

BI-DIRECTIONAL METAL-TO-METAL SEAL

ABSTRACT

A wellhead seal assembly that forms a metal-to-metal seal between inner and outer wellhead members (18, 10). A metal seal ring (17) has inner and outer legs (27, 31) that are threaded to each other and separated by a slot (22) and provide bi-directional sealing. The threaded connection provides a pathway for annular pressure into the slot. The inner and outer legs (27, 31) have inner and outer walls (25, 29), respectively. Inner and outer legs (27, 31) have a soft metal inlay (40) on their interior surfaces (42, 44). Wickers (14, 20) may be located on the outer surface (22) of the inner wellhead member (18) and on the inner surface (12) of the outer wellhead member (10). An energizing ring (28) is moved into the slot to force the outer and inner walls (29, 25) of the seal (17) into sealing engagement with the inner and outer wellhead members (18, 10). The soft metal inlays (40) deform onto the energizing ring (28). If present, wickers (14, 20) on the wellhead members (18, 10) embed into the walls (29, 25) of the seal ring (17).

Figure 1