Artificial Lift Services

# Q2-HVS (Horizontal Valve System)

## Description

The Q2-HVS is a new and innovative design in valve technology. This new design uses two of our patented Q2-Flow insert guides inside our 1-piece cage allowing the producer to lay the pump in a lateral section up to 89.5 degrees.

The horizontal valve system (HVS) allows producer to lay their down hole rod pump into the horizontal leg of the well. The unique design of the valve consists of a guide ball and seat ball. The guide ball keeps the position of the seat ball engaged, where the traditional ball would fall into lower side of cage laying on its side.

This guiding of the seat ball allows valve to close consistently and quickly while disallowing seat ball to disengage from seat when downhole rod pump is set laterally in the horizontal leg section of well. The Q2-HVS is a new and innovative design in valve technology. This new design uses two of our patented Q2-Flow insert guides in our 1-piece cage.

At the end of the reciprocation cycle, an initial back pressure moves the barbell into the high-pressure, low-pressure cross-sectional zone of the hydrodynamic valve. When subjected to higher pressure, the valve seals in an inverted position upon receiving the initial reciprocation pulse.
Solids: The HVS (Hydrodynamic Valve System) leverages its internal geometry and differential pressure to effectively flush solids from the valve. Its design creates a seal with 100 times the surface area of traditional ball valves, eliminating the need for redundant double-valve configurations.

## Advantages

- Allows producer to run pump in build section from 65 degrees to 89.5 degrees in horizontal
- Reduce pressure drop by an estimated 70% over a conventional double valve design
- Reduce cage failure by distributing ball impact forces evenly across upper three ribs and inner wall of the cage
- Increase of pump efficiency in gas cut environment
- Handle solids more efficiently than the conventional inserts
- Scale and paraffin build up is minimized as lower pressure drop across valve occurs from vortex flow
- Increasing the ID of Insert will not impact wear due to reduced ball vibration compared to conventional inserts
- Alternate size balls can be used as the uniform vortex flow from below helps control ball chatter
- Good for handling higher solids and for increasing the flow
- Balls wear uniformly due to the inside of the inserts spherical dimensions and have a longer lifespan.

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