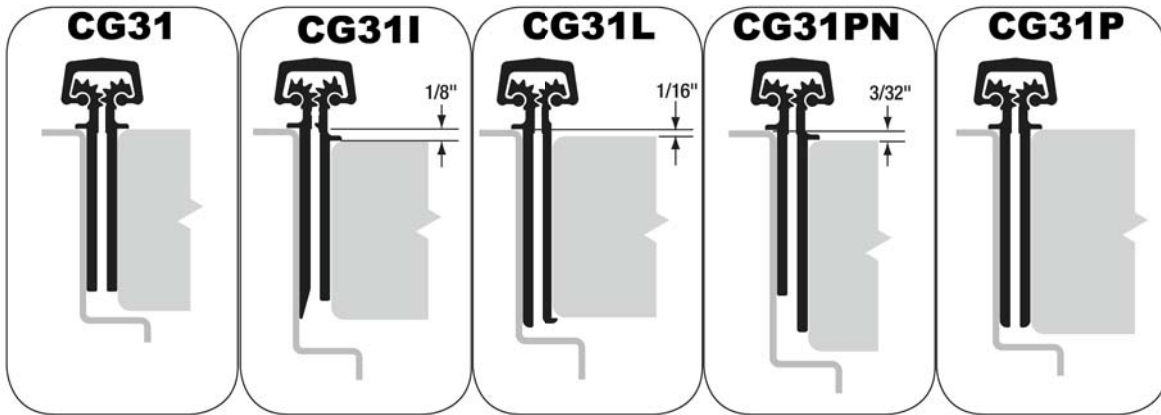




# INSTALLATION INSTRUCTIONS

CG31-CG31I-CG31L-CG31PN-CG31P



## Calculating Required Door Clearances

### For Square and Beveled-Edge Doors

**IMPORTANT:** All standard length PBB hinges are supplied slightly shorter than nominal door height to avoid threshold or flooring clearance problems.

**IMPORTANT:** CG31 and CG31P are non-handed and templated. They remain non-handed after cutting. CG31I, CG31L, and CG31PN become handed after cutting.

**IMPORTANT:** Refer to NFPA 80 manual for clearance requirements on fire-rated entrances.

### Important Warranty Information:

The following actions will void any warranty, expressed or implied:

- Failure to install the hinge according to the Installation Instructions supplied with every PBB hinge.
- Use of fasteners other than those supplied with the hinge.
- Unauthorized field modifications, including alteration or removal of the factory-applied lubricant, altering the original finish or painting the hinge.

#### SINGLE DOOR: Square Edge

Hinge side clearance	5/16"
Latch side clearance	1/8"
Frame variance clearance	1/32"

**Total Width Clearance 15/32"**

#### To determine door width:

Subtract the Total Width Clearance from the width of the frame opening.

#### SINGLE DOOR: Beveled Edge

Hinge side clearance	5/16"
Latch side clearance	1/8"
Frame variance clearance	1/32"
Beveled edge clearance	1/32"

**Total Width Clearance 1/2"**

#### To determine door width:

Subtract the Total Width Clearance from the width of the frame opening.

#### DOUBLE DOORS (PAIR): Square Edge

Hinge side clearance (2x)	5/16"
Latch side clearance	3/16"
Frame variance clearance	1/16"

**Total Width Clearance 7/8"**

#### To determine door width:

Subtract the Total Width Clearance from the width of the frame opening; divide the result by 2.

#### DOUBLE DOORS (PAIR): Beveled Edge:

Hinge side clearance (2x)	5/16"
Latch side clearance	3/16"
Frame variance clearance	1/16"
Beveled edge clearance	1/16"

**Total Width Clearance 15/16"**

#### To determine door width:

Subtract the Total Width Clearance from the width of the frame opening; divide the result by 2.

**NOTE:** For double-door entrances with a mullion between the pair of doors, calculate each door width using the Single Door clearances.

For double-door entrances with a mullion behind the pair of doors, calculate each door width using the Double Doors clearances.



# INSTALLATION INSTRUCTIONS

## CG31-CG31I-CG31L-CG31PN-CG31P

### Tools Needed

- Metal-cutting saw
- Tape measure
- #13 or 3/16" drill bit
- 5/32" drill bit (wood frames/doors)
- #3 Phillips drive
- Shims

### Parts Supplied

- #12-24 x 1/2" 410 SS thread-forming Phillips undercut flathead screws

### Optional Parts

- #12 x 1-1/2" 410 SS Phillips flathead undercut wood screws
- #12-24 x 3/4" 410 SS Phillips self-drilling thread forming (SDTF) undercut flathead screws

### How to Cut the Hinge to Fit

- A. Keep hinge in the "door closed" position (Fig. 1).
- B. Determine whether this will be a right- or left-hand installation. You will install the cut end at the bottom.

**NOTE:** CG31 and CG31P are non-handed and remain non-handed after cutting. Cut from one end only and use for right- or left-hand installation.

- C. DO NOT cut through a set-screw bearing. Reinstall or relocate the set-screw bearing if necessary.
- D. Using a metal-cutting saw, begin the cut through the gear cap first.

### A. Prepare Frame

1. Use shims to position the hinge 1/8" below the header to allow for door clearance.
2. Hold hinge in the "door open" position (Fig. 2) making sure the frame leaf alignment flange is tight against the frame face.
3. Mark (or center punch) hole locations. Drill holes at marked locations.
  - Metal door frame: Use a #13 (.185") or 3/16" (.188") drill bit.
  - Wood door frame: Use a 5/32" (.156") drill bit.

**IMPORTANT:** DO NOT attach the hinge to the frame at this time.

### B. Attach Door to Hinge

4. Align the door leaf alignment flange or the door leaf lip along the full length of the door edge (even if the door is slightly warped).

**IMPORTANT:** Top end of the hinge must be flush to a straight edge across the top of the door.

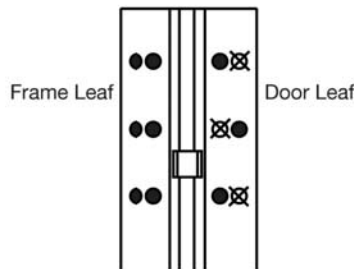
5. Mark (or center punch) holes. Drill holes in the marked locations.
  - Metal door: Use a #13 (.185") or 3/16" (.188") drill bit.
  - Wood door: Use a 5/32" (.156") drill bit.
6. Fasten doorleaf to door using a #3 Phillips drive and fasteners provided.

### C. Attach Door to Frame

7. Position door at 90 degrees to the frame. Wedge the door to the proper height so the door aligns with the top screw holes.
8. Install two screws at the top of the hinge. Remove the wedge and align the remaining holes. Insert screws into the middle and the bottom two holes.
9. Check the door for proper swing and clearance. Then install the remaining screws.

### D. Fastener Installation for 90-Minute Fire-Rated Wood Door

- A. Install a fastener in only one of the holes in each pair of holes at the top and bottom of the door leaf. DO NOT install the remaining screws in the three-pair hole patterns on the door leaf. See illustration below.



- B. Install all of the fasteners on the frame leaf.

### Reinforcing & Rivnuts®

No hinge reinforcement is necessary except on extremely high-frequency, extremely heavy or extra-wide doors. Rivnuts are recommended for use in the frame when the door exceeds 450 lb. (max. 600 lb.)

**NOTE:** Only PBB steel Rivnuts are to be used with fire-rated PBB hinges.

### Grouted/Slushed-in Frames

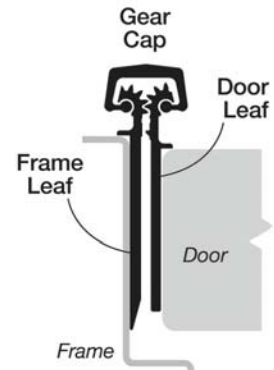
For ease of installation, it is recommended some sort of mudguard be installed behind the frame. Do not use self-drilling, thread-forming screws to drill into grouted frames. If mudguards have not been used, carefully drill pilot holes through frame and remove grout for screw clearance. Do not oversize holes in frame.

### Fire-Rated Hinges

All stock PBB hinges are 90 minute UL-rated, without pins. Please contact PBB for complete information about its fire-rated hinges.

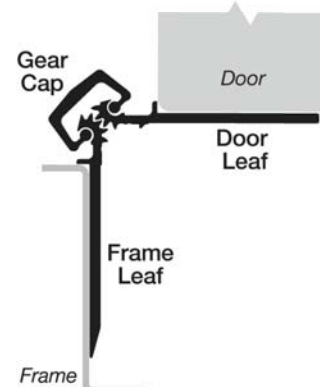


Fig. 1 Door Closed Position



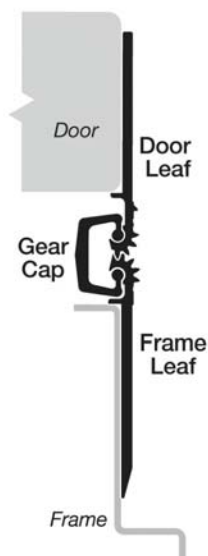
MODEL CG31I SHOWN

Fig. 2 Door Open 90°



MODEL CG31I SHOWN

Fig. 3 Door Open 180°



MODEL CG31I SHOWN