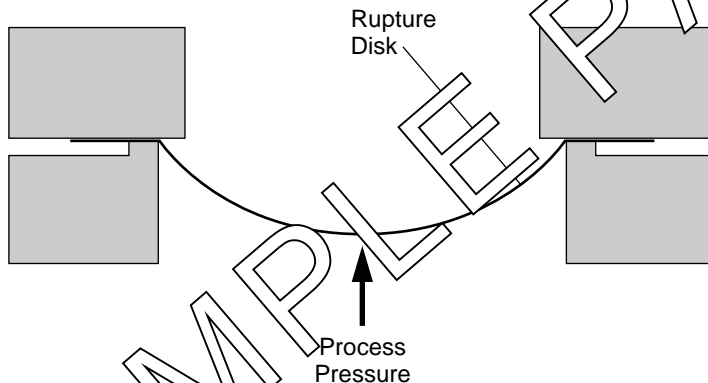


The two most common types of rupture disks are metal and are prebulged rather than flat. These two types are reverse buckling and forward acting, depending on which way they are intended to work and which side is toward the process.

Reverse Buckling Rupture Disks

Reverse buckling rupture disks, also called compression-loaded rupture disks, are usually the first choice whenever the process conditions allow. Reverse buckling disks have the process pressure against the convex, or domed, side of the disk. The advantages to these disks are that they have a longer cycle fatigue life and they will withstand high backpressure. See Figure 2 for a reverse buckling, compression-loaded rupture disk.

Figure 2. Reverse Buckling, Compression-Loaded Rupture Disk

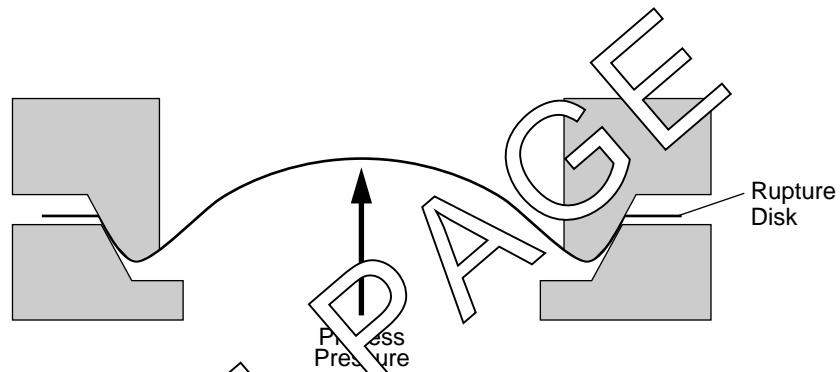


JB002

Some models of reverse buckling rupture disks, especially older models, have knife blades on the downstream side of the disk to cut the disk when the pressure buckles it. Because the knife blades have a tendency to corrode, the maintenance required for this type of disk is increased. Newer models of the reverse buckling disks are prescored, or precut, so that they will rupture without the need of knife blades.

Forward Acting Rupture Disks

Forward acting rupture disks, also called tension-loaded rupture disks, bulge away from the process. The process pressure is against the concave, or dished, side of the disk. These disks have a lower fatigue cycle life and require more margin between the operating pressure and the burst pressure. Sometimes these disks fragment when they burst. See Figure 3 for a forward acting, tension-loaded rupture disk.

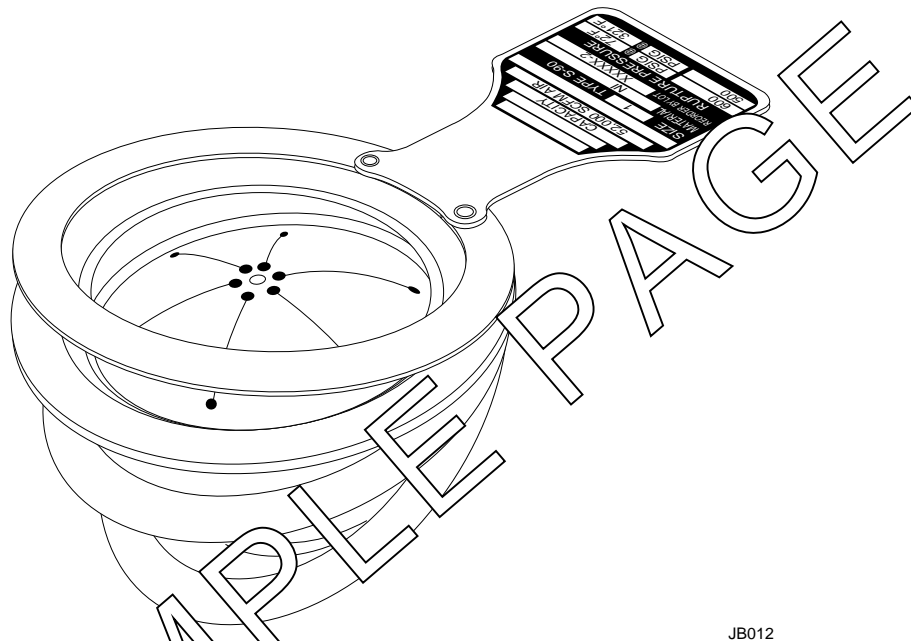


JB003

Figure 3 Forward Acting, Tension-Loaded Rupture Disk

Composite Rupture Disks

Composite rupture disks are commonly found in low pressure applications. These disks are made from a primary metal layer and a secondary layer of another metal or polymer. Teflon® is often used for the secondary layer. Composite rupture disks are forward acting with the primary metal layer on the outside and the composite layer on the process side. A third vacuum support layer is required on applications with back pressure or vacuum. The burst pressure of a composite disk is set by the spacing of the holes in the metal layer. The composite disk's design allows it to be operated closer to burst pressure than a solid forward buckling disk. These disks may fragment when they burst. See Figure 4 for a composite rupture disk.



JB012

Figure 4. Composite Rupture Disk

Graphite Rupture Disks

Graphite rupture disks are flat graphite membranes supported in special retainers. Depending on the resin and binder system used, graphite rupture disks are resistant to corrosion and are normally used in highly corrosive processes. The main disadvantage to graphite disks is that they provide a large amount of fragmentation when they rupture.

There are other types of rupture disks for special applications such as water heaters and hydraulic machinery.