

ACTive Xtreme



CT real-time rugged downhole measurement tool

Uses real-time data to improve decision making in extreme well conditions

Applications

- Milling
- Fishing and jarring
- HPHT applications
- Stimulation and conformance
- Wellbore hardware manipulation
- Perforating and abrasive jetting
- Packer and casing patch setting
- Well kickoff
- Sand cleanout

Benefits

- Improves decision making with real-time downhole pressure and temperature, force, and torque
- Achieves accurate depth control with combined real-time casing collar locator and gamma ray measurements
- Reduces costs by enabling continuous monitoring, optimization, and intervention in one run
- Achieves high pumping rate for enhanced fluid placement and treatment effectiveness

Features

- Innovative proprietary modular design
- Internal annular flow path for increased flow rate, pressure rating, and expandable architecture
- Real-time internal and external pressure measurements
- Fast-rate telemetry and fast acquisition gauges
- Plug-and-play compatibility with most CT downhole tools
- Built-in triaxial accelerometer
- Load module with torque sensing capability
- Long-lasting battery system

The ACTive Xtreme™ CT real-time rugged downhole measurement tool was designed for harsh environments and difficult wellbore conditions, including high pressure, high temperature, high flow rates, abrasive slurries, acids, solvents, and high shock loads. The tool combines pressure, temperature, casing collar locator, and gamma ray sensors with precise force and torque sensors. Along with accelerometers, these sensors provide a robust suite of downhole measurements to effectively optimize demanding mechanical services such as milling, jarring, or fishing. The expanded operational range of this tool improves job efficiency and subsequent well performance for even the most challenging downhole conditions.

With real-time measurements provided by the ACTive Xtreme tool, operators can eliminate the most common uncertainties found in conventional or heavy-duty CT operations by

- accurately monitoring the weight on bit (WOB) during milling
- detecting stalls early by quickly determining changes in positive displacement motor or turbine downhole motor torque and verifying pressure variations
- ensuring the proper application of force with shifting and retrieval tools during fishing and manipulation of wellbore hardware
- intervening in HPHT wells with confidence
- attaining precise depth correlation with the tubing, casing, and formation
- confirming shock impact resulting from perforating, fishing, or interventions with impact hammers using the accelerometer sensor
- fully controlling a complex packer setting (such as for ACTive Straddle™ CT real-time multiset inflatable packer) through the use of robust real-time downhole measurements
- enabling faster interventions by achieving higher flow rates
- using a full range of measurement sensors, including accelerometers, to accurately evaluate downhole conditions such as perforation shock levels or motor vibrations.

ACTive Xtreme Tool Specifications

OD, in [cm]	2.875 [7.3]
Makeup length, in [cm]	312.1 [793]
Total weight, lbm [kg]	344.8 [156.4]
Operating temperature, degF [degC]	350 [177]
Pressure rating, psi [kPa]	17,500 [120,658] absolute at max. tensile rating 9,000 [62,052] differential between bottomhole and pipe pressure
Tensile strength, lbf [N]	80,000 [355,857] at max. pressure rating
Compressive strength, lbf [N]	-10,000 [-44,483] at max. pressure rating
Max. torque, lbf.ft [N.m]	2,500 [3,390]
Max. flow rate, [†] bbl/min [m ³ /min]	8 [1.27]
Fluid compatibility	All common treating fluids, including acid, and H ₂ S compatible
Max. proppant concentration, ppa	1
Pressure and temperature	
Sensor type	Microelectromechanical system (MEMS) gauge
Pressure measurement accuracy, psi [kPa]	±3 [±20.68]
Max. pressure measurement deviation, psi [kPa]	±5 [±34.47]
Resolution, psi [kPa]	0.075 [0.517]

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Depth module

Casing collar locator resolution ±3 in at 30 ft/min

Load module

Axial load accuracy, lbf [N] Absolute: 500 [2,224] + 1% applied
Localized: 2% applied

Axial load resolution, lbf [N] <5 [<22.24]

Torque accuracy, lbf.ft [N.m] < ±50 [< ±67.79]

Torque resolution, lbf.ft [N.m] <5 [<6.78]

All specifications are subject to change without notice.

† Maximum pump rates for the ACTive Xtreme tool are 8 bbl/min.

ACTive iFC²™ High-Rate Fiber-Optic Carrier Specifications

Number of fibers 4

Fiber colors White, red, green, yellow

Fiber temp. rating, degF [degC] -40 to 248 [-40 to 120]

OD, in [cm] 2.875 [7.3]

Total weight, lbm [kg] 344.8 [156.4]

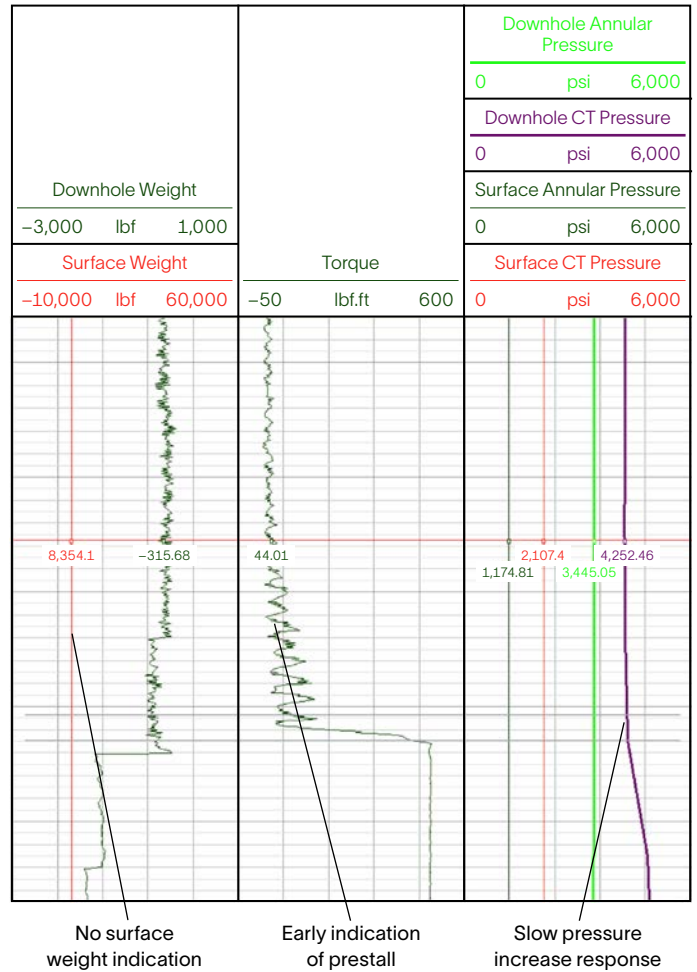
Tube description INCONEL® 625 material must conform to UNS N06625 or UNS N06219 per standards or equivalent:
→ ASTM B443
→ ASME BPVC SECII-B
→ AMS 5599
→ AMS 5869
→ ISO 6208
→ SAE AMS5599G
Inner tube, in: 0.071 OD, 0.055 ID
Outer tube, in: 0.094 OD, 0.074 ID
Ultrasonically cleans strips before processing

Excess fiber length 0.05% minimum (reference: target may be 0.150% to 0.025%)

Max. flow rate,† bbl/min [m³/min] 6 to 8 [0.95 to 1.27]

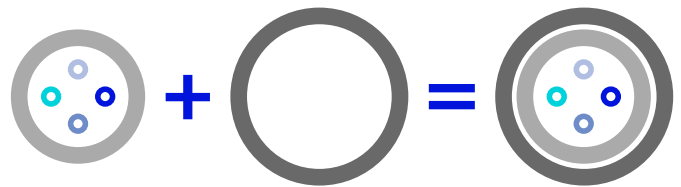
All specifications are subject to change without notice.

† Maximum pump rates for the ACTive iFC² carrier must be validated by modeling based on the carrier limits, using the actual reel or pipe dimensions and the specific fluids that will be pumped during the operation.



Motor stall captured with high-speed downhole measurements vs. surface measurements.

ACTIVE iFC carrier + Protective outer shell = ACTIVE iFC² carrier



Representation of the ACTIVE iFC² construction.



Four fibers, ACTIVE iFC™ fiber-optic carrier, and outer protective shell (pictured from left to right).