Commercial Hinges

In the mid 1800s, Charles Hager had a successful business forging metal wheel rims and hinges for wagons headed west. As a smart businessman who valued quality and innovation, Charles soon became a pioneer in product development, designing a revolutionary hinge that became a prototype for more than 5,000 hinges to follow.

Today, the Hager name is synonymous with commercial hinges. In fact, we are the industry's premiere designer and manufacturer of commercial hinges, with a product line that offers one of the widest varieties of sizes, shapes, and finishes--all of which meet or exceed ANSI standards. With legendary quality, time-tested durability, and consistent superior performance, Hager is the one name, and one brand, you can count on to provide it all.

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General Information - Selecting a Hinge

Determine Type of Hinge

- What is the door material (wood, stainless steel, fiberglass, or hollow metal)?
- What is the frame material (wood, stainless steel, channel iron, or hollow metal)?

Hinges are manufactured in accordance with ANSI/BHMA A156.1. Self-closing hinges and pivots are in accordance with ANSI/BHMA A156.17 using three hinges per opening on a 3'0" x 7'0" x 1-3/4" (914 mm x 2134 mm x 44 mm) door.

ANSI NUMBERING SYSTEM

Letter "A" denotes section "A" of ANSI Standard

First Numeral

The first numeral indicates general type of material used.
1 – Cast, Forged or Extruded Brass or Bronze
2 – Wrought Brass or Bronze
5 – Stainless Steel, 300 Series
8 – Wrought Steel, Forged Steel or Malleable Iron

Second Numeral

The second numeral identifies type of product.
1 – Full Mortise Hinges
2 – Half Mortise Hinges
3 – Full Surface Hinges
4 – Half Surface Hinges
5 – Anchor, Pivot Reinforced or Thrust Pivot Unit and Hinge Sets
6 – Olive Knuckle Hinges
7 – Pivot Hinges
8 – Rescue Hardware

Third Numeral

The third numeral identifies the function or the description of the item or both.
1 – Anti-Friction Bearing
2 – Anti-Friction Bearing – Swing Clear
3 – Plain Bearing
4 - Thru 0 – Special Conditions

Fourth Numeral

The fourth numeral designates the grade classification of the item.
1 – Grade 1 – 4BB Extra Heavy Weight – 2,500,000 Cycles
2 – Grade 2 – 2BB Standard Weight – 1,500,000 Cycles
3 – Grade 3 – Plain Bearing – 350,000 Cycles

Information taken from: ANSI A156.1 (Butts and Hinges)

Full Mortise

Both leaves are mortised, one leaf in the door and one leaf in the frame (wood door or hollow metal door with wood or hollow metal frame).
Example: BB1279 4-1/2" x 4-1/2" (114 mm x 114 mm), US26D

Half Mortise

One leaf is mortised in the door and the other is surface applied to the frame (hollow metal door with channel iron frame).
Example: BB1109 4-1/2" (114 mm), US26D

Full Surface

Both leaves are applied to the surface, one to the door and the other to the frame (metal clad door or hollow metal door with channel iron frame).
Example: BB2171 5" (127 mm), USP

Half Surface

One leaf is mortised in the frame and the other is surface applied to the face of the door (wood door with wood frame or hollow metal door with hollow metal frame).
Example: BB1163 5" (152 mm), US26D

Select the Proper Weight and Bearing Structure

Because of the variety of door sizes and weights, hinges are placed into three groups:

Heavy Weight - Ball Bearing

Example: BB1199 5" x 5" (127 mm x 127 mm), US32D

Standard Weight - Ball Bearing

Example: BB1279 4-1/2" x 4-1/2" (114 mm x 114 mm), US26D

Standard Weight - Plain Bearing

Example: 1279 4" x 4" (102 mm x 102 mm), US10

Hinge Type Minimum Cycle Requirements

Plain Bearing = 350,000
Standard Weight Ball Bearing = 1,500,000
Heavy Weight Ball Bearing = 2,500,000

There are three factors that determine the weight and structure of the hinge: weight and width of the door and frequency of use. It is advisable to include the approximate weight of additional hardware that will be installed on the door.

Determine the Size of Hinge

The first thing to find is the height of the hinge. Follow the examples below. These are only examples. Job situations will offer many more variables.

Only on the full mortise hinges are there two dimensions, such as a 4-1/2" x 4-1/2" (114 x 114 mm). The first dimension indicates the height and the second dimension indicates the width when the hinge is in the open position.

Height of Hinge

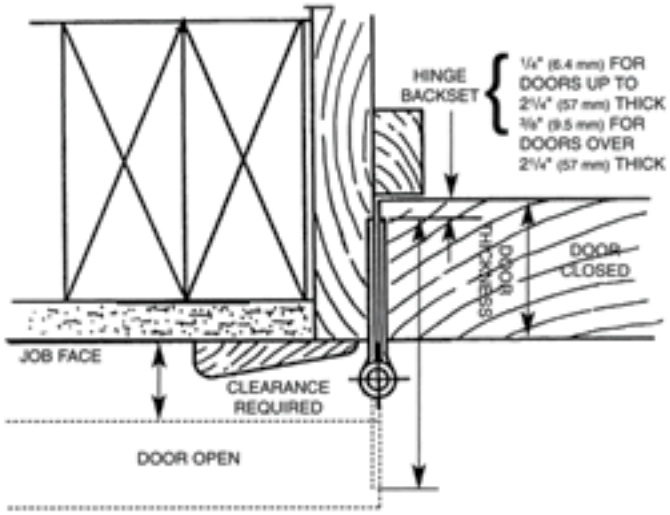
Thickness of Door	Width of Door	Height of Hinge
1-3/8″ (35 mm) Door	To 32″ (813 mm)	3-1/2″ (89 mm)
1-3/8″ (35 mm) Door	32″ to 36″ (813 to 914 mm)	4″ (102 mm)
1-3/4″ (45 mm) Door	To 36″ (914 mm)	4-1/2″ (114 mm)
1-3/4″ (45 mm) Door	36″ to 48″ (914 to 1219 mm)	5″ (127 mm)
1-3/4″ (45 mm) Door	Over 48″ (1212 mm)	6″ (152 mm)
2″, 2-1/4″, 2-1/2″ Door (51, 57 & 64 mm)	To 42″ (1067 mm)	5″ (127 mm) Heavy Weight
2″, 2-1/4″, 2-1/2″ Door (51, 57 & 64 mm)	Over 42″ (1067 mm)	6″ (152 mm) Heavy Weight

Width of Hinge

There are three dimensions to know in order to determine the minimum width of the hinge: door thickness, hinge backset, and clearance required.

1. When figuring the calculations for a wood door and wood frame, the door is flush with the casing or face of the frame. When figuring the calculations for a wood or metal door with a hollow metal frame, the door is inset approximately 1/8″ (3.2 mm).
2. For doors up to 2-1/4″ (57 mm) thick, the hinge backset is 1/4″ (6.4 mm) from the back face of the door.
3. For doors over 2-1/4″ (57 mm) thick, the hinge backset is 3/8″ (9.5 mm) from the back face of the door.

Once these dimensions are known, the formula can then be applied. **Take the door thickness, subtract the backset, multiply by two, and add the clearance required.** If the hinge size is not standard, then go to the next larger hinge width. If the width of the hinge is greater than the height of the hinge [example: 4-1/2″ x 6″ (114 mm x 152 mm)] this is referred to as a wide throw hinge. This would apply only to full mortise hinges.



Door Thickness	Standard Backset	Max. Clearance Provided	Width of Hinge
1-3/8″ (35 mm)	1/4″ (6.4 mm)	1-1/4″ (32 mm) 1-3/4″ (45 mm)	3-1/2″ (89 mm) 4″ (102 mm)
1-3/4″ (45 mm)	1/4″ (6.4 mm)	1″ (25 mm) 1-1/2″ (38 mm) 2″ (51 mm) 3″ (76 mm)	4″ (102 mm) 4-1/2″ (114 mm) 5″ (127 mm) 6″ (152 mm)
2″ (51 mm)	1/4″ (6.4 mm)	1″ (25 mm) 1-1/2″ (38 mm) 2-1/2″ (64 mm)	4-1/2″ (114 mm) 5″ (127 mm) 6″ (152 mm)
2-1/4″ (57 mm)	1/4″ (6.4 mm)	1″ (25 mm) 2″ (51 mm)	5″ (127 mm) 6″ (152 mm)
2-1/2″ (64 mm)	3/8″ (9.5 mm)	3/4″ (19 mm) 1-3/4″ (45 mm)	5″ (127 mm) 6″ (152 mm)

Minimum Width of Hinge

Determine the Number of Hinges

The next determination is the number of hinges per door leaf. A general rule of thumb: one hinge for every 30″ (762 mm) of door height or fraction thereof.

Door Height	Number of Hinges
Up to 60″ (1524 mm)	2 Hinges
Over 60″ (1524 mm) and not over 90″ (2286 mm)	3 Hinges
Over 90″ (2286 mm) and not over 120″ (3048 mm)	4 Hinges

For doors with a width greater than 37″ (940 mm) to 48″ (122 mm), an extra hinge could be used for additional strength. The extra hinge helps support the additional weight and tension applied to the frame created by the wider door width.

Doors up to 60″ (1524 mm) in height shall be provided with two hinges and an additional hinge for each additional 30″ (762 mm). Where spring hinges are used, at least two shall be provided.

Full Mortise Hinge Height	Frequency of Use	Max Door Weight	Maximum Door Width	Type
4-1/2″ (114 mm)	Low	75	36″ (914 mm)	1279
4-1/2″ (114 mm)	Medium	150	36″ (914 mm)	BB1279
4-1/2″ (114 mm)	High	150	36″ (914 mm)	BB1168
5″ (127 mm)	Low	100	36″ (914 mm)	1279
5″ (127 mm)	Medium	175	36″ (914 mm)	BB1279
5″ (127 mm)	High	175	36″ (914 mm)	BB1168
6″ (152 mm)	Low	125	36″ (914 mm)	1279
6″ (152 mm)	Medium	230	36″ (914 mm)	BB1279
6″ (152 mm)	High	230	36″ (914 mm)	BB1168

General Information - Selecting a Hinge

Determine Type of Material

Steel

This has great strength, but it is a corrosive material. If the atmosphere that steel is used in is not stable, steel will begin to rust. The best application for steel is in a controlled environment, such as inside a building where the temperature and humidity are controlled.

Stainless Steel

This also has great strength. It is rust resistant and can be polished to a satin or bright finish. For highly corrosive areas, 316 grade or clear coat over 304L may be recommended. Hager Companies standard grade stainless steel is 304L.

Brass

This material is non-corrosive, rust resistant, and very decorative. However, it has less strength than the steel or stainless steel material. Brass is often used where appearance is of great concern as it may be polished and plated in various finishes.

Both steel and stainless steel hinges may be used on listed fire rated or labeled door openings. Brass material may not be used on fire rated or labeled openings because of the low melting point.

Determine Type of Finish

All steel and brass material hinges can be plated to match the available finishes that are listed in the American National Standards Institute, standard ANSI/BHMA A156.18 Materials and Finishes.

Special Resisting Finishes

A nickel undercoat is a **standard process** that is applied to all **steel-based PLATED hinges**.

Note: Hager Companies only warrants US10B finish over brass base material. If steel base is necessary, Hager Companies recommends US10A lacquer finish.

Antimicrobial Protection

Hager Companies uses a powder coat process to apply antimicrobial treated coating to guarantee durability and protection. Antimicrobial resistance on products is affected by moisture in the air. Silver ions interact with humidity and are released creating a cleaner surface.

Architectural Finish Symbols

Hager	Description	Steel	Brass & Bronze	Stainless Steel	HEWI#
L1	Flat Black	693	693	N/A	N/A
DB2	Dark Bronze	690	690	690	N/A
USP	Primed for Painting	600	N/A	N/A	N/A

Powder Coat Finishes

U.S. & Hager	Description	Steel	Brass & Bronze	Stainless Steel
2C	Plain Zinc Plate	603	N/A	N/A
H2H x BP	Mechanical Galvanized; Steel Only	N/A	N/A	N/A
3	Bright Brass	632	605	N/A
3A	Bright Brass - Unlacquered	N/A	N/A	N/A
4	Satin Brass	633	606	N/A
5	Satin Brass, Oxidized	638	609	N/A
10	Satin Bronze	639	612	N/A
10A (US11)	Antique Bronze, Lacquered	641/643	N/A	N/A
10B	Antique Bronze, Oiled	640	613	N/A
10D	Black Nickel, Oiled	640	613	N/A
SS	Stainless Steel	N/A	N/A	N/A
14	Bright Nickel	645	618	N/A
15	Satin Nickel	646	619	N/A
15A	Satin Nickel, Nickel Oxidized & Highlighted	647	620	N/A
17A	Black Nickel, Dull	648	621	N/A
26	Bright Chromium Plated	651	625	N/A
26D	Satin Chromium Plated	652	626	N/A
32	Stainless Steel Metal, Bright	N/A	N/A	629
32D	Stainless Steel Metal, Bright (304)	N/A	N/A	630
32D (316)	Stainless Steel Metal, Satin (316)	N/A	N/A	630
32D (CLR)	Stainless Steel Metal, Satin (Clear Coat)	N/A	N/A	630
P	Prime Coat	600	600	N/A
PS	Plain Steel	N/A	N/A	N/A
L1	Flat Black	693	693	N/A
L2 (90P)	Dark Bronze	695	695	N/A
LS	Luma Sheen®	689	689	N/A

Bearing Options

When using steel based hinges, special options are available such as stainless steel pins, stainless steel bearings and stainless steel raceways.

Ball Bearing (BB) - Ball bearings are engineered to throw the knuckle weight against specially hardened steel raceways, which ride on the bearing surfaces. The one-piece cup protects the bearings from moisture and dust. The cup supports no weight so it is not subjected to functional friction, pressure or wear. Lateral wear is minimized because the pin is held against thrust by the hardened steel top and bottom raceways. The bearing units are securely press-fit to the leaf knuckle to prevent loss when the hinge is disassembled.

Oilite Bearings (OB) - The oilite bearing is made of porous metal that has been press-formed and impregnated with oil. The slight pressure and heat generated when the door is operated causes the oil to come to the surface of the bearing causing the surface to be slick and smooth.

Anti-Friction Nylon Bearings (AB/CB) - These are made of resilient engineering plastics that provide a self-lubricant and very strong bearing surface. The nylon acts as a cushion for the door yet it allows the door to flow smoothly on the surface of the nylon with an extremely low wear factor. (AB is standard on 3-knuckle hinges. CB is an option for 5-knuckle hinges).

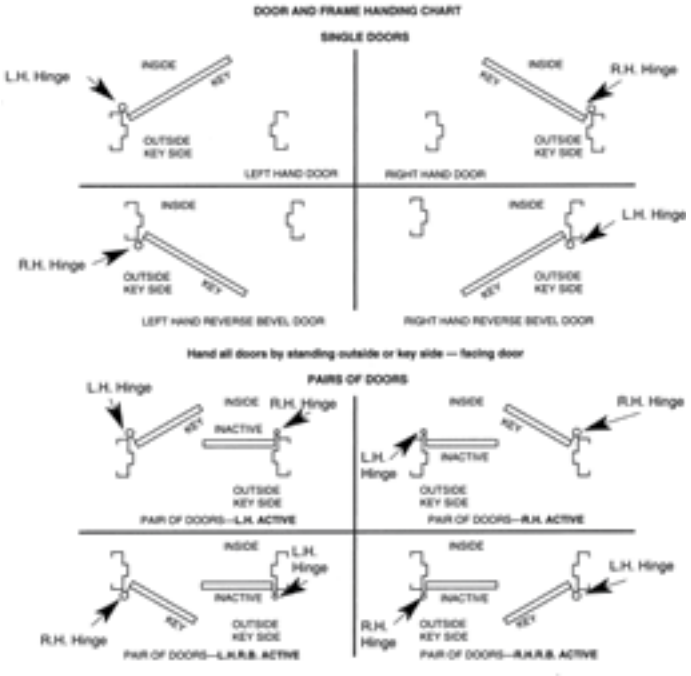
Care and Maintenance

- Hinges must be free swinging without any binding. The use of shims to align hinges, if required, is satisfactory. Steel shims to be used on labeled openings.
- Hinges should be well greased and checked on a regular basis for lubrication. We recommend that hinges used in commercial, high-frequency applications or those in extreme environmental conditions be lubricated annually to ensure quiet operation and long life.
- Standard hinges are best lubricated by removing the pin, applying a generous coating of lithium grease, and reinserting the pin by driving it completely down to the shoulder of the pin head.
- Hospital Tip (HT) hinges that have fixed hinge pins have an oil port on the knuckle for the purpose of lubrication.
- Water displacing sprays such as WD-40 are not recommended for hinge lubrication.
- To remove dirt, simply wipe with a soft damp cloth. Abrasive cleaners or lacquer thinner should not be used to clean the surface of hinges. To do so will void any warranty for the product.

Determine Handing

On some applications it will be necessary to order hinges that are handed. Most manufacturers use the suffix RH (right hand) and LH (left hand). Another general rule of thumb, most manufacturers make the half surface, half mortise and full surface hinges for right hand use. Conversion from right hand to left hand is very simple; take the pin out of the knuckle, remove the bottom plug, turn the hinge over, replace the plug in the bottom and the pin in the top of the knuckle, and the handing is reversed.

- The hand of a hinge is determined from the key of the door to which it is applied. This is usually the locked side.
- When standing keyside, if the door opens away (into the area) to the right, it takes a right hand hinge (also referred to as RH). If it opens to the left, it takes a left hand hinge (also referred to as LH).
- When standing keyside, if the door opens (out of the area) toward the right, it takes a left hand hinge (also referred to as right hand reverse bevel – RHRB). If it opens to the left, it takes a right hand hinge (also referred to as a left hand reverse bevel – LHRB).



Additional Considerations

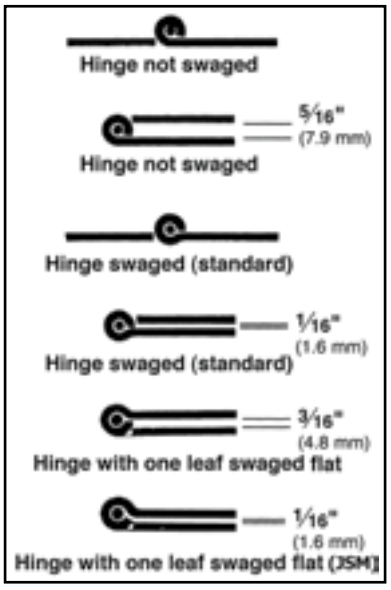
Determine Pin and Tip Style

- The standard in the industry is the Flat Button Tip for 5-knuckle hinges.
- The flush/concealed tip is standard on 3-knuckle. If button tip is required, specify Exposed Tip (ET).
- Hospital Tips (HT) are used primarily for security areas in hospitals and in prisons. This tip prevents hanging any objects on the tip of the hinge. Hager provides all hospital tipped hinges with two non-removable cross pins, stainless steel hinge pin, and an oil port for lubrication purposes. If the hinge is ball bearing, the components used for the bearing are made of stainless steel. Using a Hospital Tip on spring hinges voids the UL listing.
- Decorative tips such as Acorn, Ball, Steeple, and Urn are used in highly decorative areas of offices and residences.

General Information

Swaging

Swaging is a slight offset of the hinge leaf at the barrel. This offset permits the leaves to come closer together when the door is in the closed position. If the hinge were to be left in the natural state after the knuckle was rolled, the hinge would be referred to as a "flatback". A flatback hinge has a gap between the leaves of approximately 5/16" (7.9 mm). This would allow heat and air-conditioning to escape, not to mention the unsightly gap between the door and frame. Standard gap (Swag) is 1/16", specify "O" Swag for no gap.



The swaging on standard weight and heavy weight full mortise hinges provides 1/16" (1.6 mm) clearance between the leaves when the leaves are in the closed position. Full mortise hinges used on beveled doors will affect lockside clearance, especially for wide throw applications.

Security Features

Three additional features that are commonly used are: Non-Removable Pin (NRP), Safety Stud (SH), and Reverse Security Stud (RSS). **These features are intended as deterrents only.**

Non-Removable Pin

The **Non-Removable Pin (NRP)** hinge barrell is drilled and tapped to receive a small set screw which is tightened against the hinge pin. The pin has a groove in the position where the set screw makes contact, allowing the set screw to seat. The set screw is positioned so it cannot be reached unless the door is opened. If pin removal is necessary, the set screw is merely removed and the pin tapped from the bottom in the usual manner.

Safety Stud

The **Safety Stud (SH)** 3/16" (4.8 mm) projection is a feature that places a stud on one leaf and a locking hole on the other leaf. When the door is closed, the stud is anchored into the opposite leaf. Even if the hinge pin is removed, the door is secure because the leaves are locked together.

Reverse Security Stud

The **Reverse Security Stud (RSS)** 7/16" (11.1 mm) projection is a feature that has a welded stud projecting from the back of both leaves into the reinforcing plate of both the frame and the door. It is intended to keep the hinge locked in place from abuse of battering or trying to shear the hinge and screws. This feature is primarily used in prisons and psychiatric areas.

Tip Styles

Flat Button Tip (ET - 3 Knuckle)

Tri-Con Flush Pin

Hospital Tip (HT)

Acorn Tip

Ball Tip

Steeple Tip

Urn Tip

Round Corners

Round corners are available in 1/4" (6 mm) (standard) or 5/8" (16 mm) radius.

Standard Screw Packs for Full Mortise Architectural Hinges

Part Number	Size	Finish	Screws
700, AB700, 1279, BB1279, EC1100, EC1105, 1250 (with or without NRP), ECBB1100	4-1/2" x 4-1/2" 4-1/2" x 4"	US3, US4, US5, US10, US10A (US11), US10B, US15, US15A, US26, US26D, USP	AMS & AWS
Other than listed above	4-1/2"	Other than listed above	AMS & 1/2 WS
All	3-1/2"	All	AWS & 1/2 MS
All	4"	All	AWS & 1/2 MS
All	5"	All	AMS & 1/2 WS
All	6"	All	AWS & 1/2 MS
All	8"	All	AWS & 1/2 MS
All hinges with decorative tips	All	All	AWS

Fire-Rated Application

Door Rating (Hr)	Maximum Door Size		Minimum Hinge Size		Type Hinge
	Width (Feet/ Meters)	Height (Feet/ Meters)	Height (Inches/ Millimeters)	Thickness (Inches/ Millimeters)	
For 1-3/4" (44.5 mm) or thicker doors					
3, 1-1/2, 1, 3/4, 1/2, 1/3	4 (1.22)	10 (3.05)	4-1/2 (114.3)	0.180 (4.57)	Steel, mortise or surface
3, 1-1/2, 1, 3/4, 1/2, 1/3	4 (1.22)	8 (2.44)	4-1/2 (114.3)	0.134 (3.40)	Steel, mortise or surface
1-1/2, 3/4, 1/2, 1/3	3-1/16 (0.96)	8 (2.44)	6 (152.4)	0.225 (5.72)	Steel, olive knuckle or paumelle
3, 1-1/2, 1, 3/4, 1/2, 1/3	4 (1.22)	10 (3.05)	4 (101.6)	0.225 (5.72)	Steel pivots (including top, bottom, and intermediate)
1-1/2, 1, 3/4, 1/2, 1/3	3 (0.91)	5 (1.52)	4 (101.6)	0.130 (3.30)	Steel, mortise or surface
1-1/2, 1, 3/4, 1/2, 1/3	2 (0.61)	3 (0.91)	3 (76.2)	0.092 (2.34)	Steel, mortise or surface
3, 1-1/2, 1, 3/4, 1/2, 1/3	3 (0.91)	7 (2.13)	4-1/2 (114.3)	0.134 (3.40)	Steel, mortise or surface (labeled, self-closing, spring type)
3, 1-1/2, 1, 3/4, 1/2, 1/3	3 (0.91)	7 (2.13)	4 (101.6)	0.105 (2.67)	Steel, mortise or surface (labeled, self-closing, spring type)
For 1-3/8" (34.9 mm) doors					
3, 1-1/2, 3/4, 1/2, 1/3	3 (0.91)	7 (2.13)	3-1/2 (89.9)	0.123 (3.12)	Steel, mortise or surface
3, 1-1/2, 1, 3/4, 1/2, 1/3	2-2/3 (0.81)	7 (2.13)	3-1/2 (89.9)	0.105 (2.67)	Steel, mortise or surface (labeled, self-closing, spring type)

Notes:

1. All hinges or pivots, except spring hinges, shall be of the ball bearing type. Hinges or pivots employing other anti-friction bearing surfaces shall be permitted if they meet the requirements of ANSI A156.1, Standard for Butts and Hinges. Spring hinges shall be labeled and shall meet the requirements of ANSI A156.17, Standard for Self Closing Hinges and Pivots, Grade 1.

2. Heavy weight hinges 4-1/2" (114 mm) high, 0.180" (4.57 mm) thick shall be permitted for use on wide and heavy doors or doors that are subjected to heavy use or unusual stress.

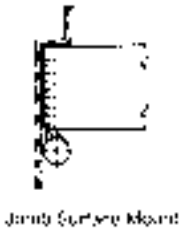
3. Some manufacturers can provide fire doors with hinges of lighter weight that are not of the ball bearing type where they are part of a listed assembly and meet the requirements of ANSI A156.1, Standard for Butts and Hinges, and have been tested to a minimum of 350,000 cycles.

4. Pivot sets made up of components that are smaller or of a lighter gauge than shown in this table shall be permitted to be used, provided they meet the requirements of ANSI A156.4, Door Controls (Closers) and are in accordance with the manufacturer's label service procedures.

Specialty Hinges

Spring

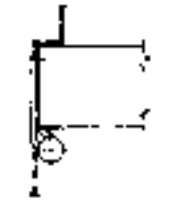
NFPA 80 has restricted the use of architectural grade spring hinges to fire-rated doors of a maximum size of 3’0” x 7’0” (914 mm x 2134 mm). Hager spring hinges have been tested and labeled for up to a 4’0” x 8’0” (1219 mm x 2438 mm) door when a minimum of three springs are used (four spring hinges required for doors 150 lbs. to 180 lbs.). Spring hinges must be used with ball bearing hinges. Do not use plain bearing hinges with spring hinges.



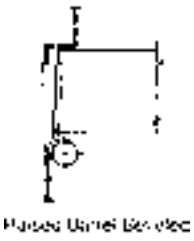
Jamb Surface Mount

Raised Barrel and Jamb Surface Mount

This option is used when the door is set back into the frame. The hinge knuckle is offset to allow it to clear the obstruction of the frame. There are three different types of applications:



On the **Jamb Surface Mount (JSM)** application, the door is double mortised to accommodate both hinge leaves; it is also referred to as double mortise. The Jamb Surface Mount may be applied to either a square or beveled edged door. For cased opening, sometimes referred as one leaf swagged flat.



The **Raised Barrel for Square Edged (RBS) and the Raised Barrel for Beveled Edged (RBB)** door applications are mortised into the frame and door as a standard full mortise hinge. Standard offset is 3/8” (10 mm). Depending on the depth of the frame, all three of these applications may restrict the degree of opening. Specify handing and door thickness.

Swing Clear

This is used when the passage area must be the full width of the opening. Swing clear hinges are designed to swing the door completely clear of the opening when the door is opened 95°. Assembled RH, reversible to LH. Can be ordered as LH.

Detention

Investment cast full mortise hinges (IHTHB953 Series) are the standard 4-1/2” x 4-1/2” (114 mm x 114 mm) size with a mortise depth of 0.187” (4.7 mm). These hinges can carry doors weighing up to 600 pounds.

Anchor

The anchor hinges are intended for use on heavy wood or hollow metal doors in high frequency applications such as hospitals, schools, and public use buildings. These hinges are especially designed for use on doors where additional hardware (door closers or holders) may cause excessive strain or abuse to the door, frame, and/or hinges.

Anchor plates may be attached to either the frame and/or door. This prevents the hinges from pulling loose on the door or the frame.

There are two variations of the reinforcing/anchor hinge: one has a single extension leaf which is mortised into the frame only; the second has two extension leaves. One leaf is mortised into the frame and the other leaf is mortised into the top edge of the door. It will be necessary to know if the doors are square edged or beveled edged.

Aluminum Entrance

A slip-in hinge, plain bearing or ball bearing, is used with aluminum doors and frames. These hinges are manufactured for low to average frequency and medium weight aluminum doors and frames.

1277 or BB1277 – Both leaves are drilled and tapped for insertion into a slot in the door and the frame.

1278 or BB1278 – One leaf has the standard template hole punch and countersinking and the other leaf is drilled and tapped for insertion into a slot in the door or frame.

DROP LEAF HINGES

BB1279
Ball Bearing - Standard Weight

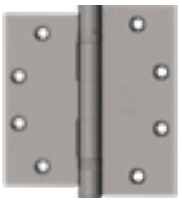
BB1168
Ball Bearing - Heavy Weight

- Drop leaf applied to door will lower the door away from the head 1/8”
- Adjustable to 1/16” drop by repositoning and removing one of the 1/16” spacers
- Non-rising removable pin with button tip and plug
- Handed. Non-reversible
- Also available 1/4” drop

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4-1/2	114 x 114	.134/.180	8	1/2 x 12-24	1-1/4 x 12

Note: Additional sizes and hinges available. Contact Hager Customer Service for information.

UNEQUAL LEAF HINGES



BB1279
Ball Bearing - Standard Weight

- Two ball bearings
- Steel with steel pin
- For use on medium doors requiring medium frequency service

BB1168
Ball Bearing - Heavy Weight

- Four ball bearings
- Steel with steel pin
- For use on heavy doors requiring high frequency service
- For use when door and frame have 4-1/2” and 5” cut-outs
- An equal amount of material is trimmed from the top and bottom leaf
- Two/Four ball bearings
- Non-rising removable pin with button tip and plug
- Handed. Right hand standard.
- Unequal top/bottom available. Contact Hager Customer Service for infomation

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
5 x 4-1/2	127 x 114	.134/.180	8	1/2 x 12-24	1-1/4 x 12

Note: Additional sizes and hinges available. Contact Hager Customer Service for information.

SHORT LEAF HINGES

BB1279
Ball Bearing - Standard Weight

- Two ball bearings
- Steel with steel pin
- For use on medium doors requiring medium frequency service

BB1191
Ball Bearing - Standard Weight

- Two ball bearings
- Brass with stainless steel pin or stainless steel with stainless steel pin
- For use on medium doors requiring medium frequency service

BB1168
Ball Bearing - Heavy Weight

- Four ball bearings
- Steel with steel pin
- For use on heavy weight doors requiring high frequency service

BB1199
Ball Bearing - Heavy Weight

- Four ball bearings
- Brass with stainless steel pin or stainless steel with stainless steel pin
- For use on heavy doors requiring high frequency service
- Short leaf applied to door will move the door 1/8” away from the stop. Reverse movement is accomplished by applying the short leaf to the frame.
- Non-rising removable pin with button tip and plug
- Handed. Right hand standard. Reversible to left hand.

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4-3/8	114 x 111	.134/.180	8	1/2 x 12-24	1-1/4 x 12

Electric Hinges

The electric hinge provides an easy means to monitor the opening as well as transferring power from the frame into the door.

Electric hinge modifications can be either exposed on the surface of the hinge or concealed in the hinge. When concealed, the modifications are not visible and normally go undetected by personnel using the openings.

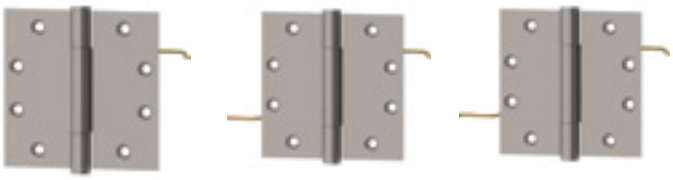
All of the Hager Companies electric hinges have been tested through UL in order that our products can be used on fire-rated or labeled openings.

Another important point to remember, an electrically modified hinge is for **low voltage power transfer only (48 volts or under)**. Higher voltages are not allowed because of the potential dangers. Also a consideration is the amperage rating of the power transfer hinges. Hager's 18 gauge wires are rated for 50 volts AC/DC at 10 amps continuous. The maximum inrush is 20 AMPS for 4 seconds per wire. Hager 28 gauge wires include amperage ratings of 3.5 AMPS/continuous duty and 16.0 AMPS/ intermittent duty (pulse).

Modifications are made to full mortise hinges. Swing Clear modifications are only available on heavy weight hinges. For other applications, consult Hager Engineering for availability.

It is recommended that the **CENTER HINGE LOCATION** be used with all electrically modified hinges.

Hager Companies recommends the use of a mortar box or jamb box in order to protect the wire terminations on the inside of the frame. If this box is not used, the grout that may be poured into the frame will destroy the wiring and usually void the warranty on the product.



EMN ETW ETM

Concealed Electric Hinge Modification

QUICK CONNECT HARNESS CABLES - available on ETW 4, 8, and 12 wire. Not available with 18 gauge wire.
Connectors installed on one end, pigtails on the other for easy installation in the field.

Part Number	Description
1-479-0007	3" Wire Harness Assembly
1-479-0008	6" Wire Harness Assembly
1-479-0012	12" Wire Harness Assembly
1-479-0026	26" Wire Harness Assembly
1-479-0032	32" Wire Harness Assembly
1-479-0038	38" Wire Harness Assembly
1-479-0044	44" Wire Harness Assembly
1-479-0400	50" Wire Harness Assembly
1-479-1500	15' 12 Wire Harness Assembly

Hinge Selector - Full Mortise & Half Mortise Hinges

Hinge Description	Full Mortise	Half Mortise
	Hollow Metal or Wood Door	Hollow Metal or Wood Door
	Hollow Metal or Wood Frame	Channel Iron Frame
Tri-Con Std. Wt. PB, Steel	700 AWS/AMS Variable	
Tri-Con Std. Wt. PB, Brass/Stainless Steel	800	
Tri-Con Std. Wt. AB, Steel	AB700 Limited sizes available	
Tri-Con Std. Wt. AB, Brass/Stainless Steel	AB800 Limited sizes available	
Tri-Con Hvy. Wt. AB, Steel	AB750 Limited sizes available	
Tri-Con Hvy. Wt. AB, Brass/Stainless Steel	AB850 Limited sizes available	
Spring Hinge Std. Wt., Steel	1250	
Std. Wt., PB, Steel	1279	1129
Std. Wt., PB, Brass/Stainless Steel	1191	
2BB, Std. Wt., Steel	BB1279	BB1129
2BB, Std. Wt., Brass/Stainless Steel	BB1191	
4BB, Hvy Wt., Steel	BB1168	BB1138 6 x 1-3/4 only
4BB, Hvy Wt., Brass/Stainless Steel	BB1199	
3K/5K Anchor Hinge Steel, One Prong	AB7505	
3K/5K Anchor Hinge Brass/Stainless Steel One Prong	AB8505	
3K/5K Anchor Hinge Steel, Two Prong, Square Edge Door	AB7506	
3K/5K Anchor Hinge Brass/Stainless Steel, Two Prong/Square Edge Door	AB8506	
3K/5K Anchor Hinge Steel/Two Prong, Beveled Edge Door	AB7508	
3K/5K Anchor Hinge Brass/Stainless Steel, Two Prong/Beveled Edge Door	AB8508/BB1196	
3K/5K Anchor Hinge Steel/One Long/One Short Prong/Square Edge Door	AB7507	
3K/5K Anchor Hinge Brass/Stainless Steel/One Long/One Short Prong/Square Edge Door	AB8507/BB1195	
3K/5K Anchor Hinge Steel/One Long/One Short Prong/Beveled Edge Door	AB7509	
3K/5K Anchor Hinge Brass/Stainless Steel/One Long/One Short Prong/Beveled Edge Door	AB8509/BB1197	
Bronze Pivot Hinge - Top	495	
Bronze Pivot Hinge - Intermediate	496	
Bronze Pivot Hinge - Bottom	497	
3K/5K Swing Clear/Std. Wt., BB Steel/Beveled Edge Door	AB7001/BB1260	
3K/5K Swing Clear/Std. Wt., BB Steel/Beveled Edge Door	AB7002/BB1261	
3K/5K Swing Clear/Hvy. Wt., BB Steel/Square Edge Door	AB7501/BB1262	
3K/5K Swing Clear/Hvy. Wt., BB Steel/ Beveled Edge Door	AB7502/BB1263	
3K/5K Swing Clear/Hvy. Wt., BB Steel		
3K/5K Std. Wt., PB, Wide Throw/Steel	700/1279	
3K/5K Std. Wt., PB, Wide Throw/Brass/Stainless Steel	800/1191	
3K/5K Std. Wt., AB, Wide Throw/Steel	AB700/BB1279	
3K/5K Std. Wt., AB, Wide Throw/Brass/Stainless Steel	AB800/BB1191	
3K/5K Hvy. Wt., AB, Wide Throw/Steel	AB750/BB1168	
3K/5K Hvy. Wt., AB, Wide Throw/Brass/Stainless Steel	AB850/BB1199	

For Hospital Tip, use prefix "HT" on above number. Hospital Tip hinges are available on all architectural hinges with the exception of anchor hinges.
Note: When ordering round corner hinges, please specify a radius of either 1/4" (6.4 mm) or 5/8" (15.9 mm). If radius is not specified, 1/4" (6.4 mm) will be supplied.
Note: For special requirements - In the event a particular hinge is not found to meet your requirements, please contact our Customer Service Department and provide Hager with the specific requirements. The Hager Technical Service Staff will prepare drawings for the appropriate application.

Hinge Selector - Full Surface & Half Surface Hinges

Hinge Description	Full Surface	Half Surface
	Composite or Tubular Steel Door	Composite or Wood Door
	Channel Iron Frame	Hollow Metal or Wood Frame
Tri-Con Std. Wt. PB, Steel		
Tri-Con Std. Wt. PB, Brass/Stainless Steel		
Tri-Con Std. Wt. AB, Steel		
Tri-Con Std. Wt. AB, Brass/Stainless Steel		
Tri-Con Hvy. Wt. AB, Steel		
Tri-Con Hvy. Wt. AB, Brass/Stainless Steel		
Spring Hinge Std. Wt., Steel		
Std. Wt., PB, Steel		1173
Std. Wt., PB, Brass/Stainless Steel		
2BB, Std. Wt., Steel	BB2171	BB1173
2BB, Std. Wt., Brass/Stainless Steel		BB2112
4BB, Hvy Wt., Steel	BB2168/BB2169	
4BB, Hvy Wt., Brass/Stainless Steel		
3K/5K Anchor Hinge Steel, One Prong		
3K/5K Anchor Hinge Brass/Stainless Steel One Prong		
3K/5K Anchor Hinge Steel, Two Prong, Square Edge Door		
3K/5K Anchor Hinge Brass/Stainless Steel, Two Prong/Square Edge Door		
3K/5K Anchor Hinge Steel/Two Prong, Beveled Edge Door		
3K/5K Anchor Hinge Brass/Stainless Steel, Two Prong/Beveled Edge Door		
3K/5K Anchor Hinge Steel/One Long/One Short Prong/Square Edge Door		
3K/5K Anchor Hinge Brass/Stainless Steel/One Long/One Short Prong/Square Edge Door		
3K/5K Anchor Hinge Steel/One Long/One Short Prong/Beveled Edge Door		
3K/5K Anchor Hinge Brass/Stainless Steel/One Long/One Short Prong/Beveled Edge Door		
Bronze Pivot Hinge - Top		
Bronze Pivot Hinge - Intermediate		
Bronze Pivot Hinge - Bottom		
3K/5K Swing Clear/Std. Wt., BB Steel/Beveled Edge Door		
3K/5K Swing Clear/Std. Wt., BB Steel/Beveled Edge Door		
3K/5K Swing Clear/Hvy. Wt., BB Steel/Square Edge Door		
3K/5K Swing Clear/Hvy. Wt., BB Steel/ Beveled Edge Door		
3K/5K Swing Clear/Hvy. Wt., BB Steel		
3K/5K Std. Wt., PB, Wide Throw/Steel		
3K/5K Std. Wt., PB, Wide Throw/Brass/Stainless Steel		
3K/5K Std. Wt., AB, Wide Throw/Steel		
3K/5K Std. Wt., AB, Wide Throw/Brass/Stainless Steel		
3K/5K Hvy. Wt., AB, Wide Throw/Steel		
3K/5K Hvy. Wt., AB, Wide Throw/Brass/Stainless Steel		

For Hospital Tip, use prefix "HT" on above number. Hospital Tip hinges are available on all architectural hinges with the exception of anchor hinges.
Note: When ordering round corner hinges, please specify a radius of either 1/4" (6.4 mm) or 5/8" (15.9 mm). If radius is not specified, 1/4" (6.4 mm) will be supplied.
Note: For special requirements - In the event a particular hinge is not found to meet your requirements, please contact our Customer Service Department and provide Hager with the specific requirements. The Hager Technical Service Staff will prepare drawings for the appropriate application.

Concealed Leaf - Full Mortise

TWO KNUCKLE HINGES

920
Plain Bearing - Standard Weight
Steel with steel pin (ANSI A8133)

AB920
Concealed Anti-Friction Bearing - Standard Weight
Steel with steel pin (ANSI A8112)

AB923
Concealed Anti-Friction Bearing - Standard Weight
- Brass with stainless steel pin (ANSI A2112) or stainless steel with stainless steel pin (ANSI A5112)
- Handed
- With door closer use ball bearing hinge or anti-friction
- For use on medium weight doors or doors requiring medium frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

THREE KNUCKLE HINGES

700
Plain Bearing - Standard Weight
Steel with steel pin

800
Plain Bearing - Standard Weight
- Brass with stainless steel pin or stainless steel with stainless steel pin
- Non-rising removable pin with flush pin and plug
- With door closer use ball bearing hinge
- For use on medium weight doors or doors requiring low frequency service

Limited sizes available

AB700
Concealed Anti-Friction Bearing - Standard Weight
Steel with steel pin

AB800 Some sizes & 5/8" radius
Concealed Anti-Friction Bearing - Standard Weight
- Brass with stainless steel pin or stainless steel with stainless steel pin
- Non-rising removable pin with flush pin and plug
- For use on medium weight doors or doors requiring medium frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
*3-1/2 x 3-1/2	89 x 89	0.119	6	1/2 x 10-24	1 x 9
*4 x 4	102 x 102	0.129	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12
5 x 4	127 x 102	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 5	127 x 127	0.145	8	1/2 x 12-24	1-1/4 x 12

* Not available on 800 or AB800

Full Mortise

THREE KNUCKLE HINGES

WTAB700
Concealed Anti-Friction Bearing - Standard Weight - Wide Throw
Steel with steel pin

WTAB800
Concealed Anti-Friction Bearing - Standard Weight - Wide Throw

- Brass with stainless steel pin or stainless steel with stainless steel pin
- For square edge doors. Consult Hager Tech Service for bevel application.
- Wide throw
- Non-rising removable pin with flush pin and plug
- For use on medium weight doors or doors requiring medium frequency service
- Note: Wide throw hinges will reduce the weight capacity. Consult Hager Tech Service.
- Limited sizes available

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 5	114 x 127	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 6	114 x 152	0.134	8	1/2 x 12-24	1-1/4 x 12

Note: Weight capacity diminishes the farther the pin is away from the door.
*Not available on AB700 & AB800

AB750
Concealed Anti-Friction Bearing - Heavy Weight
Steel with steel pin

AB850
Concealed Anti-Friction Bearing - Heavy Weight

- Brass with stainless steel pin or stainless steel with stainless steel pin
- Non-rising removable pin with flush pin and plug
- For use on heavy weight doors or doors requiring high frequency service
- Limited sizes available

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
*3-1/2 x 3-1/2	89 x 89	0.119	6	1/2 x 10-24	1 x 9
*4 x 4	102 x 102	0.129	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12
5 x 4	127 x 102	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 5	127 x 127	0.145	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.180	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.190	8	1/2 x 12-24	1-1/4 x 12
5 x 5	127 x 127	0.190	8	1/2 x 12-24	1-1/4 x 12
6 x 4-1/2	152 x 114	0.203	10	1/2 x 1/4-20	1-1/2 x 14
6 x 5	152 x 127	0.203	10	1/2 x 1/4-20	1-1/2 x 14
6 x 6	152 x 152	0.203	10	1/2 x 1/4-20	1-1/2 x 14

* Not available on 800 or AB800

THREE KNUCKLE HINGES

WTAB750

Concealed Anti-Friction Bearing - Heavy Weight - Wide Throw

Steel with steel pin

WTAB850

Concealed Anti-Friction Bearing - Heavy Weight - Wide Throw

- Brass with stainless steel pin or stainless steel with stainless steel pin
- Wide throw
- Non-rising removable pin with flush pin and plug
- For use on heavy weight doors or doors requiring high frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 5	114 x 127	0.180	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 6	114 x 152	0.180	8	1/2 x 12-24	1-1/4 x 12

FIVE KNUCKLE HINGES

1191

Plain Bearing - Standard Weight

Brass with stainless steel pin (ANSI A2133) or stainless steel with stainless steel pin (ANSI A5133)

1279

Plain Bearing - Standard Weight

- Steel with steel pin (ANSI A8133)
- Non-rising removable pin with button tip and plug
- Use ball bearing hinge when door closer is installed on door
- 3-1/2" x 3-1/2" (89 mm x 89 mm) available with reverse hole pattern
- For use on medium weight doors or doors requiring low frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
3-1/2 x 3-1/2	89 x 89	0.119	6	1/2 x 10-24	1 x 9
4 x 4	102 x 102	0.129	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12
5 x 4	127 x 102	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 5	127 x 127	0.145	8	1/2 x 12-24	1-1/4 x 12
6 x 4-1/2	152 x 114	0.160	10	1/2 x 1/4-20	1-1/2 x 14
6 x 5	152 x 127	0.160	10	1/2 x 1/4-20	1-1/2 x 14
6 x 6	152 x 152	0.160	10	1/2 x 1/4-20	1-1/2 x 14

Full Mortise

FIVE KNUCKLE HINGES

CB1191

Concealed Anti-Friction Bearing - Standard Weight

- Stainless steel with stainless steel pin (ANSI A5112) or brass
- Non-rising removable pin with button tip and plug

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4 x 4	102 x 102	0.129	8	-	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	-	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	-	1-1/4 x 12
5 x 4	127 x 102	0.145	8	-	1-1/4 x 12
5 x 4-1/2	127 x 114	0.145	8	-	1-1/4 x 12
5 x 5	127 x 127	0.145	8	-	1-1/4 x 12
6 x 4-1/2	152 x 114	0.160	10	-	1-1/2 x 14
6 x 5	152 x 127	0.160	10	-	1-1/2 x 14
6 x 6	152 x 152	0.160	10	-	1-1/2 x 14

CB1199

Concealed Anti-Friction Bearing - Heavy Weight

- Stainless steel with stainless steel pin (ANSI A5112) or brass
- Non-rising removable pin with button tip and plug

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4 x 4	102 x 102	0.129	8	-	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	-	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	-	1-1/4 x 12
5 x 4	127 x 102	0.145	8	-	1-1/4 x 12
5 x 4-1/2	127 x 114	0.145	8	-	1-1/4 x 12
5 x 5	127 x 127	0.145	8	-	1-1/4 x 12
6 x 4-1/2	152 x 114	0.160	10	-	1-1/2 x 14
6 x 5	152 x 127	0.160	10	-	1-1/2 x 14
6 x 6	152 x 152	0.160	10	-	1-1/2 x 14

FIVE KNUCKLE HINGES

BB1191
Ball Bearing - Standard Weight
Brass with stainless steel pin (ANSI A2112) or stainless steel with stainless steel pin (ANSI A5112)

BB1279
Ball Bearing - Standard Weight
- Steel with steel pin (ANSI A8112)
- Two ball bearings
- Non-rising removable pin with button tip and plug
- 3-1/2" x 3-1/2" (89 x 89 mm) BB1279 available with reversible hole pattern
- For use on medium weight doors or doors requiring medium frequency service

WTBB1191
Ball Bearing - Standard Weight - Wide Throw
Brass with stainless steel pin (ANSI A2112) or stainless steel with stainless steel pin (ANSI A5112)

WTBB1279
Ball Bearing - Standard Weight - Wide Throw
- Steel with steel pin (ANSI A8112)
- Wide throw
- Two ball bearings
- Non-rising removable pin with button tip and plug
- For use on medium weight doors or doors requiring medium frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
3-1/2 x 3-1/2	89 x 89	0.119	6	1/2 x 10-24	1 x 9
4 x 3-1/2	102 x 89	0.129	8	1/2 x 10-24	1-1/4 x 12
4 x 4	102 x 102	0.129	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12
5 x 4	127 x 102	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 5	127 x 127	0.145	8	1/2 x 12-24	1-1/4 x 12
6 x 4-1/2	152 x 114	0.160	10	1/2 x 1/4-20	1-1/2 x 14
6 x 5	152 x 127	0.160	10	1/2 x 1/4-20	1-1/2 x 14
6 x 6	152 x 152	0.160	10	1/2 x 1/4-20	1-1/2 x 14

Note: Optional concealed bearings available, see page 5 for options.

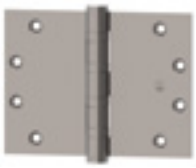
Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
3-1/2 x 5	89 x 127	0.119	6	1/2 x 10-24	1 x 9
3-1/2 x 6	89 x 152	0.119	6	1/2 x 10-24	1 x 9
4 x 5	102 x 127	0.129	8	1/2 x 12-24	1-1/4 x 12
4 x 6	102 x 152	0.129	8	1/2 x 12-24	1-1/4 x 12
4 x 7	102 x 178	0.129	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 5	114 x 127	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 6	114 x 152	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 7	114 x 178	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 8	114 x 203	0.134	8	1/2 x 12-24	1-1/4 x 12
5 x 6	127 x 152	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 7	127 x 178	0.145	8	1/2 x 12-24	1-1/4 x 12
5 x 8	127 x 203	0.145	8	1/2 x 12-24	1-1/4 x 12

Full Mortise

FIVE KNUCKLE HINGES

BB1168
Ball Bearing - Heavy Weight
Steel with steel pin (ANSI A8111)

BB1199
Ball Bearing - Heavy Weight
- Brass with stainless steel pin (ANSI A2111) or stainless steel with stainless steel pin (ANSI A5111)
- Four ball bearings
- Non-rising removable pin with button tip and plug
- For use on heavy weight doors or doors requiring high frequency service



WTBB1168
Ball Bearing - Heavy Weight - Wide Throw
Steel with steel pin (ANSI A8111)

WTBB1199
Ball Bearing - Heavy Weight - Wide Throw
- Brass with stainless steel pin (ANSI A2111) or stainless steel with stainless steel pin (ANSI A5111)
- Wide throw
- Four ball bearings
- Non-rising removable pin with button tip and plug
- For use on heavy weight doors or doors requiring high frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4	114 x 102	0.180	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.180	8	1/2 x 12-24	1-1/4 x 12
5 x 4	127 x 102	0.190	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.190	8	1/2 x 12-24	1-1/4 x 12
5 x 5	127 x 127	0.190	8	1/2 x 12-24	1-1/4 x 12
6 x 4-1/2	152 x 114	0.203	10	1/2 x 1/4-20	1-1/2 x 14
6 x 5	152 x 127	0.203	10	1/2 x 1/4-20	1-1/2 x 14
6 x 6	152 x 152	0.203	10	1/2 x 1/4-20	1-1/2 x 14
8 x 6	203 x 152	0.203	16	1/2 x 1/4-20	1-1/2 x 14
8 x 8	203 x 203	0.203	16	1/2 x 1/4-20	1-1/2 x 14

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 5	114 x 127	0.180	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 6	114 x 152	0.180	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 7	114 x 178	0.180	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 8	114 x 203	0.180	8	1/2 x 12-24	1-1/4 x 12
5 x 6	127 x 152	0.190	8	1/2 x 12-24	1-1/4 x 12
5 x 7	127 x 178	0.190	8	1/2 x 12-24	1-1/4 x 12
5 x 8	127 x 203	0.190	8	1/2 x 12-24	1-1/4 x 12

Note: Optional concealed bearings available, see page 5 for options.

CONCEALED ELECTRIC MODIFICATIONS

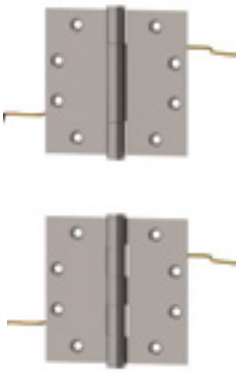
The following concealed electric modifications are available on our architectural grade ball bearing and anti-friction bearing hinges. To order a hinge with concealed electric modification, please add the modification code to the product number (for example, BB1279 EMN).

EMN

Electric Monitor Only

- Three or five knuckle
- Available on architectural grade ball bearing and anti-friction bearing
- Available in steel, brass, or stainless steel
- 28 gauge wire standard
- Standard size available 4" (102 mm) through 8" (203 mm)
- Cross-pinning standard and provides NRP function
- Monitoring capability only
- Concealed subminiature snap action, SPDT switch
- Adjustment feature for a wide range of switch sensitivity
- Preset switching circuit
- For open loop secure, closed loop secure or single pole double throw (SPDT)

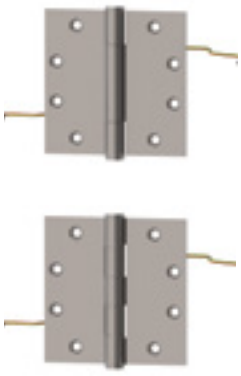
Switch Maximum Electrical Rating
30 VDC @ .500 amps



ETM

Electric Through-Wire with Monitoring

- Three or five knuckle
- Available on architectural grade ball bearing and anti-friction bearing
- Available in steel, brass, or stainless steel
- 18 and 28 gauge wire
- Standard size available 4" (102 mm) through 8" (203 mm)
- Cross-pinning standard and provides NRP function
- Both continuous electric conductors and monitoring capability
- Concealed monitor switch and 4, 8 or 10 continuous electrical conductors
- Adjustment feature for a wide range of switch sensitivity
- For open loop secure, closed loop secure or single pole double throw (SPDT)



*ETW

Electric Through-Wire Only

- Two, three or five knuckle
- Available on architectural grade ball bearing and anti-friction bearing
- Available in steel, brass, or stainless steel
- 18 and 28 gauge wire
- Standard size available 4" (102 mm) through 8" (203 mm)
- Cross-pinning standard and provides NRP function
- Low voltage electric current transfer capability only
- 4, 8, or 12 continuous electrical conductors
- For 6 wire, use 8
- For 10 wire, use 12

Wire Maximum Electrical Rating	
Volts	Amperes
48 VDC	3.5 amps CONTINUOUS 16.0 amps PULSE

Contact Maximum Electrical Rating	
Volts	Amperes
48 VDC	3.5 amps CONTINUOUS 16.0 amps PULSE
Switch Maximum Electrical Rating	
30 VDC @ .500 amps	

***Quick Connect Option (QC) available with all ETW and ETM hinges - must specify.**

Full Mortise - Concealed Electric

430

Mortar Box

- Galvanized steel 0.040 (1 mm)
- Dimensions - 9" (2.29 mm) length with tabs, 7" (1.78 mm) inside, 1-3/4" x 1-3/4" (45 mm x 45 mm) inside dimension
- Removable back for servicing
- Serves as mortar shield
- Top and bottom knockouts for standard conduit fittings
- Fits hinge reinforcements for 4-1/2" (114 mm) or 5" (127 mm) architectural grade hinges

SINGLE ACTING

The following single acting spring hinges are for automatic closing of doors, please note:

- 1150 is not available in 3-1/2" x 3-1/2" (89 mm x 89 mm) and 4" x 4" (102 mm x 102 mm) sizes.
- 1250 is available with raised barrel for square edge or beveled doors.
- 1250 UL approved for use on doors up to 4' 0" x 8' 0" (1219 mm x 2438 mm) doors. 3 springs/one BB/anti-friction bearing for 8' door.
- For use on 1-3/4" (45 mm) thick doors
- UL approved for use on doors 4'0" x 8'0", but Hager does not recommend using spring hinges on doors over 7'0" in favor of hydraulic door closers.
- For maximum versatility use all spring hinges or a combination of spring hinges and ball bearing or anti-friction hinges. Do not use plain bearing hinges. Strong wind conditions, drafts, carpeting drag, twisted/misaligned frames, or weatherstripping on doors may require additional spring hinges. Full spring tension may not be required on all hinges.
- Doors over 3'0" x 7'0" or over 100 lbs. require three spring hinges. Doors 150-180 lbs. require four spring hinges.

Note: Hager does not recommend using spring hinges on doors over 7'0".

1150
Square Corner
Stainless steel with stainless steel components (ANSI K51071F)

1250
Square Corner
Steel with steel components (ANSI K81071F)

1251
1/4" Radius
Steel with steel components (ANSI K81071F)

1252
5/8" Radius
Steel with steel components (ANSI K81071F)

1255
Square Corner Set
Steel with steel components (ANSI K81071F)
Two (2) each 1250 and one (1) each AB700

1256
Square Corner Set
Steel with steel components (ANSI K81071F)
Two (2) each 1250 and one (1) each BB1279

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
3-1/2 x 3-1/2	89 x 89	0.134	6	1/2 x 10-24	1 x 9
4 x 4	102 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

Series	Size	Recommended Max Door Weight (lbs)	Spring Hinge	Ball Bearing Hinge
For use on 1-3/8" (35 mm) door				
1250, 1251, 1252	3-1/2 x 3-1/2	40	1	2
1250, 1251, 1252	3-1/2 x 3-1/2	70	2	1
1250, 1251, 1252	3-1/2 x 3-1/2	90	3	-
For use on 1-3/4" (45 mm) door				
1250, 1251, 1252	4 x 4	60	1	2
1250, 1251, 1252	4 x 4	85	2	1
1250, 1251, 1252	4 x 4	110	3	-
1150	4-1/2 x 4, 4-1/2 x 4-1/2	70	1	2
1150	4-1/2 x 4, 4-1/2 x 4-1/2	115	2	1
1150	4-1/2 x 4, 4-1/2 x 4-1/2	150	3	-
1250, 1251, 1252	4-1/2 x 4, 4-1/2 x 4-1/2	70	1	2
1250, 1251, 1252	4-1/2 x 4, 4-1/2 x 4-1/2	115	2	1
1250, 1251, 1252	4-1/2 x 4, 4-1/2 x 4-1/2	150	3	-
1255	4-1/2 x 4-1/2	115	2	1
1256	4-1/2 x 4-1/2	115	2	1

Full Mortise - Spring

REVERSE ACTION - SINGLE ACTING

The following reverse action, single acting spring hinges are for automatic opening of door, please note:

- For use on 1-3/4" (45 mm) thick doors
- UL approved for use on doors 4'0" x 8'0", but Hager does not recommend using spring hinges on doors over 7'0" in favor of hydraulic door closers.
- For maximum versatility use all spring hinges or a combination of spring hinges and ball bearing or anti-friction hinges. Do not use plain bearing hinges. Strong wind conditions, drafts, carpeting drag, twisted/misaligned frames, or weatherstripping on doors may require additional spring hinges. Full spring tension may not be required on all hinges.
- Doors over 3'0" x 7'0" or over 100 lbs. require three spring hinges. Doors 150-180 lbs. require four spring hinges.

Note: Hager does not recommend using spring hinges on doors over 7'0".

1257
Square Corner
Steel (ANSI K81071)

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

Size	Recommended Max Door Weight (lbs)	Spring Hinge	Ball Bearing Hinge
For use on 1-3/4" (45 mm) door			
4-1/2 x 4, 4-1/2 x 4-1/2	70	1	2
4-1/2 x 4, 4-1/2 x 4-1/2	115	2	1
4-1/2 x 4, 4-1/2 x 4-1/2	150	3	-

SWING CLEAR

The following swing clear spring hinge is for automatic closing of door. It provides the features of both a swing clear hinge and a spring hinge. It meets codes for hotels, motels, institutions, and commercial buildings. Please note:

- For use on 1-3/4" (45 mm) thick doors
- UL approved for use on doors 4'0" x 8'0", but Hager does not recommend using spring hinges on doors over 7'0" in favor of hydraulic door closers.
- For maximum versatility use all spring hinges or a combination of spring hinges and ball bearing or anti-friction hinges. Do not use plain bearing hinges. Strong wind conditions, drafts, carpeting drag, twisted/misaligned frames, or weatherstripping on doors may require additional spring hinges. Full spring tension may not be required on all hinges.
- Doors over 3'0" x 7'0" or over 100 lbs. require three spring hinges. Doors 150-180 lbs. require four spring hinges.

Note: Hager does not recommend using spring hinges on doors over 7'0".

1267
Square Corner

- Steel with steel components (ANSI K81071F)
- For square edge door. Use in conjuction with AB7001 or BB1260

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

FIVE KNUCKLE

EC1100 | EC1100NRP
Plain Bearing - Standard Weight
Steel with steel pin (ANSI A8133)

EC1101
Plain Bearing - Standard Weight
- Stainless steel with stainless steel pin (ANSI A5133) or brass with stainless steel pin (ANSI A2133)
- Non-rising removable pin with button tip and plug
- Use ball bearing hinge when a door closer is installed on the door
- For use on medium weight doors or doors requiring low frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

ECRC1100
Plain Bearing - Standard Weight
- Steel with steel pin (ANSI A8133)
- Non-rising removable pin with button tip and plug
- Use ball bearing hinge when a door closer is installed on the door• Round corner with 1/4" (6 mm) radius standard
- For use on medium weight doors or doors requiring low frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4 x 4	102 x 102	0.129	8	1/2 x 12-24	1-1/4 x 12

ECBB1100 | ECBB1100NRP
Ball Bearing - Standard Weight
Steel with steel pin (ANSI A8112)

ECBB1101 | ECBB1101NRP
Ball Bearing - Standard Weight
- Brass with stainless steel pin (ANSI A2112) or 304 stainless steel with stainless steel pin (ANSI A5112)
- Two ball bearings
- Non-rising removable pin with button tip and plug
- ECBB1101 and ECBB1101NRP only available in 4-1/2" x 4-1/2" (114 mm x 114 mm)
- For use on medium weight doors or doors requiring medium frequency service
- 304 stainless steel standard
- **316 stainless steel available**

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

ECRCBB1100
Ball Bearing - Standard Weight
- Steel with steel pin (ANSI A8112)
- Two ball bearings
- Non-rising removable pin with button tip and plug
- Round corner with 1/4" (6 mm) radius standard
- For use on medium weight doors or doors requiring medium frequency service

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4 x 4	102 x 102	0.129	8	1/2 x 12-24	1-1/4 x 12

Full Mortise - Ecco

FIVE KNUCKLE

ECBB1102 | ECBB1102NRP
Ball Bearing - Heavy Weight
Steel with steel pin (ANSI A8111)

ECBB1103 | ECBB1103NRP
Ball Bearing - Heavy Weight

- Brass with stainless steel pin (ANSI A2111) or 304 stainless steel with stainless steel pin (ANSI A5111)
- Four (4) ball bearings
- Non-rising removable pin with flush pin and plug
- ECBB1102NRP and ECBB1103NRP are the same as ECBB1102 and ECBB1103, but with a non-removable pin
- For use on heavy weight doors or doors requiring high frequency service
- 304 stainless steel standard
- **316 stainless steel available**
- **No US26D finish available**
- **ECBB1101 available with AWS only**

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4-1/2	114 x 114	0.180	8	1/2 x 12-24	1-1/4 x 12
5 x 4-1/2	127 x 114	0.190	8	1/2 x 12-24	1-1/4 x 12

SPRING HINGE

The following ECCO single acting spring hinge is for automatic closing of door. Please note:

- For use on 1-3/4" (45 mm) thick doors
- UL approved for use on doors 4'0" x 8'0", but Hager does not recommend using spring hinges on doors over 7'0" in favor of hydraulic door closers.
- For maximum versatility use all spring hinges or a combination of spring hinges and ball bearing or anti-friction hinges. Do not use plain bearing hinges. Strong wind conditions, drafts, carpeting drag, twisted/misaligned frames, or weatherstripping on doors may require additional spring hinges. Full spring tension may not be required on all hinges.
- Doors over 3'0" x 7'0" or over 100 lbs. require three spring hinges. Doors 150-180 lbs. require four spring hinges.

EC1105
Square Corner
Steel (ANSI K81071F)

Note: the 4.5" x 4" size is only available in US26D.

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

Size	Recommended Max Door Weight (lbs)	Spring Hinge	Ball Bearing Hinge
4-1/2 x 4, 4-1/2 x 4-1/2	70	1	2
4-1/2 x 4, 4-1/2 x 4-1/2	115	2	1
4-1/2 x 4, 4-1/2 x 4-1/2	150	3	-

FIVE KNUCKLE HINGES

1129
Plain Bearing - Standard Weight
- Steel with steel pin (ANSI A8233)
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaf
- Not for use with door closer
- For use on medium weight hollow metal doors with channel iron frames requiring low frequency service
- Available in limited finishes

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.134	7	1/2 x 12-24 FH	1/2 x 12-24 OH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Jamb Leaf Offset "C"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm
4-1/2	114	2	51	1-1/2	38	3/8	10

BB1109
Ball Bearing - Standard Weight
Brass with stainless steel pin (ANSI A2212) or stainless steel with stainless steel pin (ANSI A5212)

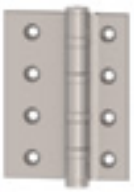
BB1129
Ball Bearing - Standard Weight
- Steel with steel pin (ANSI A8212)
- Two ball bearings
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaf
- For use on medium weight hollow metal doors with channel iron frames requiring medium frequency service

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.134	7	1/2 x 12-24 FH	1/2 x 12-24 OH
5	127	0.145	8	1/2 x 12-24 FH	1/2 x 12-24 OH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Jamb Leaf Offset "C"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm
4-1/2	114	2	51	1-1/2	38	3/8	10
5	127	2	51	1-1/2	38	3/8	10

Full Surface

FIVE KNUCKLE HINGES



BB2168

Ball Bearing - Heavy Weight

Steel with steel pin (ANSI A8361)

- Four ball bearings
- Thru-bolts and grommets for wood door applications
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaves
- For use on tubular steel doors with channel iron frames requiring high frequency service

BB2169

Ball Bearing - Heavy Weight

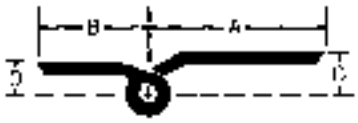
Steel with steel pin (ANSI A8311)

- Four ball bearings
- Thru-bolts and grommets for wood door applications
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaves
- For use on heavy hollow metal or wood composite doors with channel iron frames requiring high frequency service

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.180	8	2 x 1/4-20 OH	1/2 x 1/4-20 OH
5	127	0.190	8	2 x 1/4-20 OH	1/2 x 1/4-20 OH
6+	152	0.203* 0.190*	8	2 x 1/4-20 OH	1/2 x 1/4-20 OH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Jamb Leaf Offset "C"		Jamb Leaf Offset "D"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4-1/2	114	2	51	1-1/2	38	9/16	14	7/16	11
5	127	2-5/16	59	1-1/2	38	9/16	14	7/16	11
6+	152	2-3/8	60	1-1/2	38	5/8	15	1/2	12.5

+ Door thickness must be specified.
* 0.203 for brass and steel. 0.190 for stainless steel.



Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.180	8	1/4 - 20 x 2" OH	12 - 24 x 1/2" OH
5	127	0.190	8	1/4 x 20 x 2" OH	12 - 24 x 1/2" OH
6+	152	0.203* 0.190*	9	1/4 - 20 x 2" OH	1/4 - 20 x 1/2" OH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Jamb Leaf Offset "C"		Jamb Leaf Offset "D"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4-1/2	114	2-9/16	65	1-1/2	38	9/16	14	7/16	11
5	127	2-7/8	73	1-1/2	38	9/16	14	7/16	11
6+	152	3-1/4	83	1-1/2	38	5/8	15	1/2	12.5

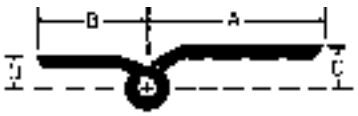
+ Door thickness must be specified.
* 0.203 for brass and steel. 0.190 for stainless steel.

FIVE KNUCKLE HINGES

BB2171
Ball Bearing - Standard Weight
- Steel with steel pin (ANSI A8312)
- Two ball bearings
- Thru-bolts and grommets for wood door applications
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaves
- For use on medium weight hollow metal or wood composite doors with channel iron frames requiring medium frequency service

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.134	6	2 x 1/4-20 OH	1/2 x 12-24 OH
5	127	0.145	8	2 x 1/4-20 OH	1/2 x 12-24 OH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Jamb Leaf Offset "C"		Jamb Leaf Offset "D"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4-1/2	114	2-9/16	65	1-1/2	38	1/2	12.5	3/8	10
5	127	2-7/8	73	1-1/2	38	1/2	12.5	3/8	10



WELDING HINGES

1850-LP
Loose Oval Head Pin Plain Bearing - Heavy Weight
- Steel with steel pin
- Flat surface with no swage
- No holes
- Square corners
- Loose pin

Hinge Size		Gauge of Metal	Pin Diameter	Recommended Max Door Weight (lbs)
Inches	mm			
6 x 6	152 x 152	0.203	0.500	230

WELDING HINGES

1850
Riveted Pin Plain Bearing - Heavy Weight
- Steel with steel pin
- Flat surface with no swage
- No holes
- Square corners
- Fast riveted pin
- Manufactured with no holes and can easily be welded onto gates, dumpsters, and industrial applications such as bins or warehouse doors

Hinge Size		Gauge of Metal	Pin Diameter	Recommended Max Door Weight (lbs)
Inches	mm			
4 x 4	102 x 102	0.179	0.312	150
4-1/2 x 4-1/2	114 x 114	0.179	0.322	150
5 x 5	127 x 127	0.179	0.322	175
6 x 6	152 x 152	0.203	0.500	230
1850 6 x 6 LP (Loose Oval Pin)				

Hinge Size		Door Thickness	Max Door Width
Inches	mm		
4 x 4	102 x 102	1-3/8" (35 mm) to 1-3/4" (45 mm)	36" (91 cm)
4-1/2 x 4-1/2	114 x 114	1-3/4" (45 mm) to 2" (51 mm)	36" (91 cm)
5 x 5	127 x 127	1-3/4" (45 mm) to 2-1/2" (64 mm)	42" (107 cm)
6 x 6	152 x 152	1-3/4" (45 mm) to 2-1/2" (64 mm)	48" (122 cm)
1850 6 x 6 LP (Loose Oval Pin)			

SPRING HINGES

1303
Double Acting
- Steel (ANSI K81041)
- Adjustable
- Wood doors only

Product	Hinge Size		3 Hinges Max Door Weight	3 Hinges Max Door Width
	Inches	mm		
1303-3	3	76	35 lbs	2'-8"
1303-4	4	102	75 lbs	3'
1303-5	5	127	90 lbs	3'
1303-6	6	152	100 lbs	3'

Product	Min Door Thickness	Min Door Height	Wood Screw
1303-3	3/4" - 1"	5'-0"	6 x (#6 x 3/4" FPH WS)
1303-4	7/8" - 1-1/4"	6'-8"	8 x (#6 x 3/4" FPH WS)
1303-5	1-1/8" - 1-1/2"	6'-8"	10 x (#8 x 1-1/4" FPH WS)
1303-6	1-1/4" - 1-3/4"	7'-0"	10 x (#10 x 1-1/4" FPH WS)

Half Surface

FIVE KNUCKLE HINGES

1173

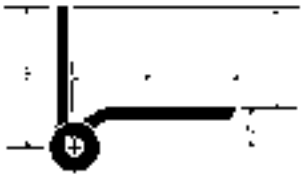
Plain Bearing - Standard Weight

- Steel with steel pin (ANSI A8433)
- Thru-bolts and grommets for wood door applications
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaf
- For use on regular weight hollow metal or wood composite doors with hollow metal frames requiring low frequency service

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
3-1/2*	89	0.119	6	1-3/4 x 10-24 OH	1/2 x 10-24 FH
4*	102	0.129	7	2 x 1/4-20 OH	1/2 x 12-24 FH
4-1/2	114	0.134	7	2 x 1/4-20 OH	1/2 x 12-24 FH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Jamb Leaf Offset "C"		Application "D"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
3-1/2*	89	1-5/8	41	1-9/16	31	7/16	11.5	1-1/16	27
4*	102	2-5/16	59	1-13/16	46	1/2	13	1-5/16	33
4-1/2	114	2-9/16	65	2	51	1/2	12.5	1-1/2	38

* For 1-3/8" door



FIVE KNUCKLE HINGES

BB1173
Ball Bearing - Standard Weight

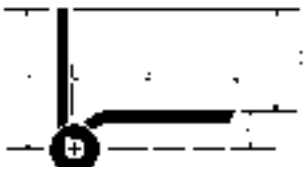
Steel with steel pin (ANSI A8412)

BB2112
Ball Bearing - Standard Weight

- Brass with stainless steel pin (ANSI A2412) or stainless steel with stainless steel pin (ANSI A5412)
- Two ball bearings
- Thru-bolts and grommets for wood door applications
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaf
- For use on regular weight hollow metal or wood composite doors with hollow metal frames requiring medium frequency service
- 4" is for 1-3/8" door. 4" for 1-3/4" door is available. Consult Hager Tech department.

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4*	102	0.129	7	2 x 1/4-20 OH	1/2 x 12-24 FH
4-1/2	114	0.134	7	2 x 1/4-20 OH	1/2 x 12-24 FH
5	127	0.145	8	2 x 1/4-20 OH	1/2 x 12-20 FH

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Door Leaf Offset "C"		Application "D"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4*	102	2-5/16	59	1-13/16	46	1/2	13	1-5/16	33
4-1/2	114	2-9/16	65	2	51	1/2	12.5	1-1/2	38
5	127	2-7/8	73	2	51	1/2	12.5	1-1/2	38



SPRING HINGES

1253
Single Acting

- Steel (ANSI K81081F)
- Thru-bolts and grommets for wood door applications
- For use on 1-3/4" (45 mm) thick doors
- UL approved for use on doors 4'0" x 8'0", but Hager does not recommend using spring hinges on doors over 7'0" in favor of hydraulic door closers.
- For maximum versatility use all spring hinges or a combination of spring hinges and ball bearing or anti-friction hinges. Do not use plain bearing hinges. Strong wind conditions, drafts, carpeting drag, twisted/misaligned frames, or weatherstripping on doors may require additional spring hinges. Full spring tension may not be required on all hinges.
- Doors over 3'0" x 7'0" or over 100 lbs. require three spring hinges. Doors 150-180 lbs. require four spring hinges.

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.134	7	2 x 1/4-20 with grommet nuts	1/2 x 12-24

Hinge Size		Door Leaf Width "A"		Jamb Leaf Width "B"		Door Leaf Offset "C"		Application "D"	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4-1/2	114	2-9/16	65	2	52	1/2	14	1-1/2	38

Hinge Size		Recommended Max Door Weight		Spring Hinge	Ball Bearing Hinge	Spring Hinge Location
Inches	mm	lbs	kg			
4-1/2	114	70	32	1	2	Center
4-1/2	114	115	52	2	1	Top or Bottom
4-1/2	114	150	68	3	-	All

Aluminum Entrance - Slip In Hinges

FIVE KNUCKLE

The following hinges are for use on aluminum doors with aluminum frames. They are applied by inserting the hinge leaves through a slot in the door or frame. These hinges:

- Have a non-rising removable pin with button tip and plug
- Are handed
- Use ball bearings when door closers are installed on doors

BB1277
Ball Bearing - Standard Weight
Both Leaves Tapped
Steel with steel pin
[ANSI A8142, 5/16" (8 mm) Swag]

BB1278
Ball Bearing - Standard Weight
One Leaf Tapped
Steel with steel pin
[ANSI A8152, 3/16" (5 mm) Swag]

BB1577
Ball Bearing - Standard Weight
Both Leaves Tapped
Brass with stainless steel pin
[ANSI A2142, 5/16" (8 mm) Swag] or
stainless steel with stainless steel pin
[ANSI A5142, 5/16" (8 mm) Swag]

BB1578
Ball Bearing - Standard Weight
One Leaf Tapped
Brass with stainless steel pin
[ANSI A2152, 3/16" (5 mm) Swag] or
stainless steel with stainless steel pin
[ANSI A5142, 3/16" (5 mm) Swag]

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1-1/4 x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2 x 12-24	1-1/4 x 12

4-1/2 x 3-1/4 - see template T-209 on Hager website - www.hagerco.com.

THREE KNUCKLE HINGES

AB7001 | AB7002

Full Mortise - Concealed Anti-Friction Bearing - Standard Weight

- Steel with steel pin (ANSI A8122)
- Non-rising removable pin with flush pin and plug
- Reversible
- When opened 90º, door projects 3/32" (2 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- AB7001 is for square edge doors and AB7002 is for beveled edge doors
- Assembled RH - Reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2	114	0.139	8	1/2 x 12-24 FH	1-1/4 x 12 FH
5	127	0.139	8	1/2 x 12-24 FH	1-1/4 x 12 FH

AB7501 | AB7502

Full Mortise - Concealed Anti-Friction Bearing - Heavy Weight

- Steel with steel pin (ANSI A8121)
- Non-rising removable pin with flush pin and plug
- Reversible
- When opened 90º, door projects 11/64" (4 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- AB7501 is for square edge doors and AB7502 is for beveled edge doors
- Assembled RH - Reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2	114	0.187	8	1/2 x 12-24 FH	1-1/4 x 12 FH
5	127	0.187	8	1/2 x 12-24 FH	1-1/4 x 12 FH

Swing Clear

FIVE KNUCKLE HINGES

1260 | 1261

Full Mortise - Plain Bearing - Standard Weight

- Steel with steel pin (ANSI A8123)
- Non-rising removable pin with button tip and plug
- Reversible
- When opened 90º, door projects 9/64" (4 mm) past stop of jamb for 3-1/2" hinge and 3/16" (5 mm) past stop of jamb for 4" hinge
- For residential and commercial use
- 1260 is for square edge doors and 1261 is for beveled edge doors
- Assembled RH - reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
3-1/2	89	0.119	6	1/2 x 10-24 FH	1 x 9 FH
4	102	0.129	8	1/2 x 12-24 FH	1-1/4 x 12 FH

BB1262 | BB1263

Full Mortise - Ball Bearing - Heavy Weight

- Steel with steel pin (ANSI A8121)
- Four ball bearings
- Non-rising removable pin with button tip and plug
- Reversible
- When opened 90º, door projects 11/64" (4 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- BB1262 is for square edge doors and BB1263 is for beveled edge doors
- Assembled RH - reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2	114	0.180	8	1/2 x 12-24 FH	1-1/4 x 12 FH
5	127	0.190	8	1/2 x 12-24 FH	1-1/4 x 12 FH

BB1260 | BB1261

Full Mortise - Ball Bearing - Standard Weight

- Steel with steel pin (ANSI A8122)
- Two ball bearings
- Non-rising removable pin with button tip and plug
- Reversible
- When opened 90º, door projects 3/32" (2 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- BB1260 is for square edge doors and BB1261 is for beveled edge doors
- Assembled RH - reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2	114	0.134	8	1/2 x 12-24 FH	1-1/4 x 12 FH
5	127	0.145	8	1/2 x 12-24 FH	1-1/4 x 12 FH

BB1360 | BB1361

Full Mortise - Ball Bearing - Standard Weight

- Stainless steel with stainless steel pin (ANSI A5122)
- Two ball bearings
- Non-rising removable pin with button tip and plug
- Reversible
- When opened 90º, door projects 3/32" (2 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- BB1360 is for square edge doors and BB1361 is for beveled edge doors
- Assembled RH - reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
4-1/2	114	0.134	8	1/2 x 12-24 FH	1-1/4 x 12 FH
5	127	0.145	8	1/2 x 12-24 FH	1-1/4 x 12 FH

FIVE KNUCKLE HINGES

BB1362 | BB1363

Full Mortise - Ball Bearing - Heavy Weight

- Stainless steel with stainless steel pin (ANSI A5121)
- Four ball bearings
- Non-rising removable pin with button tip and plug
- Reversible
- When opened 90º, door projects 11/64" (4 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- BB1362 is for square edge doors and BB1363 is for beveled edge doors
- Assembled RH - reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
4-1/2	114	0.180	8	1/2 x 12-24 FH	1-1/4 x 12 FH
5	127	0.190	8	1/2 x 12-24 FH	1-1/4 x 12 FH

BB1266

Full Surface - Ball Bearing - Heavy Weight

- Steel with stainless steel pin (ANSI A8321)
- Four ball bearings
- Non-rising removable pin with button tip and plug
- Reversible
- Beveled surface leaves
- When opened 90º, door projects 11/64" (4 mm) past stop of jamb
- For use in hospitals or other institutional type buildings
- Assembled RH - reversible to LH

Hinge Size		Gauge of Metal	Hole Count	Machine Screw Size	
Inches	mm			Door Leaf	Jamb Leaf
5	127	0.187	9	2 x 1/4-20 FH	1/2 x 1/4-20 FH

THREE KNUCKLE HINGES

AB7505
Concealed Anti-Friction Bearing - Heavy Weight
Steel with steel pin (ANSI A8551)

AB8505
Concealed Anti-Friction Bearing - Heavy Weight
- Brass with stainless steel pin (ANSI A2511) or stainless steel with stainless steel pin (ANSI A5511)
- Non-removable pin standard with flush pin and plug
- Handed
- One anchor leaf (frame)
- Must be used with one pair of heavy weight, full mortise hinges (AB750 or AB850) - sold separately
- For use on heavy weight doors receiving high frequency use

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
5 x 4-1/2	127 x 114	0.190	12	1/2 x 12-24	1-1/4 x 12

AB7506 | AB7508
Concealed Anti-Friction Bearing - Heavy Weight
Steel with steel pin (ANSI A8551)

AB8506 | AB8508
Concealed Anti-Friction Bearing - Heavy Weight
- Brass with stainless steel pin (ANSI A2551) or stainless steel with stainless steel pin (ANSI A5551)
- Non-removable pin standard with flush pin and plug
- Handed
- Two anchor leaves
- Must be used with one pair of heavy weight, full mortise hinges (AB750 or AB850) - sold separately
- For use on heavy weight doors receiving high frequency use
- AB7506 is for square edge doors and AB7508 is for beveled edge doors
- AB8506 is for square edge doors and AB8508 is for beveled edge doors

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
5 x 4-1/2	127 x 114	0.190	18	1/2 x 12-24	1-1/4 x 12

AB7507 | AB7509
Concealed Anti-Friction Bearing - Heavy Weight
Steel with steel pin (ANSI A8551)

AB8507 | AB8509
Concealed Anti-Friction Bearing - Heavy Weight
- Brass with stainless steel pin (ANSI A2551) or stainless steel with stainless steel pin (ANSI A5551)
- Non-removable pin standard with flush pin and plug
- Handed
- Two anchor leaves
- Must be used with one pair of heavy weight, full mortise hinges (AB750 or AB850) - sold separately
- For use on heavy weight doors receiving high frequency use and when concealed door closer is used
- AB7507 is for square edge doors and AB7509 is for beveled edge doors
- AB8507 is for square edge doors and AB8509 is for beveled edge doors

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
5 x 4-1/2	127 x 114	0.190	15	1/2 x 12-24	1-1/4 x 12

FIVE KNUCKLE HINGES

BB1196
Ball Bearing - Heavy Weight

- Brass with stainless steel pin (ANSI A2551) or stainless steel with stainless steel pin (ANSI A5551)
- Four ball bearings
- Non-removable pin standard with button tip and plug
- Handed
- Two anchor leaves
- Must be used with one pair of heavy weight, full mortise hinges (BB1168 or BB1199) - sold separately
- For use on heavy weight doors receiving high frequency use
- Use with beveled edge doors

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
5 x 4-1/2	127 x 114	0.190	12	1/2 x 12-24	1-1/4 x 12

BB1165 | BB1167
Ball Bearing - Heavy Weight

Steel with steel pin (ANSI A8551)

BB1195 | BB1197
Ball Bearing - Heavy Weight

- Brass with stainless steel pin (ANSI A2551) or stainless steel with stainless steel pin (ANSI A5551)
- Four ball bearings
- Non-removable pin standard with button tip and plug
- Handed
- Two anchor leaves
- Must be used with one pair of heavy weight, full mortise hinges (BB1168 or BB1199) - sold separately
- For use on heavy weight doors receiving high frequency use and when concealed door closer is used
- BB1165 is for square edge doors and BB1167 is for beveled edge doors
- BB1195 is for square edge doors and BB1197 is for beveled edge doors

Hinge Size		Gauge of Metal	Hole Count	Screw Size	
Inches	mm			Machine	Wood
5 x 4-1/2	127 x 114	0.190	15	1/2 x 12-24	1-1/4 x 12

Pivots

REINFORCING

252
Full Surface
- For 4” (102 mm) wide hinge
- Non-handed

253
Full Surface
- For 4-1/2” (114 mm) wide hinge
- Non-handed

Product	Butt Hinge Width		Projection*		Door Thickness	
	Inches	mm	Inches	mm	Inches	mm
252	4	102	1/2	12.5	1-3/4	45
253	4-1/2	114	3/4	19	1-3/4	45

*Projection from centerline of pivot to face of door.

Gauge of Metal	Screw Size	
	Machine	Wood
0.187	3/4 x 1/4-20	1-1/4 x 14

BALL AND THRUST BEARING - HEAVY WEIGHT

495
Top
Forged bronze (ANSI C07162)

496
Intermediate
- Forged bronze (ANSI C07321)
- Handed

497
Bottom
- Forged bronze (ANSI C07131)
- 3/4” (19 mm) offset
- Two knuckle
- For doors up to and including 3’0” x 8’0” (912 mm x 2438 mm) weighing maximum of 350 pounds, apply all three pivots 495, 496, 497
- For doors over 3’6” (1067 mm) up to 4’0” (1219 mm) in width, add one additional intermediate pivot, 496
- For each additional 12” (305 mm) in door height over 8’0” (2438 mm) add one intermediate pivot, 496
- Handed

Product	Hole Count	Screw Size	
		Machine	Wood
495	8	5/8 x 1/4-20	1-1/2 x 14
496	10	5/8 x 1/4-20	1-1/2 x 14
497	8	5/8 x 1/4-20	1-1/2 x 14

SINGLE ACTING - STANDARD WEIGHT

Top

Bottom

500
Rack and Pinion

- Conforms to ANSI A2793
- Pivot opens door to 105º maximum
- Non-handed
- Concealed
- Adjustable alignment
- Non-handed
- Sold as a top & bottom set

Designed for:

- 1-3/4" (45 mm) thick door
- Maximum weight not over 80 pounds
- Not to exceed 3' (914 mm) wide and 7' (2134 mm) high
- Cased opening frame required
- Consult Hager Tech Support for doors other than 1-3/4" (44 mm)
- Available in US26D only

Screw Size	
Machine	Wood
Upon request	1-1/4 x 12 FH*

*Plastic cinch anchors

SINGLE ACTING - EXTRA HEAVY WEIGHT

Top

Bottom

551
Extra Heavy Duty Rack and Pinion

- Conforms to ANSI A2792
- Pivot opens door to 105º maximum
- Non-handed
- Concealed
- Adjustable alignment
- Non-handed
- Sold as a top & bottom set

Designed for:

- 1-3/4" (45 mm) thick door
- Maximum weight not over 180 pounds
- Not to exceed 4' (1.2 m) wide and 8' (2.4 m) high
- Cased opening frame required
- Consult Hager Tech Support for doors other than 1-3/4" (44 mm)
- Available in US26D only

Screw Size	
Machine	Wood
Upon request	1-1/4 x 12 FH*

*Plastic cinch anchors

SINGLE ACTING - HEAVY WEIGHT

Top

Bottom

550
Heavy Duty Rack and Pinion

- Conforms to ANSI A2792
- Pivot opens door to 105º maximum
- Non-handed
- Concealed
- Adjustable alignment
- Non-handed
- Sold as a top & bottom set

Designed for:

- 1-3/4" (45 mm) thick door
- Maximum weight not over 150 pounds
- Not to exceed 3' (914 mm) wide and 7' (2134 mm) high
- Cased opening frame required
- Consult Hager Tech Support for doors other than 1-3/4" (44 mm)
- Available in US26D only

Screw Size	
Machine	Wood
Upon request	1-1/4 x 12 FH*

*Plastic cinch anchors

HEAVY WEIGHT

615
For Frameless Openings

- Conforms to ANSI A8782
- For use on doors up to 150 lbs and 1-3/8" - 1-3/4" (35 mm - 44 mm) thick
- Pivot opens door to 180º maximum
- Screw slots for horizontal or vertical adjustment
- Non-handed
- Sold as a top & bottom set

Wood Screw Size
12 x 1-1/4

Pivots

CAMTROL DOUBLE ACTING - HOSPITAL SET - RESCUE HARDWARE

The following pivots are for use on:
- Wood or metal doors up to 135 lbs
- Doors not over 3'6" x 7' (1067 mm x 2134 mm)
- Wood or metal frames
- Allows for square edge door on lock side, bull nose not required

Mortise Application in Wood Floors


Head


Floor

510
Head and Floor Pivots
- Conforms to ANSI/BHMA A156.1- A5702
- For use with square edge doors on hinge side
- Self Centering, centers door at 30°
- Open 90° in each direction
- Available in US26D Only

Mortise Application in Masonry Floors


Head


Floor


Release

511
Head and Floor Pivots
- Conforms to ANSI/BHMA A156.1-A5702
- For use with square edge doors on hinge side
- Self Centering, centers door at 30°
- Open 90° in each direction
- Available in US26D only

611
Head and Floor Pivots with Door Release (Set)
- Conforms to ANSI/BHMA A156.1 - A1882
- Available in US26D Only

Surface Application in Masonry Floors


Head


Floor


Release

512
Head and Floor Pivots
- Conforms to ANSI/BHMA A156.1 - A5702
- For use with square edge doors on hinge side
- Self Centering, centers door at 30°
- Open 90° in each direction
- Available in US26D only

612
Head and Floor Pivots with Door Release (Set)
- Conforms to ANSI/BHMA A156.1 - A5702 - A1882
- Available in US26D Only

Door Release

610
Door Release
- Conforms to ANSI/BHMA A156.1 - A1882
- Torx screw option is no longer available

Item No	Anchor Housing	
	Inches	mm
510	3-7/8 x 1-7/8 x 7/8	98 x 48 x 22
511 & 611	3-7/8 x 1-1/4 x 7/8	98 x 32 x 22
512 & 612	3-7/8 x 1-1/4 x 7/8	98 x 32 x 22

Door Mount Brackets Screw Size		Head Cam Box Screw Size		Floor Cam Box Screw Size	
Machine	Wood	Machine	Wood	Machine	Wood
1/2 x 12-24 FH	1-1/4 x 12 FH	1-1/4 x 12-24 FH	1-1/2 x 12-24 FH	-	1-1/2 x 12 FH

610					
Mortise Depth		Face Plate		Screw Size	
Inches	mm	Inches	mm	Machine	Wood
1-13/16	46	1-1/2 x 4-1/2 x 3/16	38 x 114 x 5	1/2 x 12-24 FH	1-1/4 x 12 FH

*Plastic cinch anchors

DOUBLE LIPPED STRIKE

451
Center Hung Doors
5-3/4" (146mm)

Center Hung

452
Center Hung Doors
6-3/4" (172mm) and specially sized

453
1/8" (3.2 mm) Inset Hung Doors
5-3/4" (146mm)

1/8" (3.2 mm) Inset Hung

454
1/8" (3.2 mm) Inset Hung Doors
6-3/4" (172mm)

- Brass
- Available in US26D finish only
- Conforms to ANSI/BHMA A156.1 - A1882
- To be used with Hager 510, 511, 512, 611, and 612 pivots and door release - this allows doors to be opened in both directions without damage to frame
- Standard latchbolt cutout is 1-1/4" x 11/16" (32 mm x 17 mm)
- Standard strike plates are optimized for cylindrical locks/latches mounted on 1-3/4" thick doors
- Mortise lock applications require special latch cutout location (consult specific manufactures for variations of cutout dimensions)
- For use with pivots and door releases

Product	Face Plate		Gauge of Metal	Hole Count	Screw Size
	Inches	mm			
451	5-3/4 x 2-3/4	146 x 70	0.093	6	1/2 x 8-32 FH
452	6-3/4 x 2-3/4	171 x 70	0.093	6	1/2 x 8-32 FH
453	5-3/4 x 2-3/4	146 x 70	0.093	6	1/2 x 8-32 FH
454	6-3/4 x 2-3/4	171 x 70	0.093	6	1/2 x 8-32 FH

Catalog Number	Frame Width
452 & 454 Special Sizes Available	4-3/4"
	5-1/4"
	5-7/8"
	6-1/8"
	6-1/4"
	6-1/2"
	7-1/8"
	7-1/2"
	7-3/4"
	8
	8-1/4"
	8-3/4"

COMBINATION RESCUE DOOR STOP AND TWO WAY STRIKE PLATE (EMERGENCY STRIKE)

455
Center Hung Doors
5-3/4" (146mm)

Center Hung

456
Center Hung Doors
6-3/4" (146mm) and specially sized

457
1/8" (3.2 mm) Inset Hung Doors
5-3/4" (146mm)

1/8" (3.2 mm) Inset Hung

458
1/8" (3.2 mm) Inset Hung Doors
6-3/4" (146mm)

- Brass
- Available in US26D finish only
- Conforms to ANSI/BHMA A156.1- A1882
- Strikes 455, 456, 457, & 458 are Handed
- To be used with Hager 510, 511, and 512 pivots
- Door release allows doors to be opened in both directions without damage to frame
- Standard latchbolt cutout is 1-1/4" x 11/16" (32 mm x 17 mm)
- Standard strike plates are optimized for cylindrical locks/latches mounted on 1-3/4" thick doors
- Mortise lock applications require special latch cutout location (consult specific manufactures for variations of cutout dimensions)

Product	Face Plate		Gauge of Metal	Hole Count	Screw Size
	Inches	mm			
455 (center)	5-3/4 x 2-3/4	146 x 70	0.093	6	1/2 x 8-32 FH
456 (center)	6-3/4 x 2-3/4	171 x 70	0.093	6	1/2 x 8-32 FH
457 (inset)	5-3/4 x 2-3/4	146 x 70	0.093	6	1/2 x 8-32 FH
458 (inset)	6-3/4 x 2-3/4	171 x 70	0.093	6	1/2 x 8-32 FH

Catalog Number	Frame Width
456 & 458 Special Sizes Available	4-3/4"
	5-1/4"
	5-7/8"
	6-1/8"
	6-1/4"
	6-1/2"
	7-1/8"
	7-1/2"
	7-3/4"
	8
	8-1/4"
	8-3/4"

THREE KNUCKLE HINGES

IHTHB953

Full Mortise - Concealed Bearings - Heavy Weight

- Stainless steel with stainless steel pin (ANSI A5111)
- Two concealed maintenance free bearings
- Investment cast
- Security torx screws
- Hospital tip and reverse security stud are standard
- For use on heavy weight doors ranging from 250-600 lbs

Hinge Size		Pin Diameter		Gauge of Metal	Hole Count	Machine Screw Size
Inches	mm	Inches	mm			
4-1/2 x 4-1/2	114 x 114	0.370	9	0.187	8	1/2 x 1/4-20 Torx

Made in USA

IHTAB750

Institutional Prison Hinge

Steel with stainless steel pin (ANSI A8111)

IHTAB850

Institutional Prison Hinge

- Stainless steel with stainless steel pin (ANSI A5111)
- Concealed maintenance free bearings
- Welded hospital tips and plug
- Welded knuckles
- Additional options include security torx screws, electric monitor (EMN), electric through wire (ETW), electric through wire and monitor (ETM), reverse safety stud (RSS), and safety stud (SS)
- For use on heavy weight doors ranging from 200-300 lbs

Hinge Size		Pin Diameter		Gauge of Metal	Hole Count	Machine Screw Size
Inches	mm	Inches	mm			
4-1/2 x 4-1/2	114 x 114	0.322	8	0.180	8	1/2 x 12-24 FPHM
5 x 4-1/2	127 x 114	0.322	8	0.190	8	1/2 x 12-24 FPHM
5 x 5	127 x 127	0.322	8	0.190	8	1/2 x 12-24 FPHM

Made in USA

990

Full Surface Heavy Weight Prison Utility Hinge

- Steel with steel pin (ANSI A8383)
- Plain bearing
- Welded pin
- Prime painted
- Torx button head bolt
- Two hinges support the weight of 150 lbs
- For use on small doors, access doors, and observation shutters

Hinge Size		Pin Diameter		Gauge of Metal	Hole Count	Machine Screw Size
Inches	mm	Inches	mm			
3 x 4	78 x 102	0.437	11	0.203	4	1 x #16-3/8 Torx

Made in USA

992

Full Surface Heavy Weight Prison Pass Through Hinge with Stop

- Steel with steel pin (ANSI A8383)
- Plain bearing
- Welded pin
- Prime painted
- Torx button head bolt
- Two hinges support the weight of 150 lbs
- For use on pass through in door

Hinge Size		Pin Diameter		Gauge of Metal	Hole Count	Machine Screw Size
Inches	mm	Inches	mm			
3 x 4	78 x 102	0.437	11	0.203	4	1 x #16-3/8 Torx

100
Set Screw Set
- 1/8" x 10-32 set screws (quantity 300)
- 3/16" x 10-32 set screws (quantity 300)
- 3/32" hex key
- Hand tap "T" wrench
- 10-32 tap
- #21 drill bit
- This set converts removable pin hinges to non-removable pin (set screw in barrel) hinges as required

263
Sleeve Bolt
- Aluminum
- 9/16" (14 mm) head sex nut with 1/4" - 20 internal thread
- Knurled shoulder prevents bolt from turning
- Drill a 3/8" (9.5 mm) hole and insert the sex bolt
- Available in US2C finish only (compatible with US26D, US28, or US32D)
- For use in securing push bars, exposed door closers and other fixtures to doors 1-3/4" (45 mm) thick or greater

265
Molly Jack Nut (8S JN)
- Aluminum
- For use with the Hager reinforcing pivot hinges (250 Series)
- Easily installed by drilling a 7/16" (11.1 mm) pilot hole and following the instructions provided with each product
- For use in properly anchoring various products to hollow metal frames 3/16" - 3/8" (4.8 mm - 9.5 mm) thick

417
Back Plate
- Steel
- For wood doors
- For full or half surface hinges

Length		Width		Gauge of Metal
Inches	mm	Inches	mm	
4-5/8	117	1-13/16	46	0.074
5	127	2-1/8	54	0.097

Number of Holes	Machine Screw Size
3	1/4 x 20
4	1/4 x 20

Accessories

DECORATOR TIP KITS

1712
Ball Standard Weight

1713
Ball Heavy Weight

1716
Acorn Standard Weight

1717
Acorn Heavy Weight

1722
Steeple Standard Weight

1723
Steeple Heavy Weight

1728
Urn Standard Weight

1729
Urn Heavy Weight

- Standard weight hinge size - 3-1/2" (89 mm), 4" (102 mm), 4-1/2" (114 mm), 5" (127 mm), 6" (152 mm)
- Heavy weight hinge size - 4-1/2" (114 mm), 5" (127 mm), 6" (152 mm), 8" (203 mm)
- Solid brass with stainless steel pin
- Conversion tips and pins for architectural grade hinges