

# 780-224HD

Heavy Duty  
Concealed Leaf Hinge



**Application:**

- Lead lined model for hospital x-ray room doors with a double row of screws to straddle lead (specify "LL")
- Door edge protection lip
- Frame leaf alignment rib for proper hinge and door location
- 3/32" (2 mm) inset



## PRODUCT SPECIFICATIONS

**CERTIFICATIONS:**

- Conforms to ANSI A156.26 for A31011G

**CLEARANCE:**

- 5/16" (8 mm) hinge side
- Plus standard lockside clearance

**FASTENERS:**

- #12-24 X 11/16" Flat Head Self-Drill Screws

**LENGTH OPTIONS:**

- Standard and Custom

**DOOR REINFORCEMENT:**

- None required to 200 lbs. Heavier weight use 16-gauge channel.

**FRAME REINFORCEMENT:**

- None required to 200 lbs. Heavier weight use 16-gauge channel.

**FIRE RATING:**

- Up to 3 hr. metal and 90 min. wood composite (with studs)

**WARRANTY:**

- All Roton products have a lifetime warranty. When ordering electric Roton, the electric portion of the hinge has a one-year warranty.

**MATERIAL:**

- Aluminum 6063-T6

**ELECTRIC**

**MODIFICATIONS:**

- Power Transfer Preparation (EPT 2) or (EPT 10)
- Exposed Electric Contacts (E)
- Exposed Electric Switches (EIS)
- Electric Through-Wire (ETW)
- Electric Monitoring (EMN)
- Electric Through-Wire and Monitoring (ETM)
- Removable Electric Through-Wire (RETW)

**OPTIONS:**

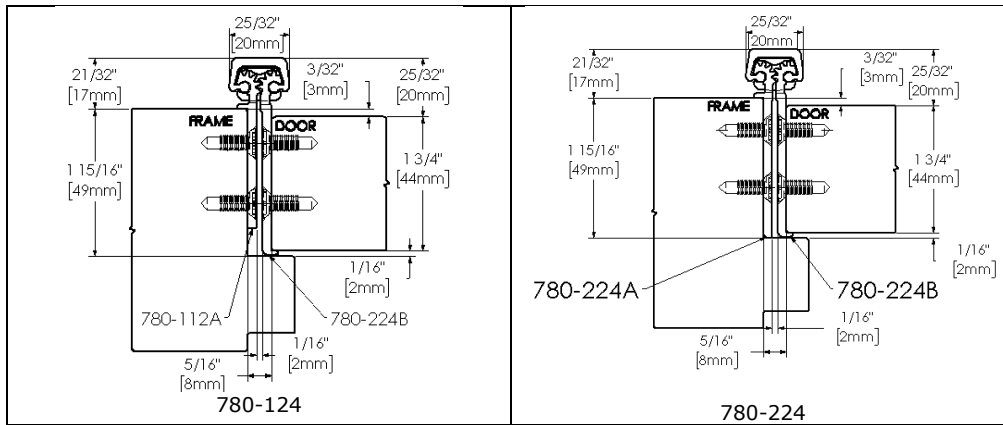
- Hospital Tip

**EPD:**

- [Roton Continuous Hinges Environmental Product Declaration](#)

## PRODUCT SIZE OPTIONS

LENGTH (INCHES)	LENGTH (MM)	HOLE COUNT (DOOR)	HOLE COUNT (JAMB)
79	2007	15	15
83	2108	19	19
85	2159	19	19
95	2413	20	20
119	3023	23	23



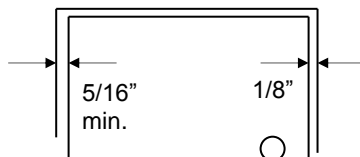
ROTON Models 780-124 and 780-224 is an Aluminum Continuous Geared Concealed Leaf Hinge. This model provides a 3/32" door inset. The 780-124 and 780-224 can be used with any standard frame without hinge preps, and either with or without reinforcements depending on door weight. Clearance required between the hinge edge of the door and the frame rabbet is 5/16" (7.9mm) minimum. "HD" models have additional door bearings for heavy-duty application.

**Hinge Length**

All ROTON Hinges are supplied approximately 1" shorter than the nominal door height to avoid threshold or carpet clearance problems. If the hinge must be trimmed shorter, first determine the correct hand of the door and orientation of the hinge. Then mark and trim from the *bottom* of the hinge only – do not cut from the top end.

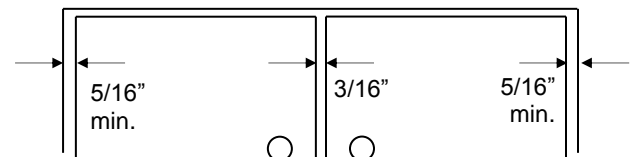
NOM. DOOR HEIGHT	NOM. HINGE LENGTH	NUMBER OF FASTENERS (FRAME / DOOR)
6' 8"	79" (2006mm)	15 / 15
7' 0"	83" (2108mm)	19 / 19
7' 2"	85" (2159mm)	19 / 19
8' 0"	95" (2413mm)	20 / 20
10' 0"	119" (3022mm)	23 / 23

**Total Clearance Between Door And Frame Width**



**SINGLE DOOR - SQUARE EDGED**

Hinge thickness	5/16" (7.9mm)
Allowance for frame irregularities	1/32" (0.8mm)
Latch side clearance (typical)	1/8" (3.2mm)
<b>TOTAL*</b>	<b>15/32" (11.9mm)</b>



**PAIR OF DOORS - SQUARE EDGED**

First hinge thickness	5/16" (7.9mm)
First allowance for frame irregularities	1/32" (0.8mm)
Clearance between doors (typical)	3/16" (4.8mm)
Second hinge thickness	5/16" (7.9mm)
Second allowance for frame irregularities	1/32" (0.8mm)
<b>TOTAL*</b>	<b>7/8" (22.2mm)</b>

\*For doors that are pre-beveled 1/8"-in-2" on the hinge edge, add 1/32" (0.8mm) per door to the TOTAL clearance shown.

**General Fitting Procedure**

- For new construction with metal doors/frames:** To accommodate the 5/16" (7.9mm) hinge clearance required for these ROTON models, order the door undersized or the frame header oversized. See the clearance information above to attain the proper size. Mortar guards, either Styrofoam or wood, are recommended for frames to prevent grout from interfering with the installation of the hinge fasteners.
- For new site-hung wood doors:** If necessary, scribe and cut from the *latch edge* of the door to leave sufficient hinge stile thickness for proper fastening. A minimum clearance of 5/16" (7.9mm) is required between the hinge edge of the door and the frame rabbet. See the clearance information above to attain the proper finished width of the door.
- For remodeling with existing wood or laminate doors:** If necessary, scribe and cut from the hinge edge of the door and plane smooth. A minimum clearance of 5/16" (7.9mm) is required between the hinge edge of the door and the frame. See the clearance information above to attain the proper finished width of the door.

**Installation Procedure**

Frame Preparation (See Fig. 1)

1. With the hinge open, place the hinge frame leaf against the frame rabbet making certain that the alignment rib is flush against the frame face along its entire length. Position the top of the hinge 1/16" (1/8" maximum) below the header. **Note: A 1/16" shim is recommended due to initial settling of the bearings.**
2. Mark and center punch the screw hole locations. *Accurate location is important for proper installation.*
3. For metal frames 12 gage or less ( $\leq .110"/2.8\text{mm}$ ), it is not necessary to pre-drill pilot holes if using the self-drilling screws provided. For metal frames thicker than 12 gage ( $> .110"/2.8\text{mm}$ ), drill and tap all mounting holes for #12-24 threads prior to installing the screws. For wood frames, pre-drill pilot holes using a #18 (.170"/4.3mm) bit for optional #12 wood screws.
4. *Do not attach the hinge to the frame at this time.*

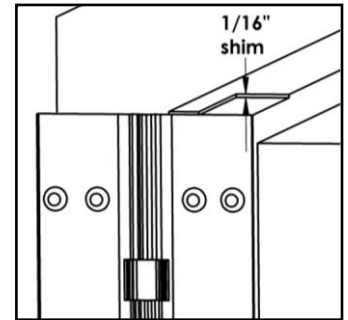


Fig. 1

Door Preparation (See Fig. 2)

1. With the hinge open, place the hinge door leaf against the edge of the door making certain that the door alignment rib is flush against the door face along its entire length. Position the top of the hinge flush with the top of the door.
2. Mark and center punch the screw hole locations. *Accurate location is important for proper installation.*
3. For hollow metal doors 12 gage or less ( $\leq .110"/2.8\text{mm}$ ), it is not necessary to pre-drill pilot holes if using the self-drilling screws provided. For metal doors thicker than 12 gage ( $> .110"/2.8\text{mm}$ ), drill and tap all mounting holes for #12-24 threads prior to installing the screws. For wood doors, pre-drill pilot holes using a #18 (.170"/4.3mm) bit for optional #12 wood screws (provided with LL models).
4. Attach the hinge to the door. For metal doors, use the #12 self-drilling screws provided (recommended driver speed 1,900-2,500 RPM). For wood doors, use optional #12 wood screws.

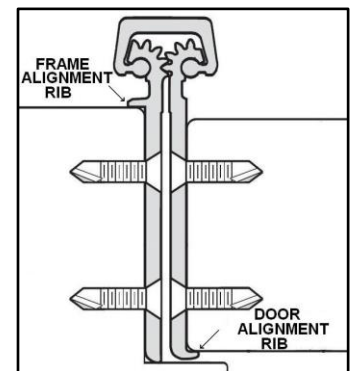


Fig. 2

Hanging the Door (See Fig. 3)

1. Position the door (with hinge attached) at 90° to the frame. Attach the hinge to the frame rabbet. For metal frames, use the #12 self-drilling screws provided (recommended driver speed 1,900-2,500 RPM). For wood frames, use optional #12 wood screws.
2. Make a gentle trial swing. Carefully check the door for proper swing and clearance.

Adjusting the Door

1. If lateral adjustment of the door is required due to excessive or uneven door/frame clearance, adjust by shimming where needed:
  - a) For minor adjustments, an effective shimming material is 1-1/2" cloth duct tape. Apply the tape in stepped layers underneath the frame leaf where needed to build up to the desired thickness.
2. To shift the entire door, a thin continuous aluminum strip may be used underneath the frame leaf (available in 1/16" (1.6mm) and 1/8" (3.2mm) thicknesses from HAGER).
3. Retighten all screws. Carefully check the door for proper swing and clearance.

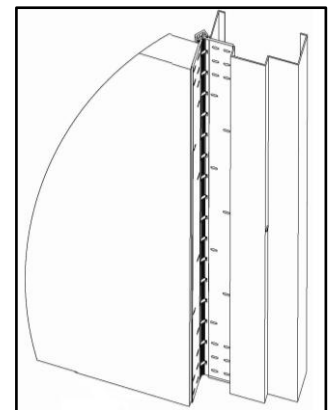
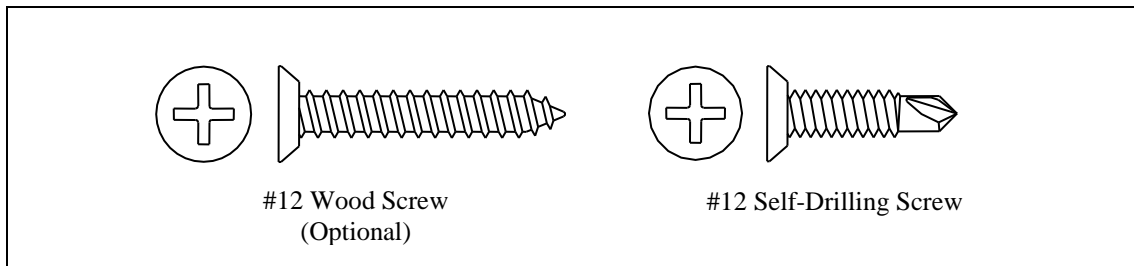
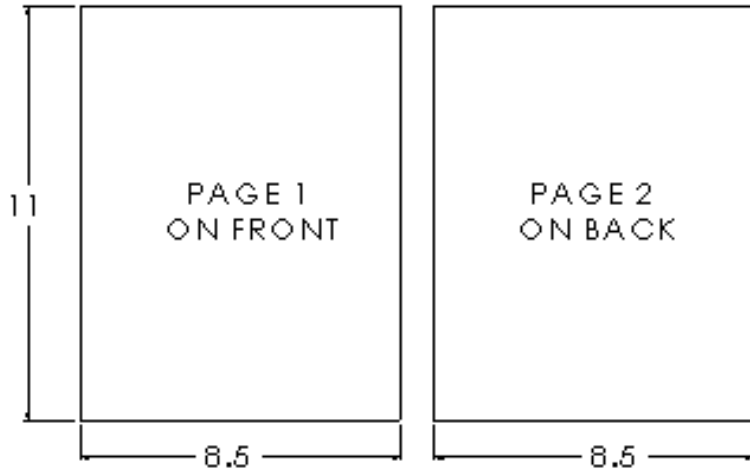


Fig. 3



### FOLDING INSTRUCTIONS

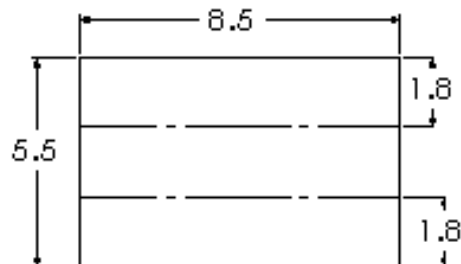
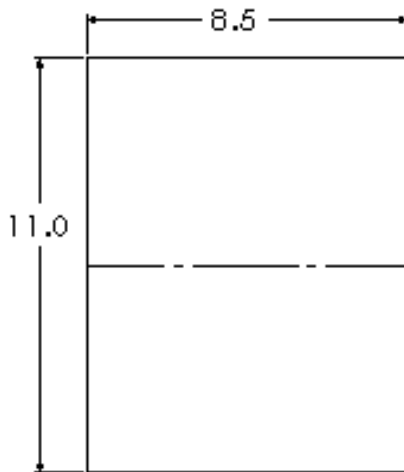
1. **DO NOT USE THIS DRAWING FOR PRINTING** - USE INSTRUCTION FILE.
2. SINGLE SHEET (20# WEIGHT), DOUBLE-SIDED PRINTING ON 8-1/2" X 11"
3. FOLD SHEET AS SHOWN IN DETAIL "A", FOLDING INSTRUCTIONS



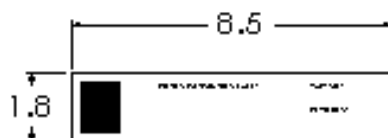
### DETAIL "A" FOLDING INSTRUCTIONS

1. FOLD SHEET IN HALF ALONG WIDTH

2. FOLD INTO THIRDS

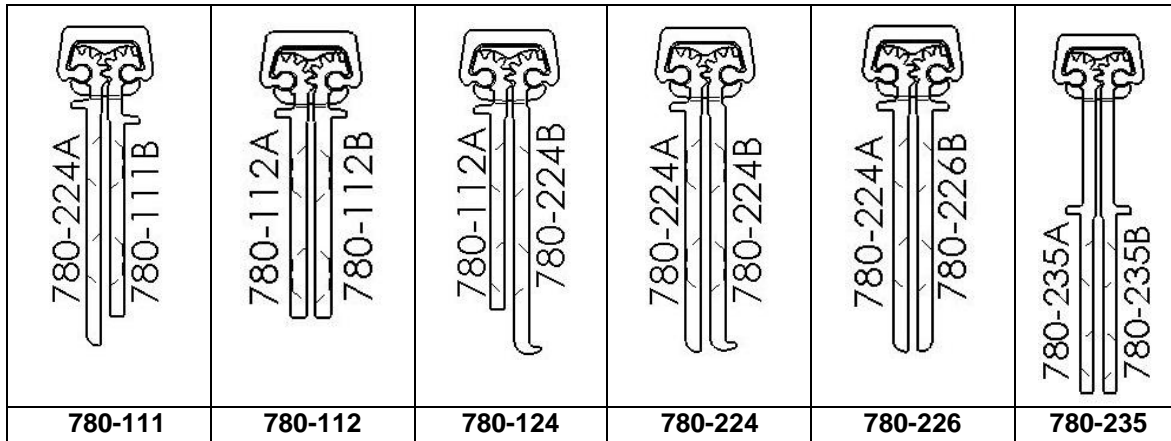


3. FOLDED SHEET WITH HAGER LOGO & REVISION DATE ON OUTSIDE



## **ROTON Hinge U.L. Fire-Rated Studs – 780-111, -112, -124, -224, -226, -235**

These instructions outline how to install the optional stainless steel studs (4) for ROTON Hinge models 780-112, 780-124 and 780-224. All four studs must be used in order to comply with U.L. requirements for composite wood fire doors rated up to 90 minutes and metal fire doors rated up to 3 hours.



### **Materials Needed**

- Stainless steel studs (4).
- Drill, 3/4" diameter bit, #16 (.177") bit, 12-24 thread tap.
- #10 spanner screwdriver.

Vertical Location	79"	83"	85"	95"	119"
Hole #1	13-7/8"	15-7/8"	16-7/8"	16-3/4"	13-3/8"
Hole #2	10-1/4"	10-1/4"	10-1/4"	20-1/2"	30-3/4"
Hole #3	30-3/4"	30-3/4"	30-3/4"	20-1/2"	30-3/4"
Hole #4	10-1/4"	10-1/4"	10-1/4"	20-1/2"	30-3/4"

### **Installation**

1. Install the hinge in accordance with the standard installation instructions furnished with the hinge.
2. At the center of each 3/4" diameter pre-drilled hole in the *frame leaf*, drill and tap a #12-24 threaded hole into the frame (four places).
3. At each 3/4" diameter pre-drilled hole in the *door leaf*, drill a 3/4" diameter x 5/8" deep hole into the edge of the door (four places).
4. Insert a stud into each of the four #12-24 threaded holes of the frame and tighten securely using a #10 spanner screwdriver.
5. Close the door slowly to assure that the studs are properly aligned. Any minor interference can be corrected using a rat-tail file.

