

**FLANGE TYPES & STYLES**

**FLANGE SHAPE**

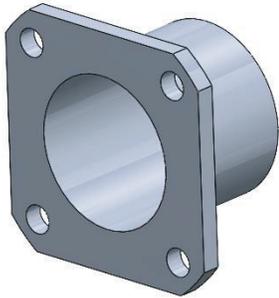


Figure 1

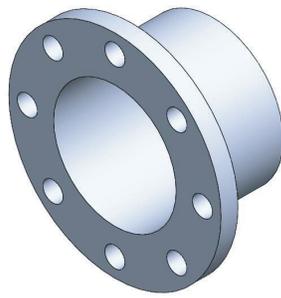


Figure 2

Square flanges (Fig. 1) are designed to meet Japanese JIS standards. Typically used in high pressure hydraulic applications with pipe sizes under 6". It is not recommended for larger pipe diameters where there is a large weight load within. Additionally they are not recommended for high torque applications.

Round flanges (Fig. 2) are designed per a number of design standards (ANSI, JIS, DIN, ...). Less material than the square counterpart, providing for a lighter and more space conscious design. In general the round design is more common on equipment such as pumps, valves, and supporting instruments.

**RAISED VS. FLAT FACED**

Raised Face flanges (Fig. 3) have a raised face surrounding the pipe ID, but just short of the fastening bolt circle. A gasket is placed on the raised surface and provides sealing when clamped against the raised surface of the mating flange. The smaller surface area of the raised surface allows for focusing more pressure on a smaller gasket area, which provides superior sealing for high pressure applications.

Flat Face flanges (Fig. 4) are similar to raised face flanges, but do not have the raised face around the pipe ID. This design utilizes the full flange face contact with the gasket to provide sealing. The raised surface can create a point of bending, which can crack the flange if one side is tightened too far ahead of the opposing side. With the flat face design there is no bending point leading to a simpler assembly.

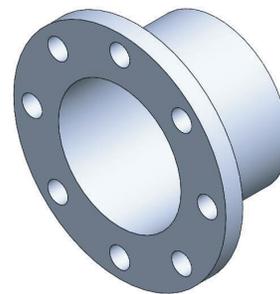


Figure 3



Figure 4

**FLANGE STANDARDS & CLASSES**

Flanges are designed to standards created by groups such as:

- ANSI (American National Standards Institute)
- JIS (Japanese National Institute)
- DIN (German Institute for Standardization)

One of the design features dictated is flange pressure ratings. ANSI flange pressure ratings are in pounds per square inch or using the "#" (i.e. 150# for 150 pounds per square inch). Increasing from one pressure class to the next (150# -> 300#) requires a number of flange dimensional changes (Fig. 5). To accommodate the higher pressure, the flange thickness increases as well as the overall diameter and fastener bolt circle.

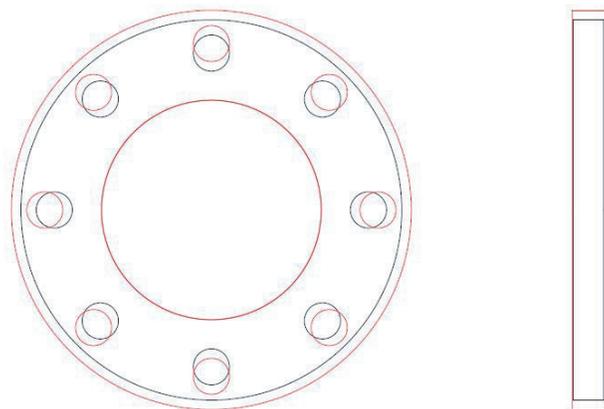


Figure 5