

ENERGIZING RING NOSE PROFILE AND SEAL ENTRANCE

ABSTRACT

A wellhead seal assembly (21) that forms a metal-to-metal seal between inner and outer wellhead members (15, 10). A metal seal ring (23) has inner and outer walls (25, 29) separated by a slot (35). An elastomeric seal (106) is located below the seal ring (23) and has a bottom portion (108) that contacts an upward facing shoulder (110) of a hanger (15). An energizing ring (41) with a tapered nose (61) is moved into the slot (35). The tapered nose (61) has a compound angle that determines how much the nose (61) travels into the slot (35) when a force is applied to the energizing ring (41). Once the elastomeric seal (106) is compressed to a desired level, the load on the energizing ring (41) has increased to the point that the tapered nose (61) of the energizing ring (41) will further enter the slot (35) and force the outer and inner walls (25, 29) of the metal seal into sealing engagement with the inner and outer wellhead members (15, 10).

Figure 2