

# Instructions for Form 1 Manufacturing Drawings Available

## Hinge Overview

The Universal Hinge brand Bolt on Hinge\* is a custom manufactured product tailored specifically for your application. To insure proper fit and operation, the Hinge must be designed to:

- Match the Cover and Flange hole locations and
- Match Cover/Flange assembled “flange-to-flange” thickness
- Provide clearance to Cover projections such as domes and steps.
- Provide clearance to Cover and Flange welds, such as longitudinal and fillet welds.
- Provide access between the back side of the Flange and the vessel for fastener insertion and tightening

This instruction has been developed to guide you step-by-step through the measurement and data collection process. It is not difficult, but attention to detail is necessary.

Some of the design constraints are shown in Figure 1.

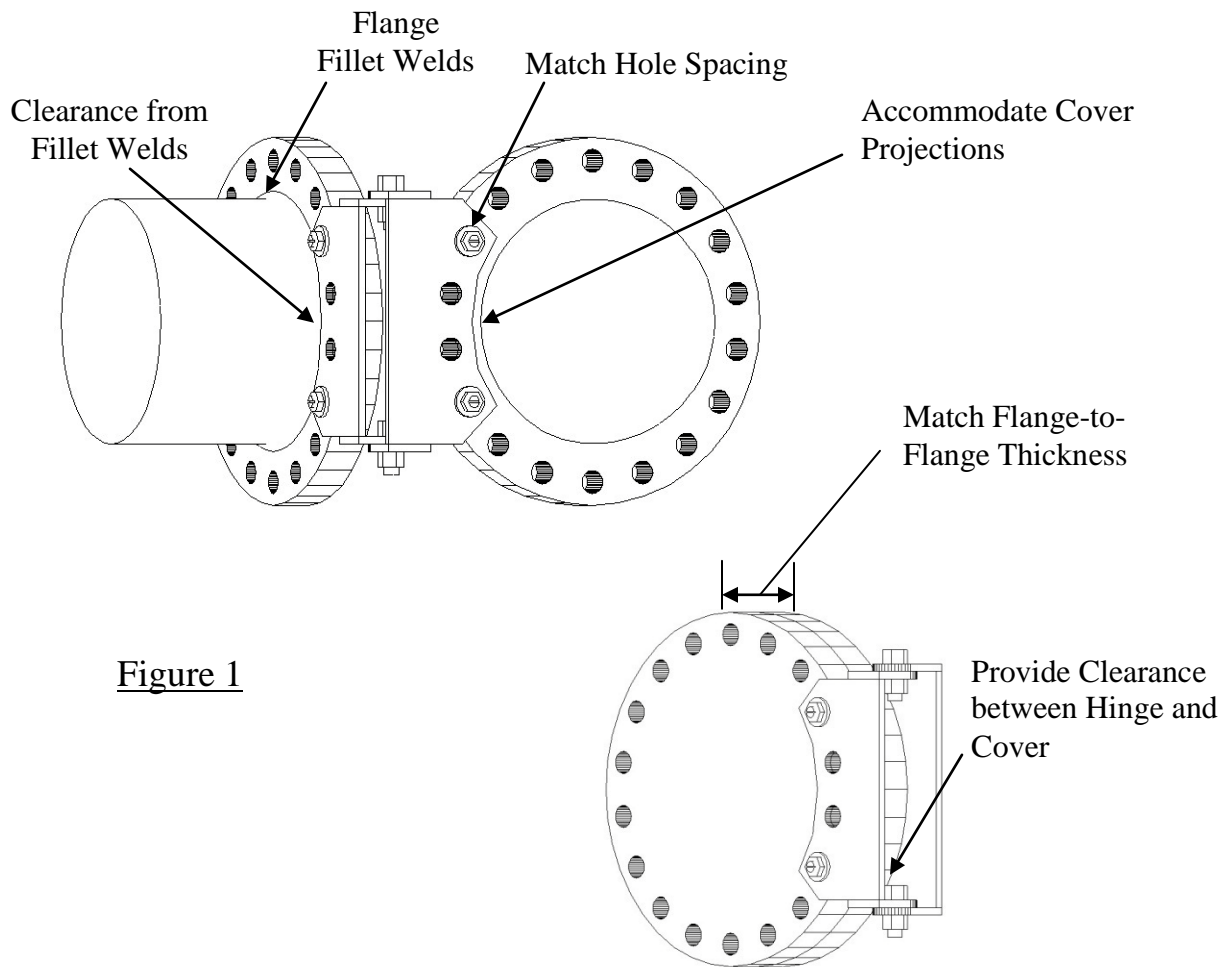


Figure 1

## Flange Overview

The geometry of a flange is governed by the equipment manufacturer. Each manufacturer may have its own unique flange designs, may utilize national standards such as the American National Standards Institute (ANSI) or may use a combination of both. Although cover and flange shapes may be circular, rectangular, half circular and half rectangular, or irregular, a Bolt-on-Hinge can be designed for most applications. It is possible that the equipment manufacturer provided detailed machining drawings of the cover and flange in the technical manual/instruction book provided with the equipment.

Covers and flanges are joined together with fasteners located near the outer edge of the cover. The cover typically has through-holes equally spaced around the circumference of the cover with the holes straddling the horizontal centerline. The flange has an identical number of holes as the cover but may have either through-holes or tapped holes. A circle drawn through the center of each hole in the cover is referred to as the Bolt Circle. The Bolt Circle diameter is identical for both the cover and flange.

If both the cover and flange have through-holes, then the cover and flanges are joined with nuts and bolts or threaded studs with a nut at the end of each stud. Since the through-holes are larger in diameter than the bolts, when assembled, the bolts are not likely located in the center of each bolt hole, therefore the hole-to-hole spacing will not be the same as the bolt to bolt spacing.

If the cover has through-holes and the flange has tapped holes, then the cover and flanges are joined with bolts or threaded studs with a single nut at one end. Although the through-holes in the cover are larger in diameter than the bolts, since the bolts are threaded into the tapped holes in the flange, the bolts will be located in the center of each hole. In this case the hole-to-hole spacing is the same as the bolt-to-bolt spacing.

## Form Submission

Use one of the following methods to submit your completed form:

- Email the form to [orders@universalhinge.com](mailto:orders@universalhinge.com)
- Fax the form to (815) 846 – 1882
- Mail the form to:

Universal Hinge Corp.  
18 Newton Road  
Westminster, MA 01473

## Instructions for Form 1 *Manufacturing Drawings Available*

You must satisfy all of the following requirements to use this form in placing an order.

1. Complete drawing of the cover.
2. Complete drawing of the flange.
3. Complete drawing of the pressure vessel.

If you are unable to satisfy all of the prerequisites, then please go to <http://www.universalhinge.com/inquiries.html> to locate the correct form.

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### 1. Drawings

Please list all of the drawing numbers for your cover, flange, and pressure vessel below. You will need to mail us a copy of your drawings along with the completed Form 1. If you do not have copies of your drawings, then you may mail us your original drawings and we will copy them and return the originals to you.

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### 2. Flange-to-Flange Thickness

If possible, clamp a small flat piece of steel (such as a flat washer) against the back side of the flange face. Place a combination square against the cover face and extend the blade of the square until it just touches the flat washer. If you couldn't clamp a piece of steel to the cover, extend the blade of the square until the end of the blade is exactly even with the back face of the flange. Tighten the locking nut and read the Flange-to-Flange thickness to the nearest  $1/64^{\text{th}}$  of an inch. A dial or digital caliper could be used in lieu of the combination square.



### 3. Digital Photographs

Although not required, photographs of the application will help avoid miscommunications.

*Note: Submit a photo of the back of the flange and the front of the cover. Submit the images via email to [orders@universalhinge.com](mailto:orders@universalhinge.com). Be sure to include your company name and facility in your correspondence.*

a) Front of Cover:



b) Back of Flange:

