

Full Mortise Geared Hinges Installation Instruction

I. CAUTION:

Please follow the installations instructions carefully. Not doing so may result in improper installation and void warranty. All hinges have a permanent, factory applied lubricant on the geared areas. Removal or alteration of this lubricant or painting of the product in the field will void the warranty.

II. CLEARANCE REQUIREMENT CALCULATIONS

Single Door: Frame Opening - Total Clearance Required = Net Door Width

Double Door: $\frac{\text{Frame Opening} - \text{Total Clearance Required}}{2} = \text{Net Door Width Per Door}$

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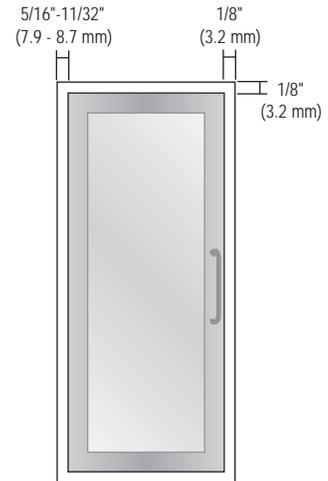
1. SINGLE DOORS:

Single Doors (Square Edged)

	Clearances
A. Hinge clearance	5/16" (7.9mm)
B. Lockside clearance	1/8" (3.2mm)
C. Clearance for irregularities	1/32" (0.8 mm)
Total Clearance Required	15/32" (11.9 mm)

Single Doors (Beveled Edged)

	Clearances
A. Hinge clearance	5/16" (7.9mm)
B. Lockside clearance	1/8" (3.2mm)
C. Beveled edged clearance	1/32" (0.8 mm)
D. Clearance for irregularities	1/32" (0.8 mm)
Total Clearance Required	1/2" (12.7 mm)



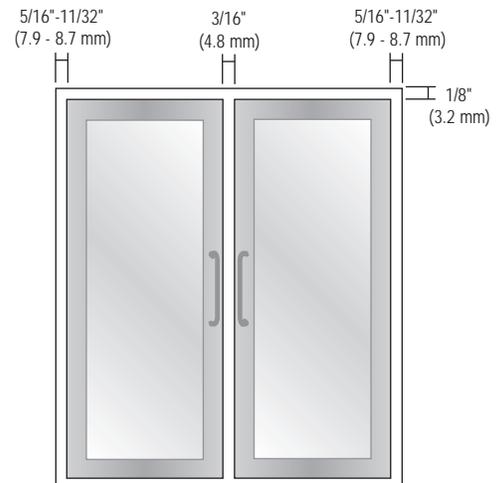
2. DOUBLE DOORS

Pairs of Doors (Square Edged)

A. First Hinge clearance	5/16" (7.9mm)
B. First Clearance for irregularities	1/32" (0.8 mm)
C. Edge to edge clearance	3/16" (4.8 mm)
D. Second hinge clearance	5/16" (7.9mm)
E. Second clearance for irregularities	1/32" (0.8 mm)
Total Clearance Required	7/8" (22.2 mm)

Pairs of Doors (Beveled Edged)

A. First Hinge clearance	5/16" (7.9 mm)
B. First clearance for irregularities	1/32" (0.8 mm)
C. First beveled edge clearance	1/32" (0.8 mm)
D. Edge to edge clearance	3/16" (4.8 mm)
E. Second hinge clearance	5/16" (7.9 mm)
F. Second beveled edge clearance	1/32" (0.8 mm)
G. Second clearance for irregularities	1/32" (0.8 mm)
Total Clearance Required	15/16" (23.8 mm)



III. INSTALLATION:

NOTE: All hinges are supplied slightly shorter than a nominal door height to avoid threshold or carpeting problems. All hinges are templated and non-handed. Use the same for both right and left hand openings.

Cutting: If the hinge must be cut shorter, cut only one end, using a hacksaw. The hinge should be in a closed position, either standing cap up, or on its side, cap closest to you so that the saw cuts through the cap first. If you cut off one of the set screw bearings, reinstall it on the hinge. The hinge must be installed with the cut end on the bottom. This allows any chips to work out after installation.

1. **Preparing the Frame:** With the hinge in the open position, use a shim to position the top end of the hinge 1/8" (3.2 mm) below the header to allow for door clearance. Mark or center punch hole locations. Drill all holes using a #13 (.185) or 3/16" (.188) drill. For wood, use a 5/32" (.156) drill. **DO NOT ATTACH THE HINGE TO THE FRAME AT THIS TIME.**
2. **Attaching the Hinge to the Door:** Position the door leaf on the door. Be sure that the door leaf alignment flange or the door leaf lip is seated along the full length of the door edge even if the door is slightly warped. Make sure the top end of the hinge is absolutely flush to a straight edge across the top edge of the door. Mark or center punch, and drill the holes as in step (1). Attach the hinge to the door, using the fasteners provided. A #3 Phillips drive is required for installation. For steel frames with metal doors, use the #12-24 flathead screws for both leaves. For steel frames with wood doors, use the #12-24 flathead screws in the frame and the #12 x 1-1/2" flathead wood screws in the door. For wood frames with the wood doors, use the #12 x 1-1/2" flathead wood screws in both frame and door.
3. **Attaching the Door to the Frame:** Position the door at 90 degrees to the frame, wedging the door to the proper height to line up with the top end screw hole. Install one screw at the top (or a temporary nail in wood frames), remove the wedge and line up the remaining holes and install several more screws. Check the door for proper swing and clearance. Install the remaining screws.

REINFORCING AND RIV-NUTS: No reinforcing is necessary except on extremely heavy or extra-wide doors. Riv-Nuts are recommended in the frame and door when door weight exceeds 450 pounds (204 kg).

PAIRS OF DOORS WITH MULLIONS: If the mullion is between the doors, treat as a single door installation. If the mullion is behind the doors, treat as a double door installation.

GROUTED/FLUSHED-IN FRAMES: For ease of installation, it is recommended that some sort of mudguard be installed behind the frame. Do not use self-drilling, thread-forming screws with grouted steel frames having no mudguard. If mudguards have not been used, carefully drill holes through frame and remove grout for screw clearance. Do not oversize holes in frame.

