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TOPIC

PCP TAGBAR BOTTOM TAG PLATE "NO WELD" DESIGN

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BACKGROUND

Progressing cavity pumps (PCP's) require an accessory component often referred to as the tagbar or stop pin. This component is used to properly land the rotor inside the stator during installation in the wellbore. Conventional tagbar design utilized an induction hardened pin that was welded inside a tube at a specified location. The location of the pin works in conjunction with the rotor and stator lengths to ensure that once the rotor is seated on the tagbar pin, the rotor head is just above the top of the stator elastomer. Although effective at locating the rotor inside the stator, the tag pin design is susceptible to being knocked out if the rotor lands on it with excessive force. The conventional tagbar pin design is shown on the right in Figure 1.

PCP's have evolved in the global artificial lift market through an increase in volume and lift capacity. To accomplish this, they have become larger in OD and longer in overall length. Increases in these design parameters have put the conventional welded pin style tagbar design to the test. Lifting Solutions began looking at methods to increase durability and reliability while maintaining a cost-effective solution for our clients.

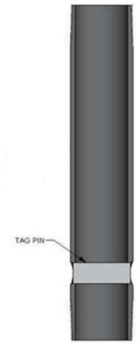


Figure 1,
Conventional

BOTTOM TAG PLATE "NO WELD" DESIGN

The bottom tag plate no weld design offers several advantages over the conventional welded pin design. A stronger plate with shoulder support does not rely on welding for securement of the tagging mechanism. The plate is held in place between the bottom shoulder sub and the top nipple. Because no welding is required service center rebuilds are simple and reusability of components provides a cost-effective solution in a superior design.

As opposed the historical design, the bottom plate no weld design is a 3-piece design that consists of a housing, tag plate and upper nipple. Design flexibility allows for different thread configurations, nipple length, slotting configurations, tag plate thickness and inflow cross sections between the tag plate and tube ID. The tag plate sits on a robust shoulder inside the housing, while the strength and inflow are controlled by the plate thickness and variable cross section. This design provides for convenient repair and replacement of the tag plate if needed. The top nipple length is modular to customize for S/L/P tagbar lengths as required. Inflow can be adjusted by easily switching between solid and slotted top nipple configurations. The novel bottom tag plate no weld design is shown in Figure 2.

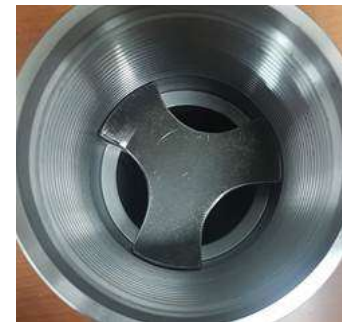


Figure 2, Bottom Tag
Plate No Weld