

Step-port full-path infinite stage cementing and fracturing technology

Technology introduction

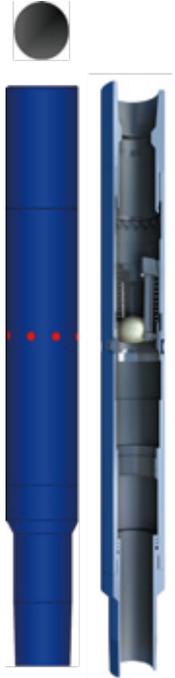
Step-port full-path infinite stage cementing and fracturing technology is independent research and development by Anton Company, it a new technology for casing cement fracture engineering. With the most advanced ideas, cutting-edge technology, the simplest operation, the lowest cost, the shortest operating cycle, can significantly reduce the cost of shale gas, tight oil development.

In this technique, all sliding sleeves are opened with the same size ball to achieve the full size production string after fracturing. At the same time, multiple sleeves can be opened with balls of the same size to achieve cluster SRV fracturing.

- Mechanical counting principle, safe and reliable
- Full diameter of string after fracturing
- With no stages limit, multiple cluster fracturing can be achieved
- There is no need to perforate, drill off ball seat, frac equipment waiting
- No special operation requirements, no need for coiled tubing and other equipment, low cost

Technology states

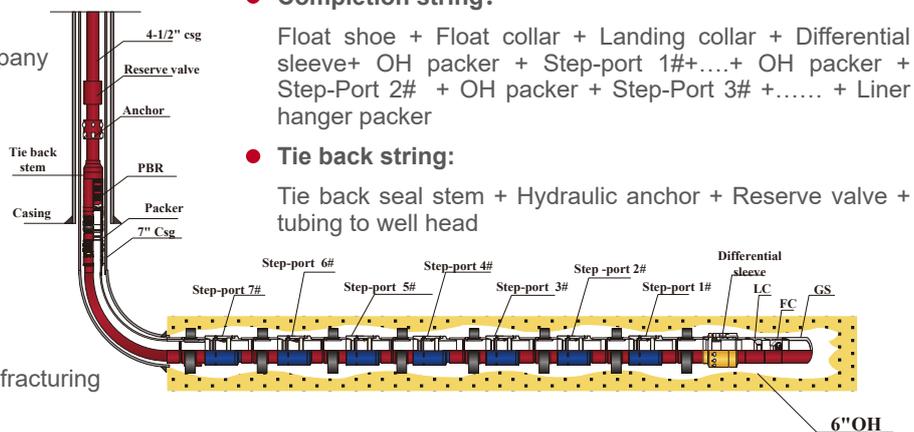
Step-port full-path infinite stage cementing and fracturing technology has been successfully applied in Sinopec Huabei for 7 Wells, which is suitable for staged fracturing of all tight oil and gas fields, shale gas and other unconventional reservoirs.



Application case

1 Well information

JPH-x well of Sinopec Huabei company
Well type: horizontal well
MD: 4456m
TVD: 3026.48m
Horizontal length: 1200m
Reservoir: tight sandstone
Open hole size: 152.4mm
Fracturing operation: stage 8 sand fracturing



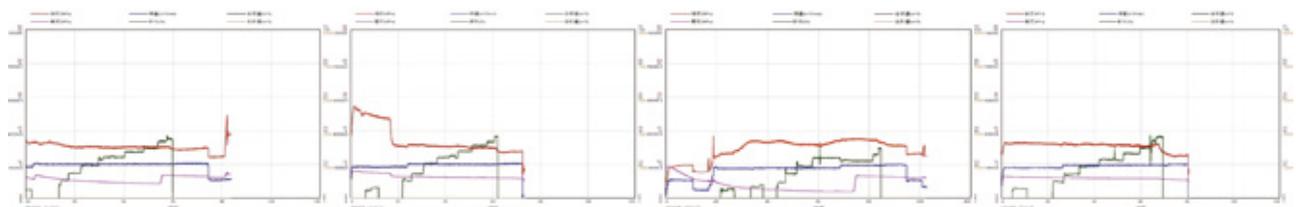
● Completion string:

Float shoe + Float collar + Landing collar + Differential sleeve+ OH packer + Step-port 1#+....+ OH packer + Step-Port 2# + OH packer + Step-Port 3# + + Liner hanger packer

● Tie back string:

Tie back seal stem + Hydraulic anchor + Reserve valve + tubing to well head

2 Fracture curve



The actual construction volume is 2350 cubic meters, the total sand volume is 300 cubic meters, and the construction displacement is 4 cubic meters /min.