

MULTI-METAL SEAL SYSTEM

BACKGROUND

[0001] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present invention, which are described and/or claimed below. This discussion is believed to be helpful in providing the reader with background information to facilitate a better understanding of the various aspects of the present invention. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

[0002] In some drilling and production systems, hangers, such as a tubing hanger, may be used to suspend strings of tubing for various flows in and out of the well. Such hangers may be disposed within a wellhead that supports both the hanger and the string. For example, a tubing hanger may be lowered into a wellhead and supported therein. To facilitate the running or lowering process, the tubing hanger may couple to a tubing hanger-running tool (THRT). Once the tubing hanger has been lowered into position within the wellhead by the THRT, a seal is formed in the gap between the spool and the hanger to block fluid flow. Unfortunately, existing systems used to seal the gap between the spool and the hanger may be complicated and time consuming.

SUMMARY

[0002A] According to a first aspect, there is provided a system, comprising: a first tubular; a second tubular configured to rest within a bore of the first tubular; a multi-metal seal system configured to seal a space between the first tubular and the second tubular, wherein the multi-metal seal system comprises: a first metal seal portion with a first angled surface and a second angled surface; a second metal seal portion with a third angled surface; and a third metal seal portion with a fourth angled surface; wherein the first angled surface selectively engages the third angled surface at a first angled interface and the second angled surface

selectively engages the fourth angled surface at a second angled interface, and wherein the first and second angled interfaces are configured to drive the first metal seal portion radially away from the second and third metal seal portions.

[0002B] According to a second aspect, there is provided a system, comprising: a multi-metal seal system configured to seal a space between a first tubular and a second tubular, wherein the multi-metal seal system comprises: a first metal seal portion with a first angled surface and a second angled surface; a second metal seal portion with a third angled surface; and a third metal seal portion with a fourth angled surface; wherein the first angled surface selectively engages the third angled surface at a first angled interface and the second angled surface selectively engages the fourth angled surface at a second angled interface, and wherein the first and second angled interfaces are configured to drive the first metal seal portion radially away from the second and third metal seal portions; and a lock ring system configured to hold the multi-metal seal system in a sealed position, wherein the lock ring system comprises: a load ring configured to engage the first tubular; and a lock ring configured to radially energize the load ring by moving only in an axial direction.

[0002C] According to a third aspect, there is provided a system, comprising: a multi-metal seal system configured to seal a space between a first tubular and a second tubular, the multi-metal seal system comprises: a first metal seal portion with a first angled surface and a second angled surface; a second metal seal portion with a third angled surface; and a third metal seal portion with a fourth angled surface; wherein the first angled surface selectively engages the third angled surface at a first angled interface and the second angled surface selectively engages the fourth angled surface at a second angled interface, and wherein the first and second angled interfaces are configured to drive the first metal seal portion radially away from the second and third metal seal portions to seal the space between the first and second tubulars.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] Various features, aspects, and advantages of the present invention will become better understood when the following detailed description is read with reference to the accompanying figures in which like characters represent like parts throughout the figures, wherein:

[0004] FIG. 1 is a block diagram of an embodiment of a mineral extraction system with a multi-metal seal system;