

ShockForce™ Drilling Jar

Technical Summary

The Hardest Hitting NOV® Drilling Jar Ever

NOV Downhole is proud to introduce the ShockForce drilling jar, a double-acting hydraulic drilling jar designed for exceptional performance and reliability. The ShockForce drilling jar features the longest free stroke lengths available, giving you industry leading downhole impact forces. The jar is hydrostatically balanced, allowing it to operate in drilling environments that can exceed 30,000 psi in hydrostatic pressure.

Two unique, modular features provide maximum safety and reliability in all drilling applications.

The Safety Lock Module eliminates the need for traditional safety collars. The jar will only activate once sufficient hydrostatic pressure is encountered when tripping in the hole and de-activates when tripping out.

The OverPull Protection Module allows customers to utilize maximum overpull without fear of tool damage.

Through active innovation efforts and by establishing cutting-edge performance benchmarks, NOV Downhole continues to revolutionize the oil and gas drilling industry.

FEATURES

- Longest Free Stroke Lengths Available
- Hydrostatically Balanced
- New Improved Sealing Technology
- Flex Top and Bottom Subs with Built-in Elevator Lift Area
- **Safety Lock Module (optional)**
- **Overpull Module (optional)**
- **Externally Adjustable Latch (optional)**

BENEFITS

- Generates the greatest impact and impulse forces
- Increases operating depths to over 30,000 ft
- Delivers reliable, consistent impacts under extended jarring
- Increases fatigue life
- Eliminates the use of the traditional safety collar in hydraulic jars
- Eliminates possible damage due to excessive overpull
- Allows the jar to be run in the neutral position

Technical Specifications

Size	4¾"*	6½"	7"	8"
Minimum O.D.	4.75"	6.50"	7"	8"
Minimum I.D.	2.25"	2.75"	2.75"	3.06"
Free Stroke Up	7.5"	9"	9"	9"
Free Stroke Down	6.5"	8"	8"	8"
Torsional Yield (ft/lbs)	21,750	58,500	83,000	123,000
Maximum Lift after Jarring (lbs)	500,000	920,000	1,230,000	1,610,000
Max Up Jar Load (lbs)	98,000	182,000	235,000	325,000
Max Down Jar Load (lbs)	98,000	182,000	235,000	325,000
Maximum Hydrostatic Depth (psi)	30,000	30,000	30,000	30,000

* Available in Q4 2011



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ShockForce™ Drilling Jar Over-Pull Mechanism

Technical Summary

A Step Change in Drilling Jar Technology

Superior Design

The ShockForce drilling jar has a modular design that enables it to use two of NOV's most outstanding features for the industry: the OverPull and Safety Lock Mechanisms*. NOV® Downhole is proud to offer the Over-Pull Mechanism; a ground-breaking double-acting hydraulic drilling jar feature, that improves the reliability, performance and safety of the jar.

This innovative, modular feature protects the drilling jar from accidental over-pull damage and/or improper downhole friction calculations that could render the jar inoperative in harsh drilling environments. The Over-Pull Mechanism allows our customers to experience industry leading impact loads, by pushing the ShockForce Jar to it's maximum over-pull limit, safely.

*The Safety Lock Mechanism will be available in H2 - 2011.

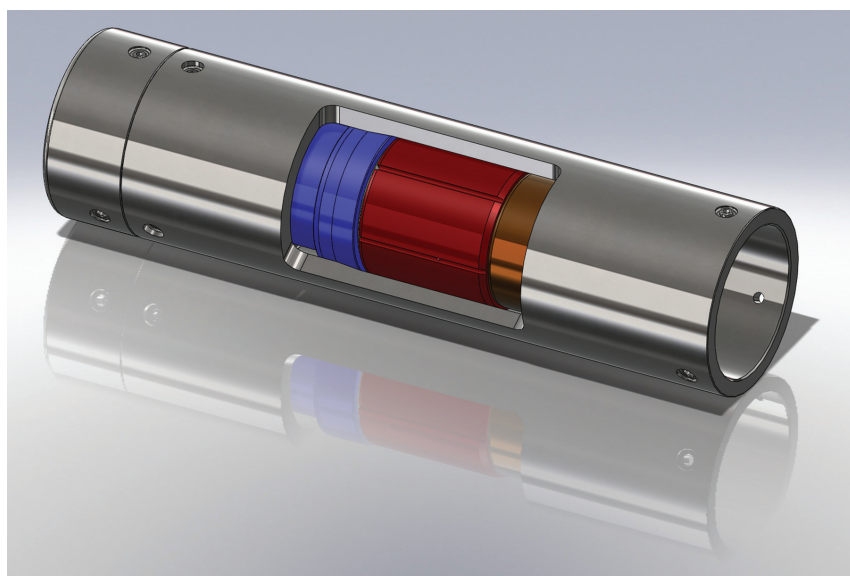
NOV; Raising the bar in safety standards!

FEATURES

- Modular feature that can be added or removed upon request
- Use the maximum over-pull rating of the ShockForce safely
- Can dump pressure repeatedly without damage to the mechanism (can be continuously over-pulled)
- A short firing time (< 5 seconds) indicates tool is over-pulled beyond max rating.
- Works at all temperatures and depths
- Simple design and shop calibration

BENEFITS

- Flexibility of use
- Allow jars to be pulled safely at the over-pull limit in harsh drilling applications
- Greater reliability: does not allow operator to break tool or damage jar from over-pulling
- Ease of use: allows less time spent on calculating over-pull weights
- Improves the reliability of the ShockForce Drilling Jar



Technical Specifications

Tool Nominal O.D. (in)	6.50"
Minimum I.D. (in)	2.75"
Maximum Up Jar Load (lbs)	180,000
Maximum Down Jar Load (lbs)	180,000
Maximum Hydrostatic Depth (psi)	30,000

* Next Available Sizes: 4 3/4" & 8"

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Drilling Jar

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ShockForce™ Drilling Jar - Safety Lock Mechanism

Technical
Summary

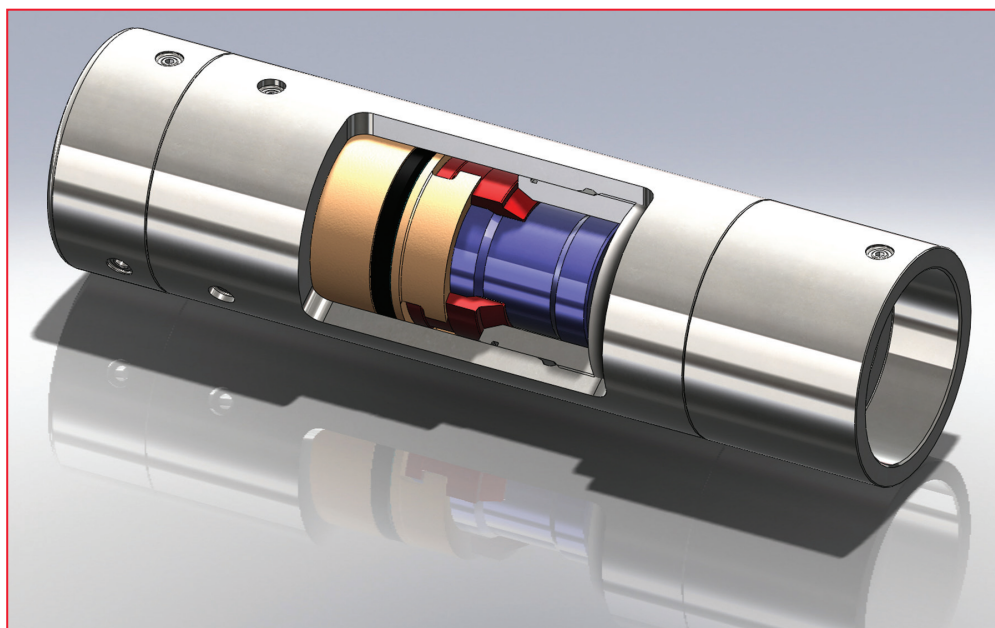
A Step Change in Drilling Jar Technology

The ShockForce drilling jar has a modular design that enables it to use two of NOV's most outstanding features for the industry: the Safety Lock* and Over-Pull Mechanisms. NOV® Downhole is pleased to offer the Safety Lock Mechanism; an innovative safety feature that will improve the handling and operation of the ShockForce drilling jar on the rig floor. The need for traditional safety collars is eliminated by the Safety Lock Mechanism, thus reducing the risk of injuries to rig floor personnel.

The Safety Lock Mechanism safely activates with hydrostatic pressure as the ShockForce is being tripped in the hole, allowing the jar to operate with no limitations.

*The Safety Lock Mechanism will be available in H2 - 2011.

NOV; Raising the bar in safety standards!



FEATURES

- Modular feature that **eliminates** the need for traditional **safety collars**
- Reduces handling time of the jar on the rig floor
- No dynamic seals in the design
- Simple design

BENEFITS

- Improves **SAFETY** by eliminating the need for the rig crew to remove and attach the safety collar
- Improved reliability downhole for extended operation
- Does not affect downhole operation of the drilling jar
- Hydrostatic pressure releases the mechanism

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