



Tubing Protection System

The Omega Tubing Protection System was developed in conjunction with a UK operator as a solution to a junked well issue.

The well had a stuck tool string at a significant depth and a collection of wire was unretrievable from the well.

The operator wanted to produce from the well but was concerned that the broken fragments would flow upwards causing issues in the upper completion.

Omega's simple solution was to utilise their existing gauge hanger as an anchoring base for high flowing tubing system which allows high bypass but has the ability to capture debris.

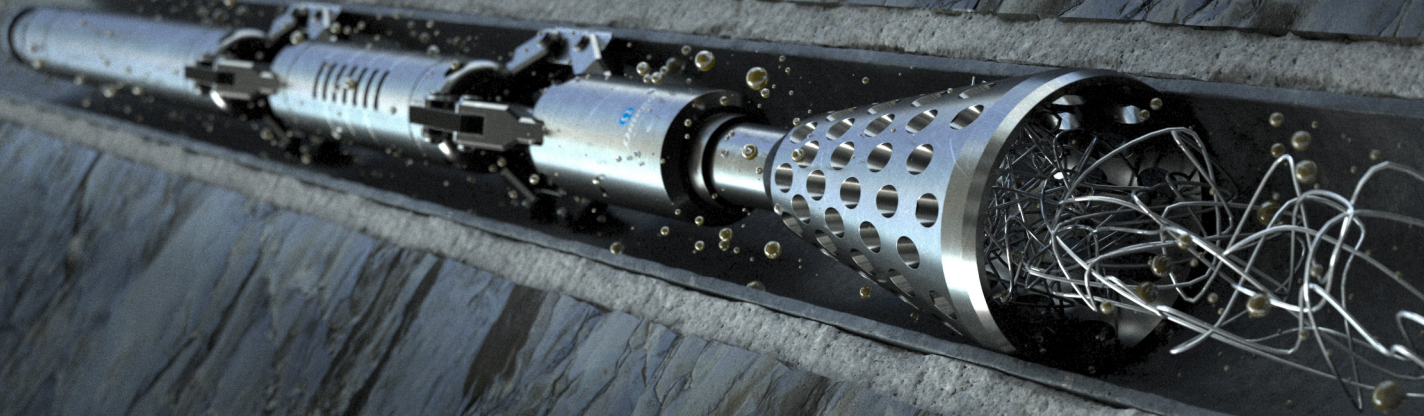
A flow analysis was carried out on the assembly which proved that minimum upthrust and maximum flow was provided due to the size and angle of the flow ports.

A quick response to the customers problem was essential and Omega were able to design and build a solution within 48hrs.

Overview

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Tubing Protection System



FLOW PORTS

The flow area of the tubing protection system through the flow ports is greater than that of the gauge hanger. This is to ensure that this will not become the restriction point and therefore reduce up thrust. In the event of some ports catching debris the surplus flow area will still allow bypass of fluids. The flow ports are designed at an angle in which the fluid will have an easy flow path.

• Flow area of hole pattern = 9.86in² • Flow area past gauge hanger in 4.50" 18.9# = 4.95in² • Flow area past gauge hanger in 23.2# = 6.60in²

RUN IN HOLE

This system has a generous lead angle to aid the running in hole and yet the max OD is minimised to help pass through restrictions. The connection to gauge hanger is through a sucker rod connection and will also be pinned for extra security.

MATERIAL

Material chosen for the system is Alloy 718 (Inconel) this is a high Nickle based alloy known for its strength, high corrosion & erosion resistant properties.

TESTING

The 2.0" gauge hanger has been tested in 125vs25 grade pipe in both 4-1/2" 18.9# & 5" 23.2# tubing. Both tests showed the gauge hanger was capable of over 2 tonnes of load from below.

- Max OD 4.50" = 3.550"
- Max OD 5.0" = 3.750"
- Full System Set Length = 3.920'

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