

Hydraulic/Mechanical Double Acting Drilling Jar

The Wenzel Downhole Tools Hydraulic/Mechanical Double Acting Drilling Jar (HMDA) is a double acting jar, designed to deliver hydraulic delay when jarring up or down, complete with a mechanical lock in each direction. The HMDA incorporates a latch mechanism to keep the jar locked in the neutral position and eliminate unexpected jarring while tripping or racking back on the derrick.

Features and Benefits

- ▶ The HMDA is normally operated in the latched position to reduce unexpected jarring while drilling and eliminate movement between jar components, increasing service life.
- ▶ The HMDA operates with a simple up and down motion and is not affected by torque.
- ▶ The spline drive and latch mechanism are enclosed in a single, sealed oil chamber without ports to the annulus. Such ports on other jars may fill with cuttings and restrict the down jar stroke.
- ▶ The hydraulic delay mechanism is located in a separate chamber to prevent contamination and increase reliability.
- ▶ Impact force is controlled by the metering device that ensures consistent delay times over the full range of operating temperatures.
- ▶ With the latch mechanism in the latched position, the inner mandrel and outer housing act integrally, virtually eliminating seal and inner tool wear during normal drilling conditions. There is no need to extend or open the jar before running in the hole.
- ▶ Standard seals are suitable for use up to 250°F (120°C). Optional high temperature seal kits are available for service to 400°F (200°C). External sealing surfaces are tungsten carbide-coated to enhance wear and corrosion resistance.
- ▶ The HMDA can be run in tension or in compression within the preset latch settings.



Operation

Jarring Up

- Jarring up is achieved by applying sufficient overpull to overcome the latch setting, which initiates the hydraulic time delay. During the time delay, the overpull at surface can be adjusted to vary the impact force. See the table for the maximum load during delay.
- After impact, apply a down force sufficient to close jar and re-engage latch, then repeat the jarring cycle as required.

Jarring Down

- Jarring down is achieved by applying sufficient downward force to overcome the latch setting and pump open force. During the time delay, the load at the surface can be adjusted to vary the impact force. See the table for the maximum load during delay.
- After impact, pull up with enough force to re-engage the mechanical latch then repeat the jarring cycle as required.

Hydraulic/Mechanical Double Acting Drilling Jar Specifications

IMPERIAL									
Nominal OD (inch)	Length (feet)	Thru Bore (inch)	Tensile Yield (lbs)	Torsional Limit (ft lbs)	Nominal Up Latch Setting (lbs)	Nominal Down Latch Setting (lbs)	Max Pull During Delay (lbs)	Free Stroke Up/Down (inch)	Total Stroke (inch)
4.75	18.3	2.25	370 600	21 500	55 000	30 000	85 000	8.0	25.0
6.50	19.7	2.75	1 220 000	51 000	90 000	40 000	175 000	8.0	25.0
6.75	17.9	2.75	1 220 000	51 500	95 000	42 000	190 000	8.0	25.0
8.00	19.7	2.81	1 293 900	103 200	100 000	45 000	240 000	8.0	25.0
9.50	20.6	3.00	2 106 900	189 300	110 000	50 000	300 000	8.0	25.0

METRIC									
Nominal OD (mm)	Length (m)	Thru Bore (mm)	Tensile Yield (daN)	Torsional Limit (N·m)	Nominal Up Latch Setting (daN)	Nominal Down Latch Setting (daN)	Max Pull During Delay (daN)	Free Stroke Up/Down (mm)	Total Stroke (mm)
121	5.6	57	164 800	29 100	24 500	13 300	37 800	200	640
165	6.0	70	542 700	69 100	40 000	17 800	77 800	200	640
171	5.5	70	542 700	69 800	42 300	18 700	84 500	200	640
203	6.0	71	575 500	139 900	44 500	20 000	106 800	200	640
241	6.3	76	937 100	256 700	48 900	22 200	133 400	200	640

Torsional Limit is based on a coefficient of friction of 0.12
 Specifications are based on as new condition and are subject to change without notice.