Finish: US26D



Commercial Hinges



COMMERCIAL ELECTRIFIED HINGES Energy Transfer



WIRE	SIZE	RADIUS	MATERIAL	GAUGE	TYPE
4	4-1/2" x 4-1/2"	Square	Steel	0.180" (4.6mm)	N.R.P.
4	4-1/2" x 4-1/2"	Square	Stainless Steel	0.180" (4.6mm)	N.R.P.
6	4-1/2" x 4-1/2"	Square	Steel	0.180" (4.6mm)	N.R.P.
6	4-1/2" x 4-1/2"	Square	Stainless Steel	0.180" (4.6mm)	N.R.P.
8	4-1/2" x 4-1/2"	Square	Steel	0.180" (4.6mm)	N.R.P.
8	4-1/2" x 4-1/2"	Square	Stainless Steel	0.180" (4.6mm)	N.R.P.

Stock Finish: US26D, US32D



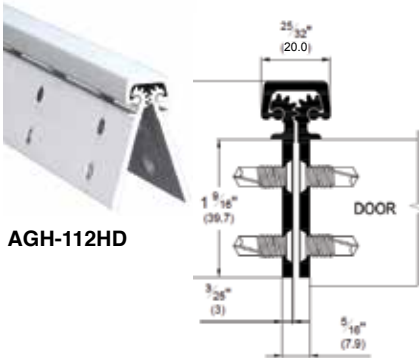
HEAVY DUTY GEAR HINGES

Intertek
Up to 3 hr. metal and 90 min. wood composite (with studs)

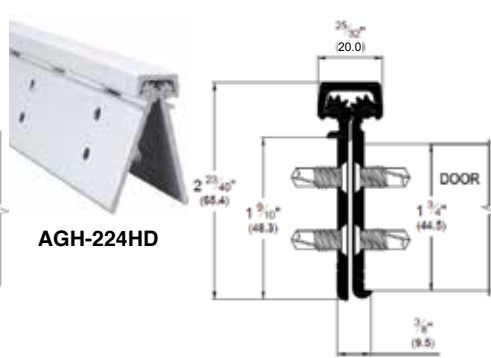
DOOR & FRAME REINFORCEMENT:

None needed to 200 lbs. Use 16 gauge channel over 200 lbs.
Heavy Duty for high frequency 1 3/4" doors or heavy medium frequency doors up to 450 lbs.

Concealed Type

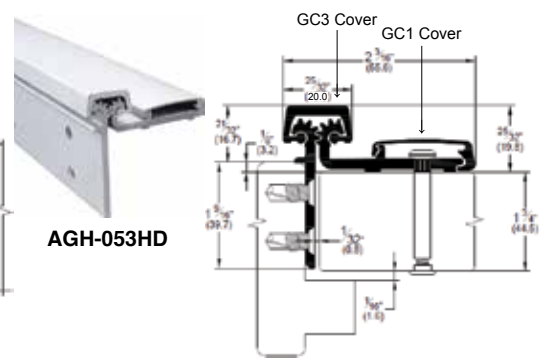


AGH-112HD



AGH-224HD

Half Surface Type

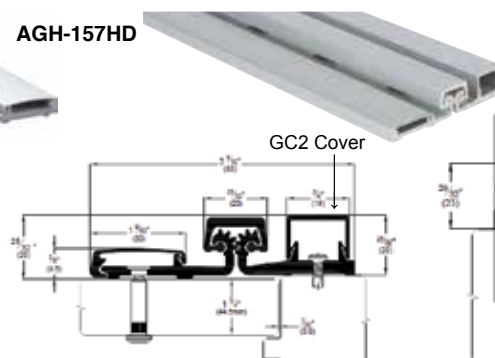


AGH-053HD

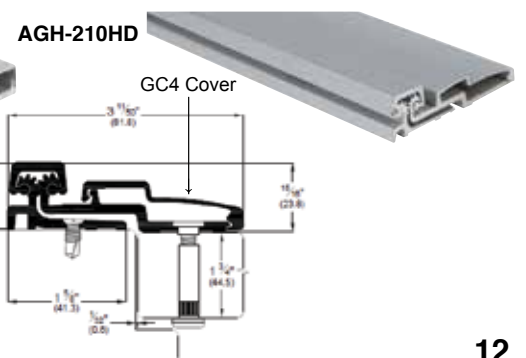
Full Surface Type



AGH-057HD



AGH-157HD



AGH-210HD

Trim Hardware

DOOR PROTECTION PLATE & LATCH GUARD

PUSH PLATE



BPH-3515
APH-3515
3-1/2" x 15"
Meets ANSI A156.6: J301

BPH-416
SPH-416
4" x 16"

PULL PLATE



BPL-3515
APL-3515
3-1/2" x 15"
Meets ANSI A156.6: J405

BPL-416
SPL-416
4" x 16"



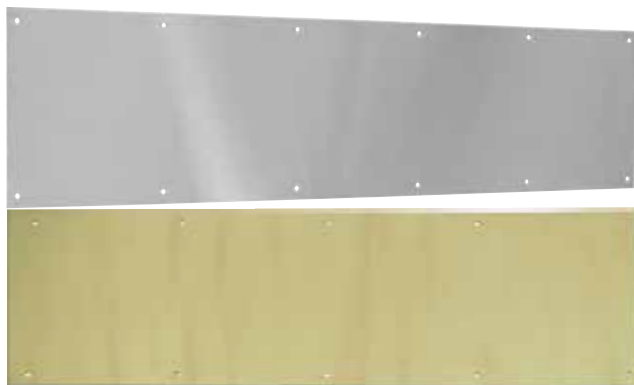
SPL-416-R3406
ADA Pull Plate Ø3/4" x 6"
SPL-416-R3408
ADA Pull Plate Ø3/4" x 8"
Clearance: 1-1/2"



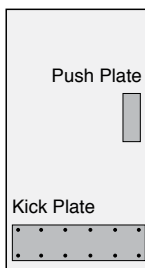
SPL-416-H1006
ADA Pull Plate Ø1" x 6"
SPL-416-H1008
ADA Pull Plate Ø1" x 8"
Clearance: 1-1/2"

Meets ANSI A156.6: J405

KICK PLATE & ARMOR PLATE



Aluminum, Brass, and
Stainless Steel Kick Plate
Meets ANSI A156.6: J101/J102



R3406 Ø3/4" x 6" CTC
R3408 Ø3/4" x 8" CTC
Clearance: 1-1/2"



H1006 Ø1" x 6" CTC
H1008 Ø1" x 8" CTC
Clearance: 1-1/2"

Meets ANSI A156.6: J401

Material (Metal)	Item No.	Size	Mounting
Aluminum	AKP-834	8" x 34", 0.032" thick	Screw on #6 x 5/8" screws
Solid Brass	BKP-828T BKP-634T BKP-834T	8" x 28", 0.04" thick 6" x 34", 0.04" thick 8" x 34", 0.04" thick	Tape on
The following meets ANSI A156.6 for J101/J102			
Solid Brass	BKP-828 BKP-634 BKP-834	8" x 28", 0.05" thick 6" x 34", 0.05" thick 8" x 34", 0.05" thick	Screw on #6 x 5/8" screws
Stainless Steel	SKP-834 SKP-1034 SKP-1040 SKP-1046	8" x 34", 0.05" thick 10" x 34", 0.05" thick 10" x 40", 0.05" thick 10" x 46", 0.05" thick	Screw on #6 x 5/8" screws
Solid Brass	BKP-834 BKP-1034	8" x 34", 0.05" thick 10" x 34", 0.05" thick	
Armor Plate	SAP-3434	34" x 34", 0.05" thick	



2-7/8" x 11"
Metal
Latch Guard
LGP-11



3" x 11-1/2"
Stainless Steel
Latch Guard
LGP-12



Door Silencer
Metal Fame
DS-01
Meets ANSI A156.6: L03011



Door Silencer
Wood Fame
DS-02
Meets ANSI A156.6: L03021

Trim Hardware

BOLTS

Surface Bolt
 3" SB-103
 4" SB-104
 6" SB-106
 12" SB-112



6" Flush Bolt (Round)
 FBR-106



6" Flush Bolt (Square)
 FBS-106
 Meets ANSI A156.16: L04201



7" Mortise in Flush Bolt
 MFBR-07



7" Mortise in Flush Bolt
 MFBR-17 (Flip Type)



18" Mortise-In Extension Flush Bolt with Extension Rod
 MEFB-18 (Flip Type)



MANUAL FLUSH BOLT



EFB-01

For Metal Door
 For use on hollow metal or fire rated doors.



EFB-02

For Wood Door
 For use with wood composite/ fire rated doors.
 Meets ANSI A156.16: L14261

Standard with 12" ext. rod, extra length available in size 18", 24", 36" & 48".
 Meets ANSI A156.16: L14251



H.D. Surface Bolt

8" HSB-8
 12" HSB-12
 Bar: 3/4" Width x 1/4" Thick
 Steel Construction, 1" Throw
 Meets ANSI A156.16: L04161



* Bolt head rod is adjustable

AUTOMATIC FLUSH BOLT SET



Meets ANSI A156.3: Type 25
AFB-01

For Metal Door

Faceplate: 1" x 6-3/4"
 • 3hrs fire rating

Fully automatic - Bolts retract when active door is opened; bolts extend when active door is closed.

Thermal lock automatically locks inactive door under high fire/heat conditions. 9278 dust proof strikes are recommended for use together.



AFB-02
For Wood Covered Composite Doors
 Faceplate: 1" x 8-1/2"
 • 1-1/2hrs fire rating



* Bolt head rod is adjustable

SELF LATCHING FLUSH BOLT SET



Meets ANSI A156.3: Type 27
SFB-01

For Metal Door

Faceplate: 1" x 6-3/4"
 • 3hrs fire rating

Top bolt can be manually released by pressing plunger - Inactive door will re-latch automatically when closed.

Thermal lock automatically locks inactive door under high fire/heat conditions. 9278 dust proof strikes are recommended for use together.



SFB-02
For Wood Covered Composite Doors
 Faceplate: 1" x 8-1/2"
 • 1-1/2hrs fire rating



* Bolt head rod is adjustable

This combination eliminates the bottom flush bolt and eliminates floor preparation:

Metal Door –

3hrs fire rating

Wood Door –

20mins fire rating

AFB-19

Automatic Flush Bolt with Fire Bolt for metal door



* Bolt head rod is adjustable



AFB-29

Automatic Flush Bolt with Fire Bolt for wood door



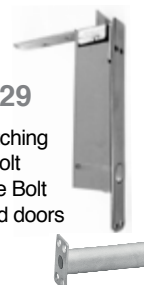
SFB-19

Self-Latching Flush Bolt with Fire Bolt for metal door



SFB-29

Self-Latching Flush Bolt with Fire Bolt for wood doors



DUST PROOF STRIKE 9278

Spring loaded plunger returns to floor or threshold level anytime flushbolt is retracted.

Meets ANSI A156.16: L04021



AUXILIARY FIRE LATCH 9279

Installed in bottom door edge of active door to replace the bottom flush bolt. Temperature-actuated bolt automatic extends at 230F.

Trim Hardware

DOOR KNOCKER, DOOR VIEWER & HOUSE NUMBER

Door Knocker Meets ANSI A156.6: L03161



4" Door Knocker with Viewer
DK-04V



6" Door Knocker
BK-06



6" Door Knocker with Viewer
BDK-06V



BDV-160
Meets ANSI A156.16: L03171



UDV-160
Meets ANSI A156.16: L03221



BDV-180
Meets ANSI A156.16: L03171



UDV-200
Meets ANSI A156.16: L03221



House Number Meets ANSI A156.6: L03181



6" Solid Brass
House Number
BHN-06



4" Metal
House Number
MHN-04



4" Solid Brass
House Number
BHN-04



6" Black
House Number
PHN-06



Door Viewer Inside Cover
CV-120 for 1/2" Barrel Viewer
CV-916 for 9/16" Barrel Viewer

DOOR SIGNS & DOOR DECALS

* Please refer to price book E-13 and E-14 for details



THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS

THESE DOORS TO REMAIN UNLOCKED DURING BUSINESS HOURS

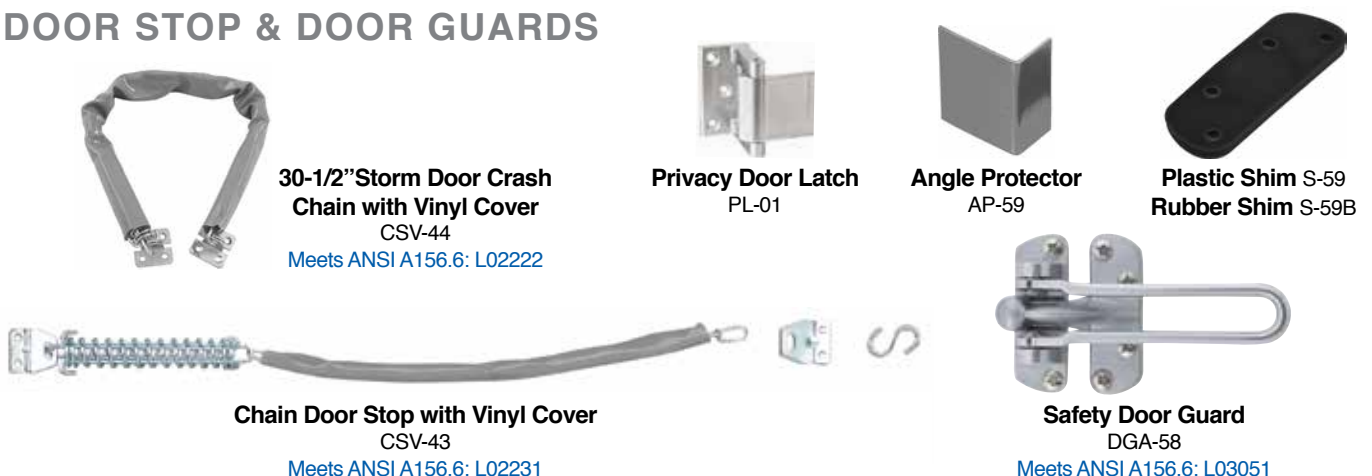
* White Text on Black Background or Black Text on Clear Background are available.

Trim Hardware

DOOR STOP & DOOR GUARDS

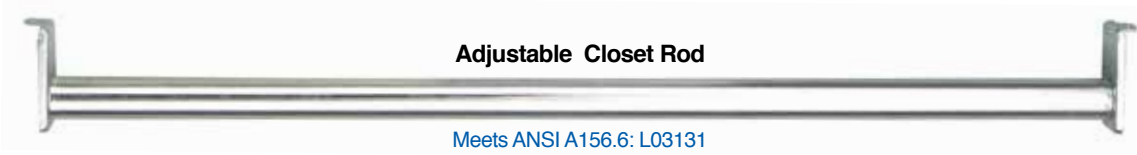
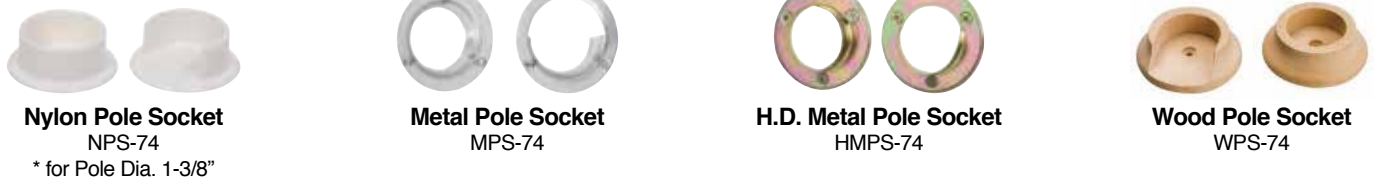


DOOR STOP & DOOR GUARDS



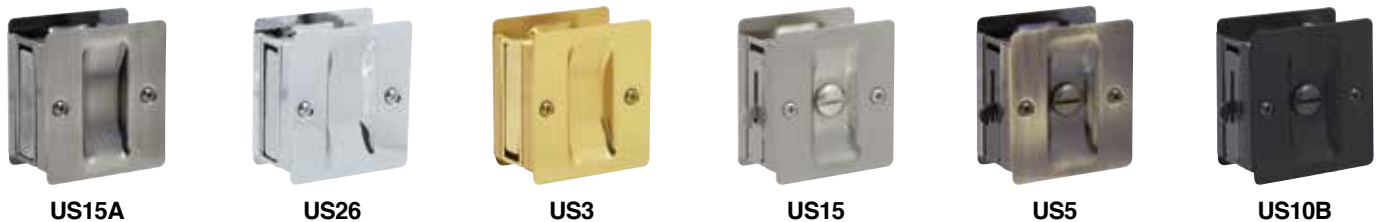
Trim Hardware

CLOSET HARDWARE & BRACKETS

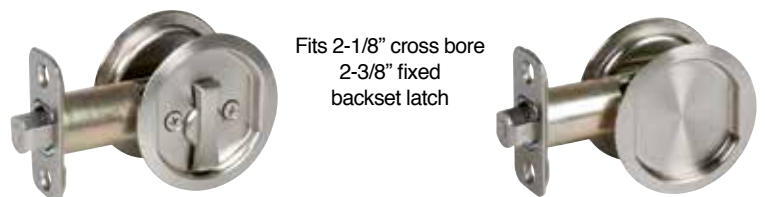


SIZE: 18" ~ 30"
30" ~ 48"
48" ~ 72"
72" ~ 96"
72" ~ 120"
96" ~ 150"

SLIDING & ROUND POCKET DOOR LOCKS



Door Prep: 2-1/4" H x 1-3/4" W notch.
Door Fitting: 1-3/8" ~ 1-3/4" door thick.
Exposed Trim: Brass, stainless steel, or zinc alloy.
Strike: 1" x 2-1/4" rectangular.



Trim Hardware

MISCELLANEOUS



DOOR HOLDER & DOUBLE DOOR COORDINATOR

Meets ANSI A156.6: Type 21A

Inactive Door
Release Trigger

Mechanism
Housing

NOTE Frame Opening 6' use C52+FB1858
Frame Opening 7' use C52+FB3200
Frame Opening 8' use C60+FB3200

Active Door Hold
Open Lever



Commercial Electromagnetic Door Holder

CB-01

Carry bar for coordinator
For use on pair of doors
with Mullion



Size: 1-3/4" x 2-1/4" plate
Finish: Aluminum, Duro



MDH01E
24VDC



MDH02E
24VDC



MDH11E
Tri-Voltage



MDH12E
Tri-Voltage

9100/F9100 SERIES HEAVY DUTY MULLION - SCREW LOCKING 9200/F9200 SERIES HEAVY DUTY MULLION - CYLINDER LOCKING

Meets ANSI A156.6: Type 22

9100/9200 for use with Panic-Rated Rim Exit Devices on no-fire pairs of doors

F9100/F9200 for use with Fire-Rated Rim Exit Devices on fire-rated pairs of doors



Top
Bracket



Bottom
Bracket



MULLION TUBE

- 2" (51 mm) wide x 3" (76mm) deep, with wall thickness of 1/8" (3mm), 11 Gauge Steel Tube.

MULLION SIZE

- 7' (2134mm), 8' (2438mm) or 10' (3048mm) three (3) sizes.
Mullion may be field cut to fit proper size.

TOP BRACKET

- Steel, using screw driver or key to remove the mullion in seconds.
Mullion can be locked in top bracket easily without using screw driver or key.

BOTTOM BRACKET

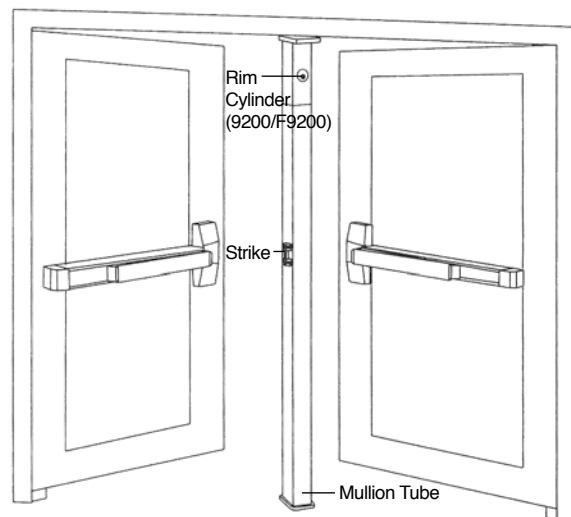
- Steel, fixed by 4 hex bolts with nonferrous anchors.

SHIMS

- 1/2" (13mm) and 5/8" (16mm) shims included.

FINISH

- Gray baked powder coating only.



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