



**TSUNAMI**  
AXIAL VIBRATION TOOL



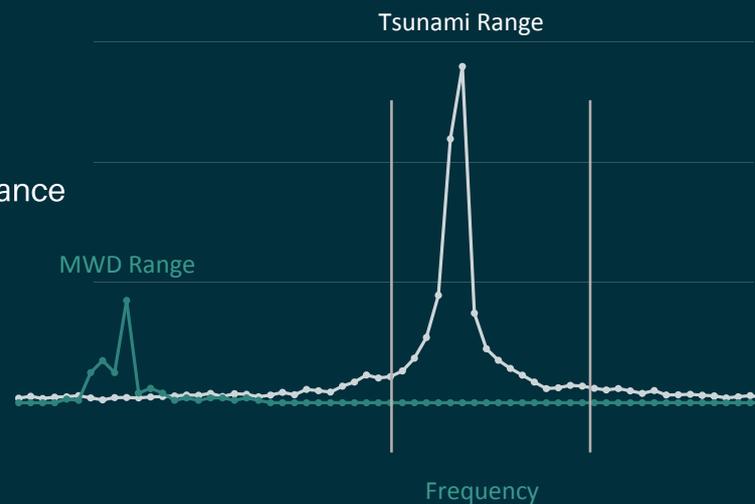
**ARRIVAL**  
ENERGY SOLUTIONS

## The ULTIMATE Reach from Innovative Design

Engineered to go further than other Friction Reduction Devices (FRD) and built to achieve superior performance with unsurpassed reliability. The Tsunami™ offers unmatched flexibility in downhole drilling performance.

## Cost Saving Benefits

- Reduce drilling dysfunction
- Mitigate Stick-Slip
- Improve Weight Transfer
- Improve Sliding and Rotating ROP
- Improve Tool Face Control and RSS Performance
- Variable Frequency Downhole
- Superior On-Demand Capabilities



## Features

- Surface Chemically Hardened Materials
- Premium Steel Components - North American steel products
- PDC Thrust Bearings - PDC bearings provide longer life
- Custom Power Section - Proprietary use in the Tsunami
- Low Friction Bearings - Less friction means lower operating pressures
- Dart System - Flexibility to control the tool frequency and mode from surface
- Valve Setup - Proprietary design allows for lower PSI drop
- Shock Tool - Arrival manufactured and designed with configurable Amplifiers
- Safety Joint - Arrival manufactured and designed

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## Technical Specifications

## 525 SERIES

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	19,600 ft/lbs (26,574 Nm)
Tool Length	26.58 feet (8.10 meters) †With Safety Sub attached
Connection OD (Pin)	5.25 inch (133.35 mm)
Connection OD (Box)	5.25 inch (133.35 mm)
Through Bore	2.00 inch (50.8 mm)
Flow Range	200 - 350 GPM (757 - 1325 LPM)
Temperature	320°F (160°C)
Frequency	8 to 14 Hz



Configurable Amplifiers

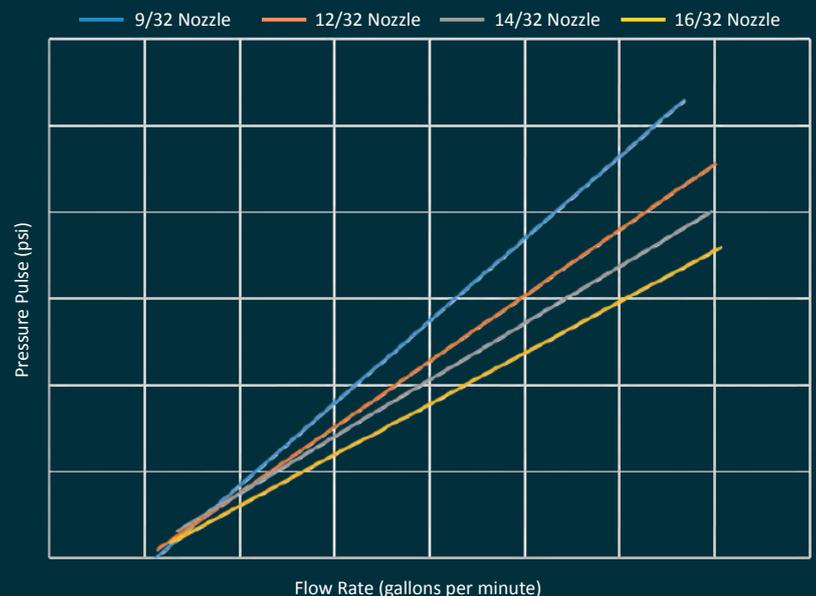
## Shock Tool Design

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

## Drop Dart Design

Selectable Dart design allows users to control tool mode changes while downhole. Flexibility to change operating and frequency modes when needed gives users control.

- Decide when and how to activate
- Control pressure and force
- Change frequency
- Improve function for environment
- Selectable nozzles for all applications



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