Specifications

Golf-type Gas Lift Ball, Gas Lift Oil Recovery Device, Control System, and Control Method

Technical Field

The present disclosure relates to a golf-type gas lift ball gas lift oil production device, control system and method, involving the technical field of oil and gas lift equipment.

Background

In light of the gas lift oil production devices commonly used at present, one way is to lift the crude oil flowing into the hole to the ground surface by means of mixing the high-pressure gas injected into the hole from the ground surface with the fluid generated in the oil layer in the hole, to reduce the density of the mixed liquid in the hole by the expansion of the gas. Another way is to pump the gas lift ball along the pipe string to the bottom of the hole by use of the high-pressure gas, and then lift the oil to the ground surface by the thrust of the high-pressure gas and the gas lift ball. However, because the oil layer is usually located deep underground, with the continuous production of oil and gas, the downhole environment becomes complicated and unstable, such as frequent fluctuation in pressure, temperature and fluid flow rate at the bottom of the hole. The traditional gas lift oil production device, however, cannot track the changes of the downhole conditions in real time, so it is not feasible to adjust the pumping rate of the injected high-pressure gas or the pitching frequency of the gas lift ball in time, thus affecting the gas lift oil production efficiency.

Summary