



ARRIVAL
ENERGY SOLUTIONS

TSUNAMI

Tsunami Gen 1.5 Dart-Activated Anti-Friction Tool

Proven performance. Patented dual-dart control. Activate, deactivate, and reactivate in hole.

Built on the proven Tsunami platform, the Tsunami Gen. 1.5 delivers proven downhole agitation through Arrival's patented dual-dart control system. Activate with the primary dart, deactivate in hole, then reactivate with the secondary dart — adjusting pressure up, hold, or down on the fly, without tripping out of the hole.

COST SAVING BENEFITS

- Reduce Drilling Dysfunction
- Mitigate Stick-Slip
- Improve Weight Transfer
- Improve Sliding and Rotating ROP
- Improve Tool Face Control and RSS Performance
- In-Hole Activation & Reactivation
- Superior Adjustable Amplitude Control

FEATURES

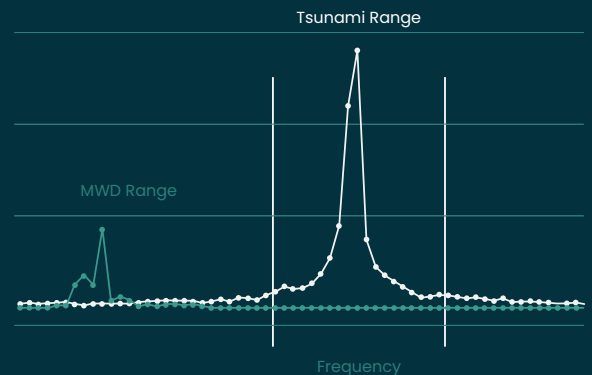
- Surface: Chemically Hardened Materials
- Premium Steel Components
- Power section positioned below the pulse generator
- Consistent RPM output regardless of nozzle setting
- All fluid flows through the rotor and stator — no through bore
- Low Friction Bearings: Lower operating pressures
- Dart Activation: Primary & secondary darts
- Output controlled by dart nozzle size
- Shock Tool: Configurable amplifiers
- Safety Joint: Arrival manufactured and designed

PATENT

US 10,989,004 B2

US 11,480,020 B1

Additional patents pending



DART ACTIVATION

The tool is activated in hole with the primary dart.

- Primary dart activates the tool
- Deactivate the tool in hole at any time
- Reactivate with the secondary dart

OPERATIONAL VALUE

- Improve hole cleaning
- Reduce friction
- Improve weight transfer
- Support sliding and rotating performance
- Maintain efficient hydraulics

DUAL-DART CONTROL

Reactivate the tool in hole with the secondary dart — adjust pressure up, hold, or down on the fly. Kits include dart sizes for lost-circulation and standard flow rates.

- Activate — primary dart
- Deactivate — in hole
- Reactivate — secondary dart
- Increase, hold, or decrease pressure

Patents US 10,989,004 B2 | US 12,331,604 | Additional Patents Pending

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INNOVATIVE ENGINEERING. DOWNHOLE EXCELLENCE

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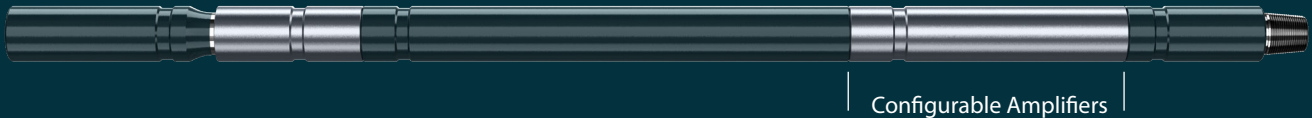
Rev. D
9/16/26

TSUNAMI Technical Specifications: Tsunami Gen. 1.5 Dart-Activated

Hole Size	6.00 to 6.75 inch (152 to 172 mm)
Standard Connection	DS-40 †Can accommodate most drill pipe connections.
Make-up Torque	21,000 ft/lbs (28,472 Nm)
Tool Length	TBD †Tool ships in two pieces
Connection OD (Pin)	5.25 inch (133.35 mm)
Connection OD (Box)	5.25 inch (133.35 mm)
Flow Range	200 - 350 GPM (757 - 1325 LPM)
Temperature	320°F (160°C)
Frequency	8 to 14 Hz
Activation Method	Dual-dart (primary + secondary; in-hole activate / deactivate / reactivate)
Operating Positions	Off / On — pressure set by dart sizing

SHOCK TOOL DESIGN

Dual action design is optimized to allow for maximum force transfer.



DART SYSTEM BENEFITS

The dual-dart system activates, deactivates, and re-activates the tool in hole - adjusting pressures on the fly, without tripping.

- Primary dart activation, in hole
- Deactivate and reactivate without tripping
- Secondary dart adjusts pressure up, hold, or down
- Kits for lost-circulation and standard flow rates
- Same powerful shock tool

IN-HOLE DART CONTROL

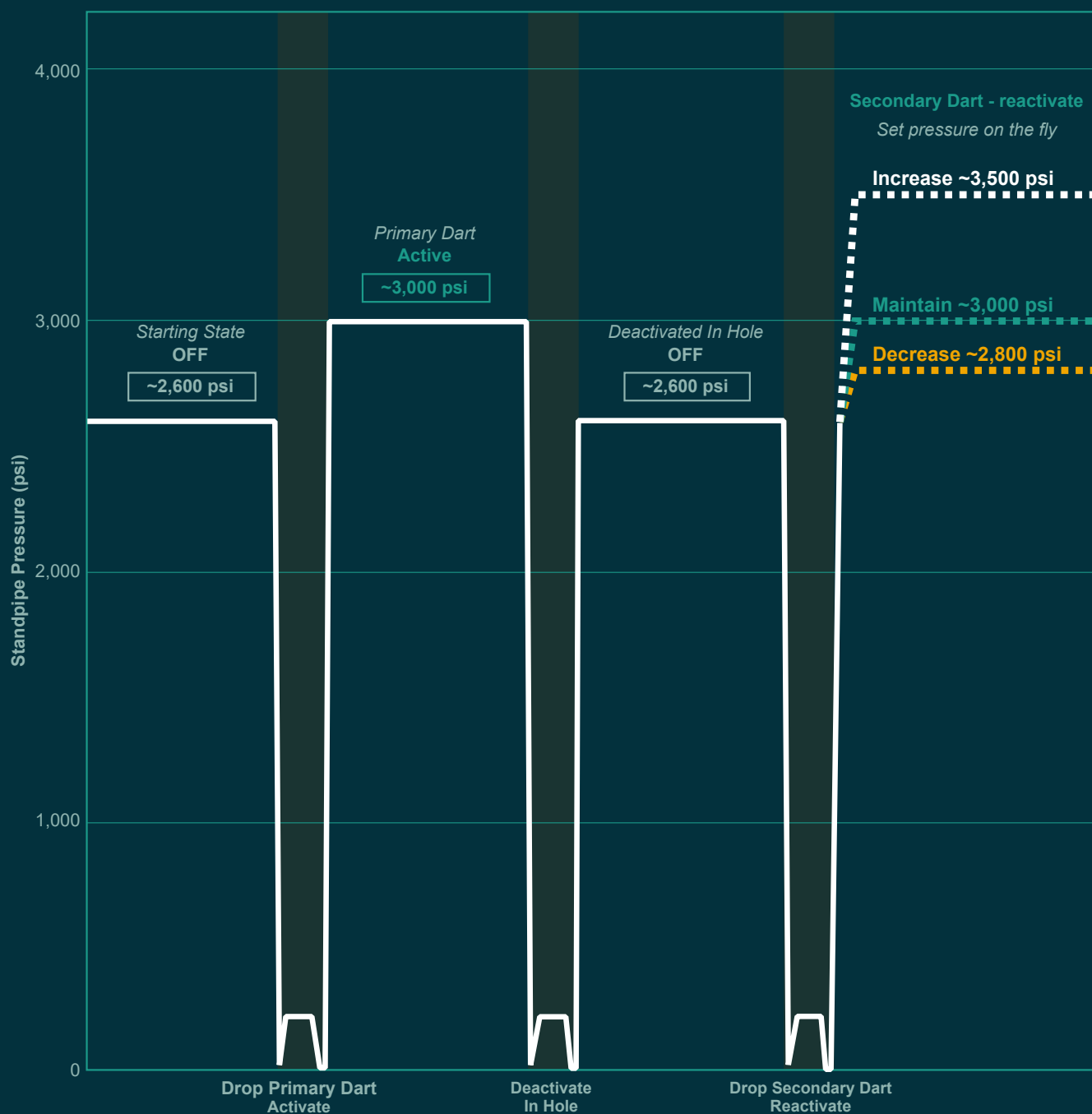
The Tsunami Gen. 1.5 is controlled in hole with primary and secondary darts, letting operators set and re-set pressure output on the fly — without tripping. Kits ship with dart sizes for lost-circulation and standard flow rates.

- Decide when and how to activate
- Control pressure and force output
- Reactivate without tripping out
- Increase, hold, or decrease pressure
- Configurable for all applications

TSUNAMI Tsunami Gen. 1.5 Dart-Activated Operation Sequence

The Tsunami Gen. 1.5 is controlled in hole with primary and secondary darts. Drop the primary dart to activate; deactivate in hole at any time; then drop the secondary dart to reactivate — increasing, maintaining, or decreasing pressure on the fly, without tripping. Activation kits ship with dart sizes for both lost-circulation (low flow) and standard flow rates.

* Flow rates shown are for example purposes only.



Time - the tool holds its state in hole; the primary dart activates and the secondary dart reactivates and re-sets pressure.