

LORD® Isolators for Downhole Tools

LORD® Snubbers Protect MWD Electronics from Excessive Shock and Vibration

A COLLABORATIVE PARTNERSHIP

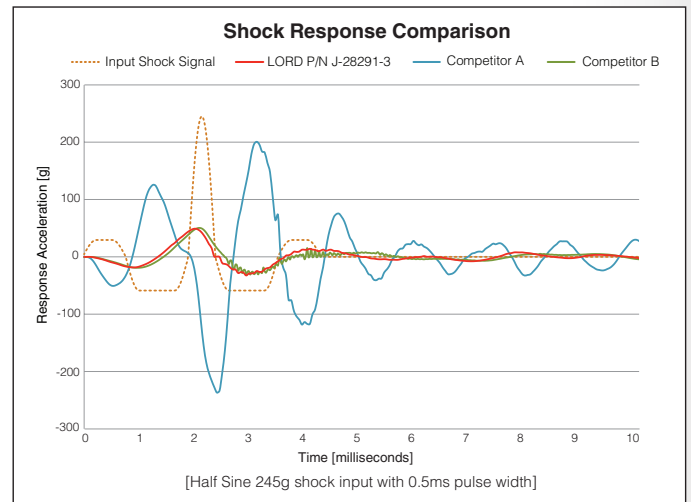
LORD Corporation has the solution to your demanding challenges. We learned of the need for longer-lasting downhole tool isolators that can protect against shock and vibration, and applied our aerospace technology to address the needs of the downhole community. With LORD isolators, you no longer have to compromise between reliability, durability and performance. First commercially introduced in 2012, LORD isolators have been outperforming any snubbers available on the market. In outcomes from customer and lab testing, LORD isolators have demonstrated significant reduction in shock and vibration, resulting in improved reliability.

LORD isolators can be designed to meet your unique downhole conditions:

- Extreme environments: high-temperature variants can withstand hot hole conditions
- High shock loads
- Broad frequency range isolation
- Custom connection geometry available

Enhanced reliability lowers costs

- Demonstrated more than 1,800 hours service life downhole with no maintenance required
- Estimated more than \$2,000 savings over the life of the snubber compared to alternatives



Snubber	Extrapolated Hours Downhole	Accelerated Endurance Test Results*		
		Time to Failure	Failure Mode	Failure Description
LORD Snubbers	> 1,800 hours	> 40 hours	N/A	40 hours completed without failure
Competitor A	22.5 hours	30 minutes	Chassis	Cap screw failure
Competitor B	< 3 hours	4 minutes	Snubber	Catastrophic elastomer failure

* Input: 0.81 g²/Hz, Test Mass: 4.75 lb



Snubber Description	MDM Connector	MWD Module	Standard P/N < 350 °F (175 °C)	High-Temperature P/N < 400 °F (200 °C)
OEM Standard Short	15-pin	Batteries, Gamma, Pulsar Driver*	J-28291-3	J-28291-3-HT
OEM Standard Long	15-pin	Directional / Orientation / Electronics	J-28291-4	J-28291-4-HT
OEM Legacy Short	9-pin	Pulsar Driver*	J-28291-6	J-28291-6-HT
Alternate OEM	15-pin	Alternate OEM	J-28291-14	J-28291-14-HT

**some pulser drivers utilize a 9-pin MDM; many have been standardized to a 15-pin MDM*



ABOUT LORD CORPORATION

Founded in 1924, LORD Corporation is a diversified technology and manufacturing company commercializing highly reliable adhesives, coatings, vibration control and motion management devices and systems, and sensing technologies. Our dedicated teams collaborate with customers to provide innovative solutions, reduce risk and increase the value of their products ... Ask Us How.

Employees: More than 3,000 worldwide

Operations: LORD operates 19 manufacturing facilities and 10 R&D centers worldwide. Dedicated teams provide customers with easy access to products and technical expertise — whenever and wherever they are needed.

CORE SCIENCES AND TECHNOLOGIES

Continuing the company's tradition of ingenuity and inventive spirit, we continue to develop technologies to meet the needs and challenges of an ever-evolving global marketplace.

- Surface Science
- Polymer Science
- Material Science
- Mechanical Design
- Dynamic Systems
- Control Systems
- Wireless Sensing
- Energy Harvesting
- Inertial/Orientation Technologies
- Displacement Sensing

MORE INFORMATION

To learn more about LORD Oil & Gas products, visit LORD.com/OilandGas. Contact Customer Support at +1 855 796 1595 or OilandGas@lord.com.