

X-treme QUAKE

High-frequency radial impulse tool



X-treme QUAKE® is a high frequency radial impulse tool engineered to stimulate enhanced production, productivity and performance.

X-treme QUAKE® harnesses the power of the HydroVolve INFINITY® engine to drive an array of radial impulse strikers into contact with the wall of the wellbore. X-treme QUAKE® strikers deliver high frequency impulse energy to break bonds, mobilise solids, clean and cleanse wellbore systems across a diverse range of applications.

X-treme QUAKE® may be deployed as a standalone device or in tandem with additional systems. It is operated simply and quickly from surface using standard drilling console controls. The downhole highfrequency radial.

Applications at a glance

- **PRODUCTION ENHANCEMENT** – sand screen, ICD and liner system cleansing
- **PRODUCTION ENHANCEMENT** – scale removal
- **CASING REMOVAL** – cement and solids bond busting
- **WELLBORE CLEANUP** – wellbore needle-gunning debris removal
- **PERF-WASH-CEMENT** – annular flow and debris evacuation enhancement

X-treme QUAKE® is a simple, low-risk, high-return wellbore service system that provides unparalleled and unrivalled production and performance enhancement.

Operator Benefits

- **Improved production/injection from underperforming screens and liners**
- **Through-bore restoration in scaled wells**
- **Reduced pulling forces in casing removal**
- **Increased casing intervals pulled**
- **Unrivalled active wellbore cleanup**
- **Optimised cement placement in PWC operations**

X-treme QUAKE® is the tool-of-choice for deployment for maximum performance in a range of critical well operations:

PRODUCTION ENHANCEMENT - Debris

X-treme QUAKE® delivers high frequency impulse to wells to enhance production/injection from plugged, blocked and bridged-off screens and liners. The high frequency vibration and radial impulse delivered by X-treme QUAKE® is engineered to mobilise solids and to clear blocked flow paths, immediately delivering improved production to underperforming wellbores.

PRODUCTION ENHANCEMENT - Scale

X-treme QUAKE® is the ideal system for deployment in scale removal operations. Deployed either standalone or in tandem with an appropriate scale mill the X-treme QUAKE® impulse action is targeted to shatter and pulverise scale residue to fully cleanse the wellbore and perforations of the impairment.

CASING REMOVAL - Cement and Debris

Casing recovery in P&A and slot recovery is often encumbered by high pulling forces caused by cement and barite deposits in the annulus. X-treme QUAKE® shatters cement bonds, hydrates and loosens compacted barites and mobilises settled solids to massively reduce frictional binding forces. Additionally, pre-treating of casing prior to recovery with X-treme QUAKE® is proven to alleviate excessive break-out torques of recovered casing couplings at surface preventing the need to use cold-cutting equipment and saving valuable rig time.

WELLBORE CLEANUP - Cement and Debris

The high frequency action of the radial impulse strikers of the X-treme QUAKE® provide an unrivalled wellbore cleaning action – akin to a wellbore needle-gun. As the X-treme QUAKE® is operated, the strikers sweep a full 360 degree path around the wellbore providing up to 80 individual wellbore strikes pre revolution – over 7000 strikes per minute at 90rpm removing all trace of cement, mud-solids, rust, LCM or any unwanted deposits from the wellbore.

PERF-WASH-CEMENT - Cement and Debris

X-treme QUAKE® is a highly effective complimentary technology for PWC operations. Passage of the X-treme QUAKE® over the PWC zone pre and/or post washing provides the ideal action for opening and enhancing hydraulic communication, mobilising settled debris in the annulus and clearing any blockage from perforations during the wash cycle to provide the perfect conditions for an effective cement or alternative barrier placement.

PERF AND SQUEEZE - Cement and Debris

X-treme QUAKE® is an equally effective complimentary technology for Perf and Squeeze operations. Passage of the X-treme QUAKE® over the zone pre and/or post perforating provides the ideal action for opening and enhancing hydraulic.



Technical Features



Premium Connection Sub

X-treme QUAKE® can be dressed with any standard or premium threaded connection, removing the need for cross-overs.

Fluted Non-rotating Sleeve

The Fluted Non-rotating sleeve provides lateral stability to the X-treme HAMMER whilst also indexing the percussion valve system.

HydroVolve INFINITY® Valve Module

The HydroVolve INFINITY® Valve module directs and commands the fluid power required to generate the percussive impact. HydroVolve INFINITY® uses string rotation to open and close the inlet and exhaust valves to allow pressurised fluid within the drill string to propel the percussive HAMMER mass.

Piston

The Piston provides the motive force to the HAMMER to generate acceleration for impact.

HAMMER

The HAMMER is the simple robust mass that is accelerated by the piston to strike the anvil to generate the impulse.

Anvil

The Anvil provides the point of impact for the HAMMER and transmits the impulse energy directly into the radial strikers.

Radial Strikers

The radial strikers are the impulse delivery components that transmit the radial impulse force to the wellbore to clean, agitate, and disrupt unwanted debris, solids and cement within the well.

Technical Specification

Nominal Casing Size, in.	5.5	7	9.625	10.75	13.375
Striker Weight Options	15.5 – 17#	20 – 29#	43.5 – 58.4#	51 – 55.5#	54.5 – 72#
Body OD, in (mm)	4.72 (120)	5.75 (146)	8 (203.2)	8 (203.2)	11.75 (298.4)
Length, ft (m)	15.0 (4.56)	15.6 (4.75)	17.4 (5.3)	17.4 (5.3)	17.7 (5.4)
Nominal Weight, lbs (kg)	575 (261)	973 (441)	1,874 (850)	1,874 (850)	3,038 (1,378)
Connection	NC26 Box	NC38 Box	NC50 Box	NC50 Box	6-5/8 REG Box
Tensile Yield Strength, lbf (t)	231,900 (105)	525,000 (238)	466,000 (211)	466,000 (211)	975,000 (442)
Torsional Yield Strength, ft-lbs (Nm)	7,210 (9,775)	13,600 (18,440)	53,000 (71,850)	53,000 (71,850)	120,000 (162,698)
Max Operating Torque, ft-lbs (Nm)	4,300 (5,830)	10,000 (13,600)	36,000 (48,810)	36,000 (48,810)	65,000 (88,128)
Temperature, °F (°C)	40 – 300 (4 – 150)				
Maximum Pressure Rating, psi (bar)	10,000 (690)				
Metallurgy	CrMo Low Alloy				
Maximum Operating Pressure, psi (bar)	1,500 (103)				
Operating Speed Range, RPM	0-120				
Impact Frequency, Hz	0-10				

Technical Advantages

- Simple, robust, proven drive system: HydroVolve INFINITY®
- Simple make up and deployment procedure – no specialist rig personnel required
- Simple, quick control from surface at drillers console
- Rapid, effective high-frequency action
- Unrivalled wellbore cleaning action
- Unrivalled radial impulse for debris mobilisation and bond-breaking
- Interfaces with 3rd party systems
- Versatile operation
- Short-lightweight-robust
- Low-pressure, low-torque, low-load operation
- Kind to surface equipment