HANGING THE DOOR

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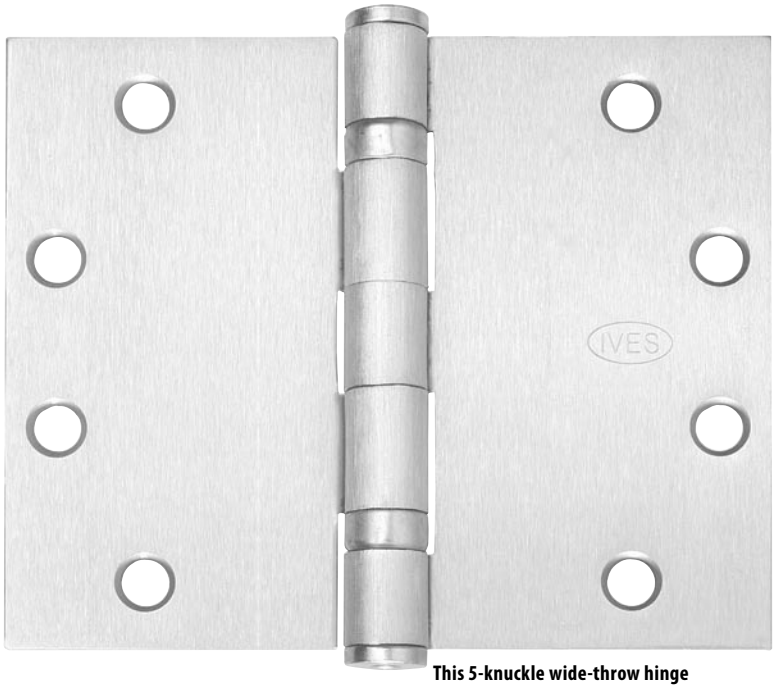
Concealed bearing hinge incorporates security studs.

WHEN IT COMES TO HANGING A DOOR, everything hinges on making the right choice. Hinges come in a wide variety of types and grades. Choosing the correct style and grade will help ensure longer service, better security, added safety and improved appearance for the entire door system. The following is a brief summary of the solutions and special features available, as well as their application.

The familiar architectural hinges, seen most often on standard interior and exterior doors, are available in standard and heavy weight construction with ball bearings, as well as plain bearings and concealed bearings. Continuous hinges are used for heavier doors with higher frequency and for greater safety or a smoother appearance. Pivots are found on heavy doors and where their specific aesthetic benefits are desired.

Architectural Hinges

Standard weight architectural hinges with plain bearings are the choice for standard weight doors that are used infrequently, such as on a closet or office door. For medium frequency applications, standard weight hinges with concealed or ball bearings should be used. Heavy weight hinges with ball bearings are the choice for heavy-weight doors or high-frequency usage.



This 5-knuckle wide-throw hinge includes 2 ball bearings.

Considerations for determining hinge weight and bearing type include the weight of the door, frequency of use, frame type and other door hardware. For example, ball bearing or concealed bearing hinges should always be used for doors equipped with door closers and on all fire-rated openings. Heavy–weight and high-frequency doors should always use heavy-weight hinges with either concealed or ball bearings. Hinge size depends on door width, door thickness, weight and clearance. Consult the manufacturer's catalog for specific guidelines. Table I gives some guidelines for frequency of door usage.

Hinge material will also depend on the application. Plated or painted steel hinges can be used on interior doors in non-corrosive areas, as well as interior labeled doors. Stainless steel can also be used for the latter application. For interior doors in corrosive atmospheres and for exterior doors, stainless steel, brass or bronze should be selected.

Special options available include spring hinges to close lighter weight doors automatically, electified hinges to transfer power from the frame to door-mounted electrified hardware, offset swing-clear designs, and 3- or 5-knuckle construction.

Continuous Hinges

Continuous hinges distribute the weight of the door along the entire length of the frame, reducing the high amount of stress usually placed upon the traditional top butt hinge. This prevents hinge failure and keeps the door in constant alignment, eliminating the chance of door sag. These characteristics make continuous hinges well-suited for high use/high traffic doors. The design of a continuous hinge also eliminates the gap between the door and frame, which prevents fingers from being

Pin-and-barrel continuous hinges use a pin and rolled knuckles similar to a traditional hinge, but they extend the full height of the door.

pinched. This makes it safer than traditional hinges, especially in schools or other facilities where small children are present.

Two types of continous hinge are commonly available. Continuous geared hinges, usually made of aluminum, utilize a single gear section for the leaf and a separate gear section for the frame side of the door. The two sections are held together by a full-length cover channel and rotate on a series of bearings. Pin-and-barrel hinges resemble traditional hinges because both types have a center pin and rolled knuckles. However, a continuous piin-and-barrel hinge strecthes along the entire length of the frame, so it provides the support ,alignment and safety for the full height of the door. These hinges typically are available in stainless steel or primed steel to fit specific applications.

As with conventional hinges, continuous hinges are available in a variety of configurations, including full mortise, full surface, swing clear, concealed, and others.

GUIDELINES FOR FREQUENCY OF DOOR USAGE:

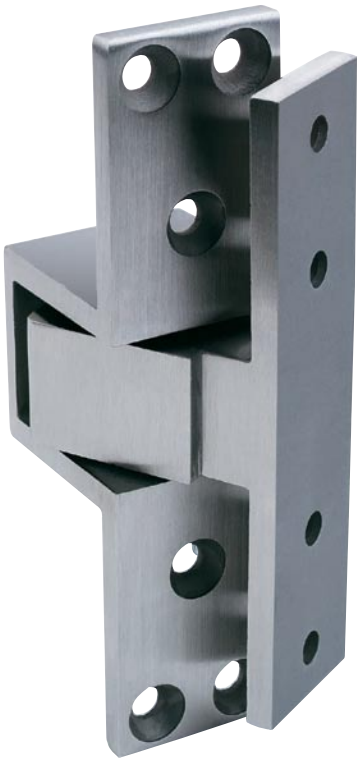
Build Type	Daily Usage	Yearly Usage	Hinge Type
High Frequency/ Heavy Weight Door			**Heavy Weight**
Large Department Store Entrance	5,000	1,825,000	
Hospital Corridor and Surgical Doors	5,000	1,825,000	
Large Office Building Entrance	4,000	1,460,000	
School Entrance	1,250	456,250	
School Toilet Door	1,250	456,250	
Office Stairwell	500	182,500	
Office Building Toilet Door	400	146,000	
Medium Frequency/ Medium Weight Door Weight			**Standard**
School Corridor Door	100	36,500	
Hospital Consultation Rooms	100	36,500	
Office Building Corridor Door	80	29,200	
Store Toilet Door	60	21,900	
Storage Room	50	18,250	
Low Frequency /Light Door			**Plain Bearing**
Residential Entrance	30	10,950	
Interior Residential	20	7,300	

▲The door rests on this offset pivot, distributing its weight throughout the floor and structure. Pocket pivot allows a pocket door to be flush in the pocket of a corridor to keep it out of the way of traffic. ▶

Pivots

Pivots typically are used with very large or heavy doors because the door rests on the bottom pivot, reducing the stress on the frame and distributing its weight throughout the floor and structure. In some cases pivots also are used as an aesthetic option, especially center and pocket pivots that minimize hardware or door intrusion into an area.

Pocket pivots are used on pocket door corridor applications commonly found in hospitals, hotels and high-rise buildings. They allow the door to be flush with the pocket of the corridor when in the open position, which keeps the door out of traffic's way.



As with hinges, pivots are available with power transfer capabilities, with conductors that typically carry low-voltage power and signal circuits to operate and control electrified exit devices or other door-mounted electrified hardware.

The final choice of how a door will be hung can be somewhat subjective, but a thoughtful analysis of door weight, usage and special conditions will narrow the choices down and make the final selection easier. While the basic application conditions must be satisfied, other factors such as aesthetics, user safety or environmental conditions also may influence the decision. In the end, the correct choice of a hinge or pivot will increase the life of a door and its components, minimize maintenance and repairs, and often help beautify the opening. dh

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