

Compact fully dissolvable frac plugs

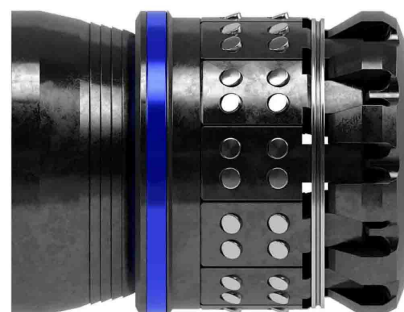
Shorter plugs that provide consistent, repeatable setting and isolation plus fullbore production without milling

Applications

- Plug-and-perf multistage fracturing operations in freshwater or brine
- Difficult milling conditions, such as extended-reach laterals, highly deviated wells, and underpressured reservoirs
- Isolation for refracturing operations

Features

A proprietary field-proven coating protects the frac plug and prevents early dissolution, enabling plug placement in the well several hours before isolation is required. To complete isolation, a dissolvable ball is pumped down to the integral ball seat before fracturing begins. Optionally, the plug can be configured for deployment with the ball in place.



ReacXion Nano frac plug.

How ReacXion Nano frac plugs improve plug-and-perf completions

ReacXion Nano™ compact fully dissolvable frac plugs easily dissolve in the presence of common wellbore fluids after fracturing is complete, considerably simplifying cleanout operations (by eliminating milling) and reducing time to production. The time savings result in reduced diesel consumption and hence, lower CO₂e emissions. These shorter plugs, necessitating tighter casing weight ranges, result in improved economics and faster dissolution.

The frac plugs require only minimal field assembly, or they can be delivered preassembled via the Unity™ integrated frac plug and perf gun system to eliminate the potential for human error and operational delays. An antipreset design eliminates the risk of presetting while pumping into the well.

Load-transfer technology integrated into the frac plug design uses the casing as a supporting member, transferring the load from the ball to the ball seat, through the slips, and onto the casing. Pressure exerted on the ball during stimulation continues to reinforce the integrity of the plug's seal, forming a tighter seal as pressure is increased.

ReacXion Nano frac plugs are smaller by volume than other dissolvable frac plugs, accelerating dissolution. Their field-proven materials ensure that they dissolve fully and predictably in freshwater or common oilfield brines, depending on the version selected. Improved material selection also enables fast, controlled dissolution of the elastomer.

These plugs

- add flexibility with one tool that works from fracturing to fullbore production without the expense of milling
- enable tuning dissolution performance with the optimal material for freshwater or brine.
- provide the option of efficient preassembly, enabled by the Unity system.

ReacXion Nano Specifications

Specifications	4 1/2-in Casing (Light)	4 1/2-in Casing (Heavy)	5-in Casing (Light)
Casing size	4.5 in [114 mm]	4.5 in [114 mm]	5 in [127 mm]
Casing weight	11.6 lbm/ft [17.3 kg/m]	13.5–15.1 lbm/ft [20.1–22.5 kg/m]	18–21.4 lbm/ft [26.8–31.8 kg/m]
Configuration	Ball drop or ball in place	Ball drop or ball in place	Ball drop or ball in place
Plug OD	3.72 in [95 mm]	3.56 in [91 mm]	3.85 in [98 mm]
Min. ID	1 in [25 mm]	1 in [25 mm]	1 in [25 mm]
Ball diameter	1.13 in [29 mm]	1.13 in [29 mm]	1.13 in [29 mm]
Length	5.1 in [130 mm]	4.6 in [118 mm]	5.5 in [140 mm]
Set length	3.9 in [99 mm]	3.9 in [99 mm]	4.8 in [122 mm]
Plug weight	2.3 lbm [1 kg]	1.9 lbm [0.8 kg]	2.6 lbm [1.2 kg]
Setting force*	25000 lbf [111000 N]	25000 lbf [111000 N]	25000 lbf [111000 N]
Stroke length*	4 in [102 mm]	4 in [102 mm]	4 in [102 mm]
Pressure rating 1	8000 psi [55158 kPa]	8000 psi [55158 kPa]	8000 psi [55158 kPa]
Temperature rating 1	275 degF [135 degC]	275 degF [135 degC]	275 degF [135 degC]
Pressure rating 2	10000 psi [68948 kPa]	10000 psi [68948 kPa]	10000 psi [68948 kPa]
Temperature rating 2	225 degF [107 degC]	225 degF [107 degC]	225 degF [107 degC]

ReacXion Nano Specifications

Specifications	5-in Casing (Heavy)	5 1/2-in Casing (Light)	5 1/2-in Casing (Heavy)
Casing size	5 in [127 mm]	5.5 in [140 mm]	5.5 in [140 mm]
Casing weight	23.2–24.1 lbm/ft [34.5–35.9 kg/m]	17.0–20.0 lbm/ft [25.3–29.8 kg/m]	20.0–23.0 lbm/ft [29.8–34.2 kg/m]
Configuration	Ball drop or ball in place	Ball drop or ball in place	Ball drop or ball in place
Plug OD	3.72 in [95 mm]	4.5 in [114 mm]	4.38 in [111 mm]
Min. ID	1 in [25 mm]	1.13 in [29 mm]	1.13 in [29 mm]
Ball diameter	1.13 in [29 mm]	1.38 in [35 mm]	1.38 in [35 mm]
Length	5.1 in [130 mm]	6.4 in [163 mm]	5.5 in [140 mm]
Set length	4.4 in [112 mm]	4.9 in [125 mm]	4.9 in [125 mm]
Plug weight	2.3 lbm [1 kg]	4 lbm [1.8 kg]	3.4 lbm [1.5 kg]
Setting force*	25000 lbf [111000 N]	45000 lbf [200000 N]	45000 lbf [200000 N]
Stroke length*	4 in [102 mm]	4 in [102 mm]	4 in [102 mm]
Pressure rating 1	8000 psi [55158 kPa]	8000 psi [55158 kPa]	8000 psi [55158 kPa]
Temperature rating 1	275 degF [135 degC]	275 degF [135 degC]	275 degF [135 degC]
Pressure rating 2	10000 psi [68948 kPa]	10000 psi [68948 kPa]	10000 psi [68948 kPa]
Temperature rating 2	225 degF [107 degC]	225 degF [107 degC]	225 degF [107 degC]

ReacXion Nano



ReacXion Nano Specifications

Specifications	6-in Casing
Casing size	6 in [152 mm]
Casing weight	22.5–24.5 lbm/ft [33.5–36.5 kg/m]
Configuration	Ball drop or ball in place
Plug OD	4.85 in [123 mm]
Min. ID	1.15 in [29 mm]
Ball diameter	1.63 in [41 mm]
Length	7.4 in [188 mm]
Set length	5.5 in [140 mm]
Plug weight	6 lbm [2.72 kg]
Setting force*	45000 lbf [200000 N]
Stroke length*	5 in [127 mm]
Pressure rating	10000 psi [68948 kPa]
Temperature rating	300 degF [149 degC]

All specifications are subject to change without notice.

* Nominal values