



KEEP CALM AND ROTATE ON



AUTONOMOUS FRICTION REDUCTION TOOL

Friction reduction exactly when you need— less pressure when you don't.

Auto-X is a fully mechanical, autonomous downhole tool. It delivers a strong oscillating pressure signal while sliding in the lateral, then automatically deactivates to a lower idle pressure the moment the string begins rotating — recovering vital horsepower for more efficient, more reliable operations. **Here is what's possible...**

400+ psi

lower standpipe pressure during rotation

~200 HP

recovered at the mud pumps

~220 gal

diesel saved per 20-hour rotating day

100%

mechanical — no ball to drop...
no electronics, no batteries

The Problem

Conventional friction reduction tools run continuously once activated — requiring upwards of 800 psi or more of standpipe pressure and consuming up to 400 pump HP whether the drillstring is sliding or rotating. *(HP calculated with 725 gpm, 11 ppg mud weight, 800 psi SPP load, and 85% pump mechanical efficiency)*

During rotation, continued excitation may not be needed: top-drive torque is already breaking string-to-wellbore friction. The result is wasted energy — and continuous axial vibration that works against downhole reliability and contributes to drilling dysfunction... Additionally, MWD signal noise and attenuation can also become a major source of NPT for your operation. **Auto-X applies excitation only when it pays off the most — during slides in the lateral.**

The Solution – Auto-X

SLIDING

in the lateral

When sliding in the lateral, a self-cycling valve generates a 400–800 psi oscillating signal between 10 – 20 Hz. This signal produces a corresponding motion in the drill pipe and any connected shock sub, breaking static friction along the string. Works with existing rocking techniques — **excitation only occurs while sliding in the lateral.**

ROTATING

string turning

During rotations, the Auto-X is kept in its least restricted position, lowering standpipe pressure and halting excitation. When rotation stops, the Auto-X resumes cycling and full excitation resumes — **no surface command, no ball drop, no electronics and no batteries.**

INCLINATION

awareness

Before the vertical-to-lateral transition (<70° inclination), the self-cycling valve is kept in the least restricted position, keeping standpipe pressure low and keeping the tool in "Calm Mode". Once the tool exceeds this inclination going into the lateral, the Auto-X is allowed to automatically shift between "Excitation Mode" during slides and "Calm Mode" when rotating. A special surface test feature allows shallow testing vertical when < ~1,500 psi. **— the Auto-X tool only activates rotating in the lateral and for surface testing.**

AUTO-X · AUTONOMOUS FRICTION REDUCTION TOOL

The operator value case



Why Run Auto-X

1

More horsepower when you need it

Recover up to 200 pump HP during rotary drilling: headroom to extend lateral reach, increased ROP by delivering more hydraulic HP to the bit and mud motor, or run pumps at lower load to preserve fluid-end life and operate more efficiently.

(HP recovered calculated with 725 gpm, 11 ppg mud weight, 400 psi SPP reduction, and 85% pump mechanical efficiency)

2

Improved downhole reliability and data transmission

Continuous axial vibration drives fatigue failures in MWD electronics, motors and threaded connections. Removing excitation during rotation eliminates unnecessary cyclic loading — and may help avoid bit bounce and stick-slip dysfunction. By removing the agitation pressure signal while rotating, **MWD tool mud pulse signals are cleaner** with fewer missed decodes and recycles.

3

Reduced surface equipment wear

Lower standpipe pressure during rotation means less mechanical wear on the mud pumps and longer intervals between swab and liner changes — less downtime, lower consumable spend.

4

Simple, robust mechanical design

Auto-X is not a mud-motor-driven oscillating valve: no stator elastomer to chunk, no fragile specialty connections. Fully contained in a short collar with double-shouldered GPDS-55 (6¾") or XT-39 (5") connections.

5

Lower fuel burn & Scope 1 emissions

When the tool deactivates during rotation, its pressure drop goes down to a 150–250 psi idle pressure differential — typically reducing SPP by 400 psi, recovering up to 200 HP and saving up to 220 gallons of diesel per 20-hour rotating day, with proportional CO₂ and NO_x cuts. (Fuel savings calculated with 200 pump HP reduction at 5.5 gal/hr per 100 HP and assumed 20 hours of rotary drilling per day)

The Bottom Line

Auto-X turns a continuously running power and reliability liability into a controlled, situational asset:

- Up to 200 HP freed for bit & motor hydraulics while rotating — faster ROP, longer reach
- Reduced pump & consumables wear — fewer swab and liner changes
- Lower MWD, motor & connection failure rates by eliminating unnecessary excitation induced vibration
- Purely mechanical & autonomous — no surface command, no ball drop, no electronics and no batteries
- Cleaner mud-pulse signals — reduces decoding-related NPT during rotation
- Up to 220 gal/day of reduced pump fuel burn — with matching Scope 1 emission cuts

CONFIGURATION & SPECS

Tool sizes — 6¾" and 5" collars
15 ft long (plus shock sub length)

Connections — GPDS-55 (6¾") · XT-39 (5")

Sliding signal — 400–800 psid @ ~10–20 Hz

Idle pressure — 150–250 psi (rotating)

Activation — autonomous, above ~70° inc.

Reference case — 725 gpm, 11 ppg mud

