

Technical Overview FloFuse Stim

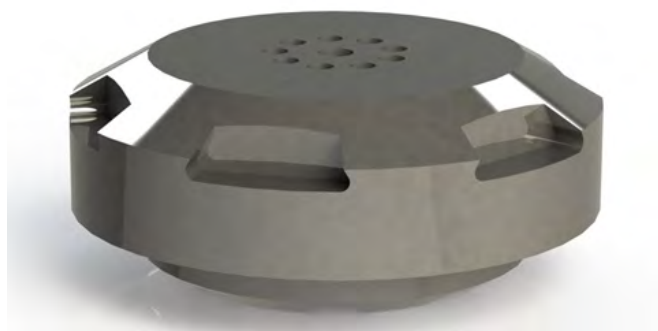
Acidizing as a stimulation process for production enhancement or formation damage removal has been around for some time. Inherently, numerous case studies analyzing the success rate of the stimulation operations indicate that efficiency of the acid placement is the key parameter for a successful operation.

Challenges surrounding the acid placement in complex reservoirs are plenty, from rock properties, where low matrix permeability, natural fractures, and faults and heterogeneity exist, to fluid properties still their saturations, relative permeabilities and mobility issues.

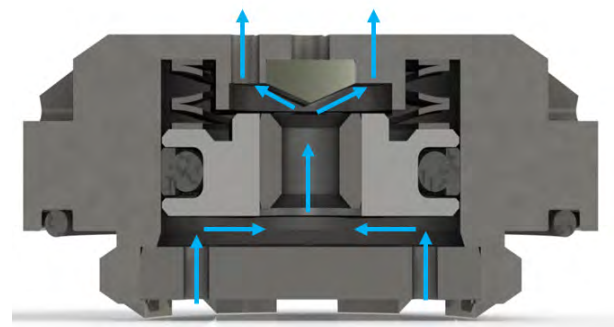
Addressing such complex reservoir properties and optimizing the acid treatments for even fluid distribution along the bore can be problematic. For instance, thief zones, fractures and hyper-reactive zones “stealing” all the treatment and unsuccessful diversion for less conductive zones being such culprits of inadequate and unoptimized acid stimulation.

But not anymore.

FloFuse Stim is an interventionless injection rate limiting technology that ensures proportional distribution of treatment fluid along the full length of the wellbore and between laterals. The FloFuse Stim responds to dynamic changes in treatment rates and unexpected variations in fluid displacement.



FloFuse mounted in screen



FloFuse Stim is a biased open valve which enables injection at normal distributed rates but closes once a predetermined trigger rate is reached. The target rates and trigger rates can be varied by application.

The challenges for the effective distribution are more or less the same across the reservoirs, whether carbonates, shale or sandstone. They all need diversion to make it successful and more operation, cost and logistic friendly.

This technology can be applied in wells with long laterals, low matrix permeability such as in unconventional developments with high calcium carbonate content and natural and hydraulically induced fractures, such as the Eagle Ford and Austin Chalk. In addition, this technology has application in salt water disposal or water injector wells in carbonate formations that are have long laterals being stimulated in one single treatment.

To achieve the efficient stimulation along the entire wellbore length, the well is segmented into multiple zones with one or more FloFuses within each zone. The valve is then mounted into the base pipe or screen section.