



4.5BH Full Mortise Butt 5 Knuckle Ball Bearing Hinges - General Information

Hinge Pins:

- NRP - Non-removable Hinge Pins. For security or exterior applications. Prevents the hinge from being disassembled.
- Removable Hinge Pin: For interior use non-secure applications.

Door Handing:

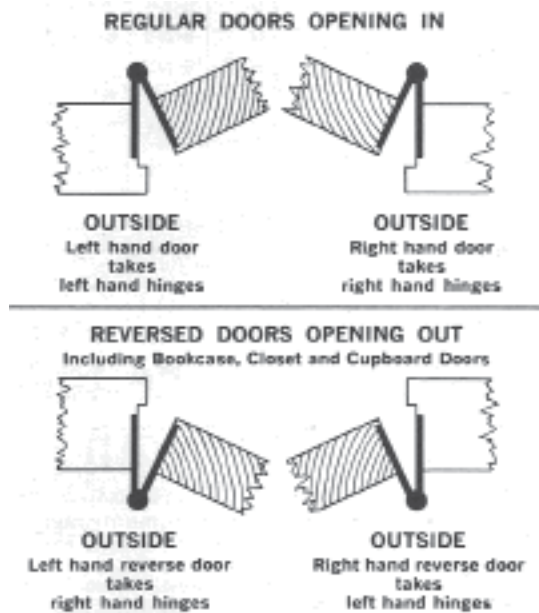


Figure 1
Single Acting Door Configurations

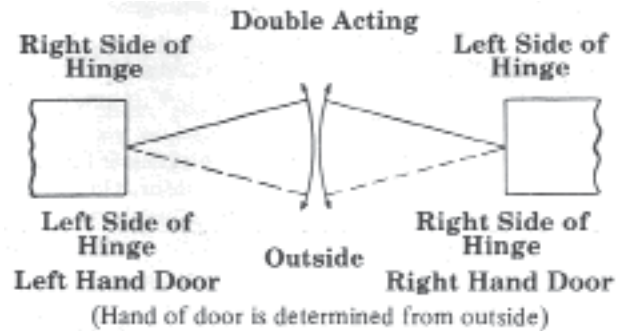


Figure 2
Double Acting Door

When standing on outside of door and hinges are on the right, the door is a right hand door. When hinges are on the left, it is a left hand door. A double acting door opens from you and toward you, therefore is not called a reverse like a single acting door as depicted in figure 1.

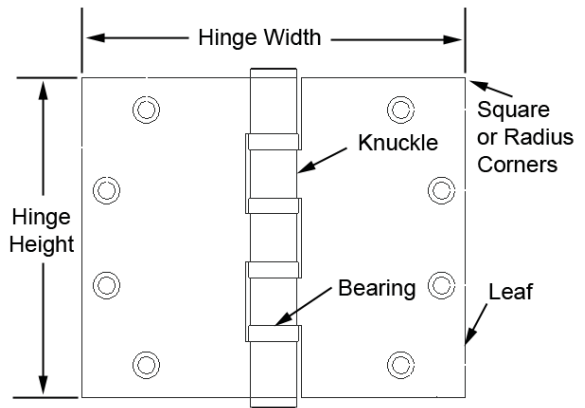
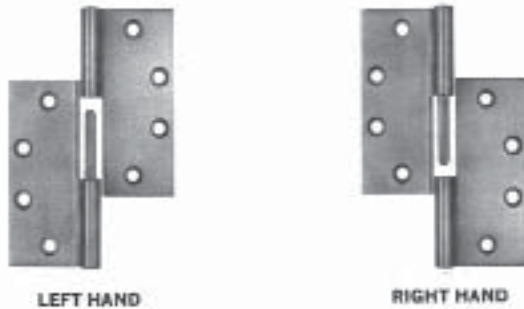
Door Swaging:

Swaging is the slight offset in the hinge leaves which permits them to close to a parallel position as the door closes. All Hinges for full mortise applications are swaged. Normal swaging on standard and heavy gauge hinges provides a clearance of 1/16" when leaves are parallel. Full mortise wide throw hinges have a clearance of 3/32".





Hand of Hinges:



Number of Hinges & Size of Hinges

Number of Hinges Per Door	
Door Height	Number of Hinges Per Door
to 60" (5'-0")	2
60" (5'-0") to 90" (7'-6")	3
90" (7'-6") to 120" (10'-0")	4

Recommended Size (Height) of Hinge		
Door Thickness	Door Width	Hinge Size
1-3/8"		4"
1-3/4"	to 36"	4-1/2" *
1-3/4"	over 36" to 48"	5" *
2" / 2-1/4" / 2-1/2"	to 42"	5" **
2" / 2-1/4" / 2-1/2"	over 42"	6" **

* Extra heavy hinges should be used for heavy doors.

** Only extra heavy hinges should be used.

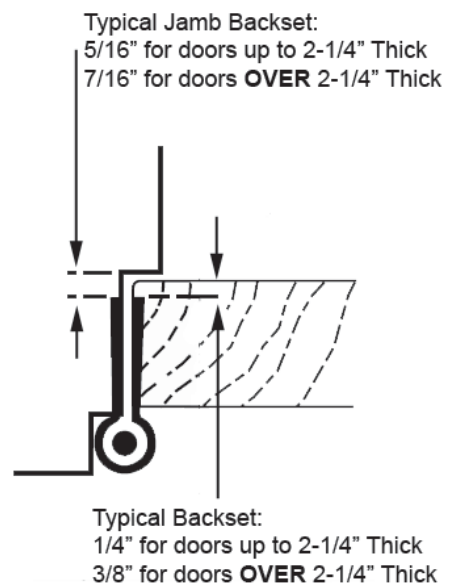
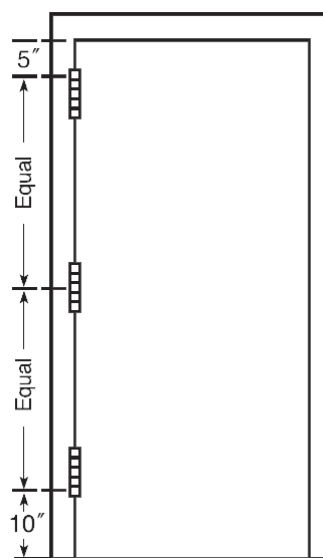
Hinge/Door Information

Three hinges assure proper door alignment and enable other hardware to function properly. There is less door warping and less hinge wear. Doors over 7'-6" high require a minimum of 4 hinges.

The **Top Hinge** should be 5" from frame rabbet to top of the hinge barrel.

The **Bottom Hinge** should be 10" from bottom edge of barrel to finished floor.

Third and fourth hinges should be spaced equally between top and bottom hinges.





Proper Hinge Width

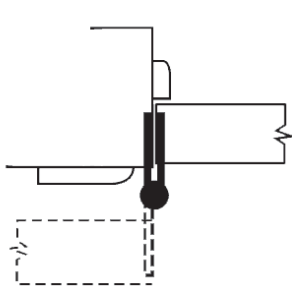
For doors up to 2-1/2" Thick:

Hinge Width for Standard Weight Hinges = Door Thickness *2 + Jamb Trim Projection
 Assume hinges are set back 1/4" from edge of door.

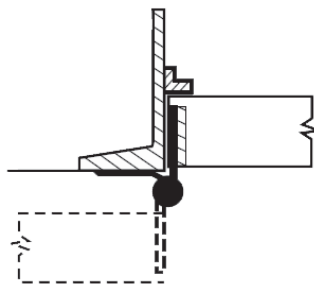
For doors 2-1/2" to 3" Thick:

Hinge Width for Standard Weight Hinges = Door Thickness*2 + Jamb Trim Projection*2 + 1/4"
 Assume hinges are set back 3/8" from edge of door.

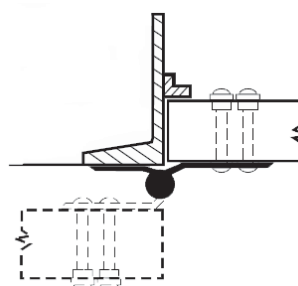
Proper Hinge Width		
Door Thickness	Width of Hinge	Max. Clearance Provided
1-3/8"	3-1/2"	1-1/4"
	4"	1-3/4"
1-3/4"	4"	1"
	4-1/2"	1-1/2"
	5"	2"
	6"	3"
2"	4-1/2"	1"
	5"	1-1/2"
	6"	2-1/2"
2-1/4"	5"	1"
	6"	2"



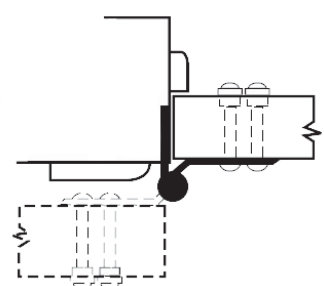
Full Mortise



Half Mortise



Full Surface



Half Surface