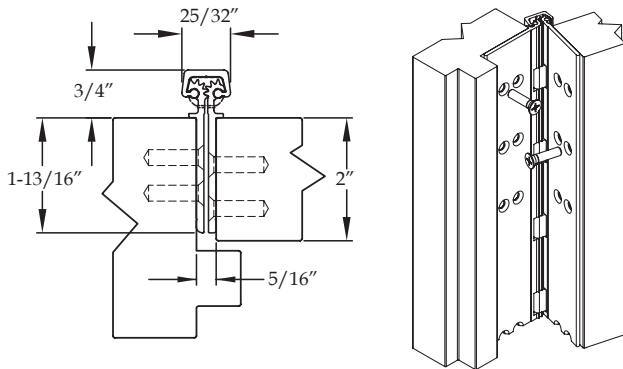


## Full Concealed



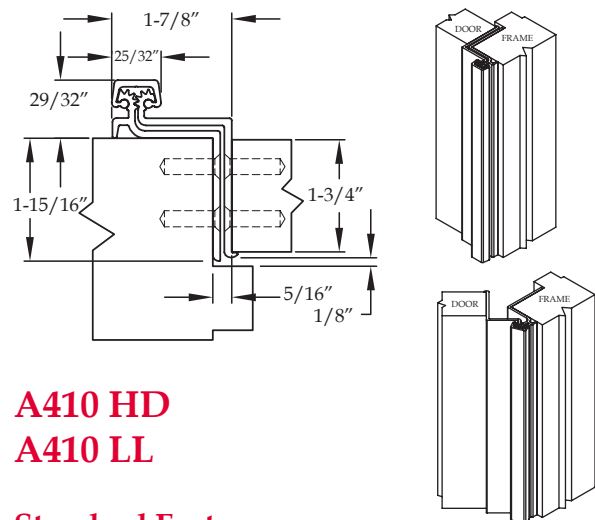
### A270 HD A270 LL

#### Standard Features

- Full concealed, heavy duty
- No door inset, flush mount
- For use on 2" thick door
- 48" door width maximum
- 450 lbs. door weight maximum
- "LL" model for doors up to 1,000 lbs. (lead-lined staggered hole pattern)
- **Fasteners:** 12-24 x 7/8" undercut self-drilling, thread-forming tek machine screws
- **Standard lengths:** 79", 83", 85", 95" and 120"
- **Finishes:** Clear, dark bronze and black anodized
- **Fire Rating**
  - Approved for use on metal swinging type fire doors rated up to and including 90 minutes (Specify "FR" option for 3 hour rating)
  - Approved for use on wood swinging type fire doors rated up to and including 60 minutes (Specify "FR" option for 90 minute rating)

#### Options Available

- See pages F-6 – F-8 for option availability and details



### A410 HD A410 LL

#### Standard Features

- Full concealed, heavy duty
- No door inset, flush mount
- Swing clear application
- Door edge protection lip
- For use on 1-3/4" thick door, square edged only
- 48" door width maximum
- 450 lbs. door weight maximum
- "LL" model for doors up to 1,000 lbs. (lead-lined staggered hole pattern)
- **Fasteners:** 12-24 x 7/8" undercut self-drilling, thread-forming tek machine screws
- **Standard lengths:** 79", 83", 85", 95" and 120"
- **Finishes:** Clear, dark bronze and black anodized
- **Fire Rating**
  - Approved for use on metal swinging type fire doors rated up to and including 90 minutes (Specify "FR" option for 3 hour rating)
  - Approved for use on wood swinging type fire doors rated up to and including 60 minutes (Specify "FR" option for 90 minute rating)

#### Options Available

- See pages F-6 – F-8 for option availability and details



# INSTALLATION INSTRUCTIONS FOR FULL CONCEALED HINGES

A110HD/LL, A111HD/LL, A130HD, A135HD, A140HD/LL, A150HD/LL, A160HD/LL  
A240HD/LL, A260HD/LL, A270HD/LL, A280HD/LL & A410HD/LL

- A. All uncut standard length hinges are non-handed and can be used for right or left hand doors.
- B. Standard length hinges are supplied slightly shorter than nominal door height to accommodate threshold and carpeting clearances.

## CUTTING THE HINGE TO FIT

- Keep hinge in the closed position
- Determine **HANDING** if required. Not all hinges will become handed after cutting.
- Cut one end of the hinge only. Cut end will be installed at the bottom (Six-hole pattern remains at the top)
- Use a Metal Cutting Saw cut through the gear cap first.

**Note:** If cut length interferes with a set screw bearing remove it and switch it with a plain bearing above the cut location.

## FRAME PREP

With the hinge in the open position

1. Locate the top of the hinge 1/8" below the header

With the frame leaf flange tight against the frame

2. Mark or Center Punch hole locations

**Note:** If using wood screws drill a 5/32" pilot hole

**DO NOT ATTACH HINGE TO FRAME AT THIS TIME**

## ATTACH THE HINGE TO THE DOOR

4. Position Door Leaf on door. Door leaf alignment flange or door leaf lip must be seated against door edge.
5. Align the top end of the hinge to be absolutely flush with the top of the door.
6. Mark or Center Punch hole locations
7. Using the provided Self Drilling/Thread Forming Screws and the proper drive bit please proceed to attach the hinge to the door

**Note:** If using wood screws drill a 5/32" pilot hole.

## ATTACHING DOOR TO FRAME

8. Position door 90 degrees to frame
9. Shim door to the proper height to line up the screw holes in hinge frame leaf with the marks at the top of the frame.
10. Install two screws at the top of the hinge to hold in place
11. Remove shim and align the remaining holes. Install two additional screws in the middle and at the bottom.
12. Check door for proper swing and clearance before installing remaining screws, making necessary adjustments.
13. Install the remaining fasteners after any adjustments are made.

## REINFORCING AND RIVNUTS

- No reinforcing 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 450lbs.

**Note:** RIVNUTS are **not** to be used with Fire Rated Hinges

## PAIRS OF DOORS WITH MULLIONS

- If the mullion is between the doors, install as single doors.
- If the mullion is behind the doors, install as a double doors.

## GROUT/SLUSHED-IN FRAMES

It is recommended that a mudguard be installed behind the frame for ease of installation. Do not use self-drill screws with grouted steel frames without a mudguard. If no mudguard has been used, drill holes through frame and remove grout for screw clearances. Do not oversize hole.

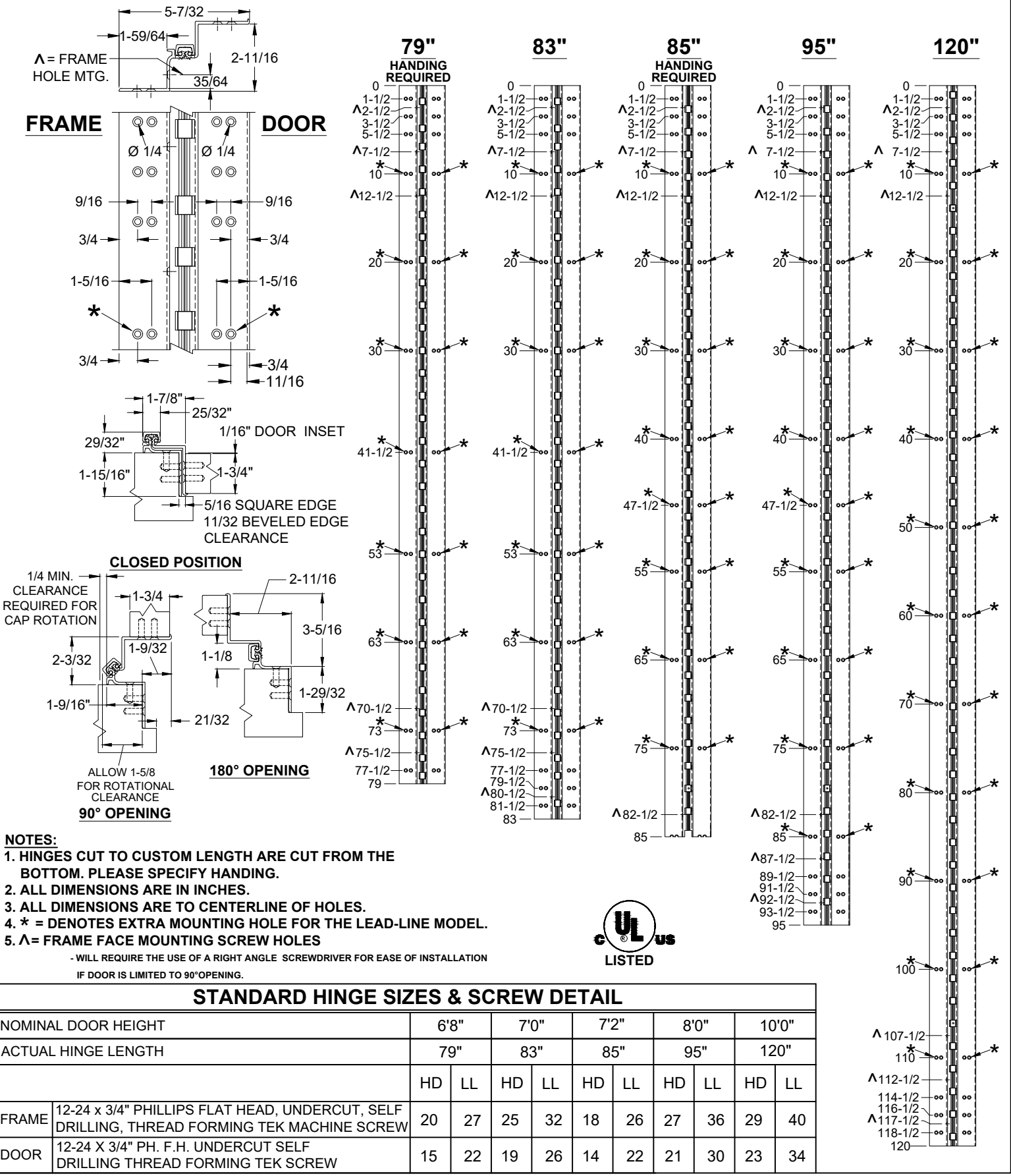
SCREW DETAIL	
FRAME	12-24 x 3/4" PHILLIPS FLAT HEAD, UNDERCUT, SELF DRILLING, THREAD FORMING TEK MACHINE SCREW
DOOR	12-24 x 3/4" PHILLIPS FLAT HEAD, UNDERCUT, SELF DRILLING, THREAD FORMING TEK MACHINE SCREW

**Note:** #12 x 1-1/2" FLAT HEAD UNDERCUT WOOD SCREWS AVAILABLE UPON REQUEST

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

- Failure to Install the hinge according to ABH's specifications and requirements
- Use of Fasteners other than those supplied with the hinge.
- Unauthorized field modifications including removing any of the bearings, altering the original finish or painting the hinge.

# A410HD / A410LL - ALUMINUM GEARED HINGE, SWING CLEAR, NO INSET, FLUSH MOUNT



- NOTES:**
- HINGES CUT TO CUSTOM LENGTH ARE CUT FROM THE BOTTOM. PLEASE SPECIFY HANDING.
  - ALL DIMENSIONS ARE IN INCHES.
  - ALL DIMENSIONS ARE TO CENTERLINE OF HOLES.
  - \* = DENOTES EXTRA MOUNTING HOLE FOR THE LEAD-LINE MODEL.
  - Λ = FRAME FACE MOUNTING SCREW HOLES
- WILL REQUIRE THE USE OF A RIGHT ANGLE SCREWDRIVER FOR EASE OF INSTALLATION  
IF DOOR IS LIMITED TO 90° OPENING.



## STANDARD HINGE SIZES & SCREW DETAIL

NOMINAL DOOR HEIGHT		6'8"		7'0"		7'2"		8'0"		10'0"	
ACTUAL HINGE LENGTH		79"		83"		85"		95"		120"	
		HD	LL	HD	LL	HD	LL	HD	LL	HD	LL
FRAME	12-24 x 3/4" PHILLIPS FLAT HEAD, UNDERCUT, SELF DRILLING, THREAD FORMING TEK MACHINE SCREW	20	27	25	32	18	26	27	36	29	40
DOOR	12-24 X 3/4" PH. F.H. UNDERCUT SELF DRILLING THREAD FORMING TEK SCREW	15	22	19	26	14	22	21	30	23	34



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## A410 ALUMINUM GEARED HINGE

A410-ALUMINUM GEARED HINGE-06.DWG