Technical Data Sheet
Drilling Jars

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DEEPWELLS DRILLING JARS

Drilling jar is used to amplify the force applied at surface in order to free stuck drill string components during drilling and fishing operations. The direction of jarring can be both up and down.

Features & Benefits

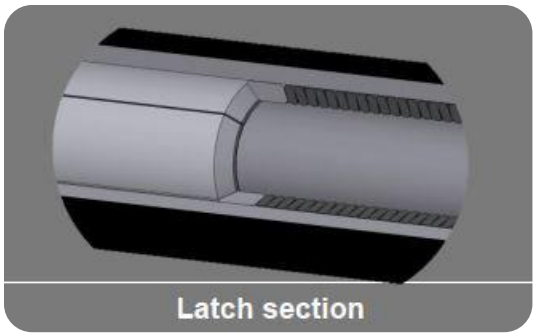
► The hydraulic delay mechanism is located in a separate chamber to prevent contamination and provide for increased reliability.

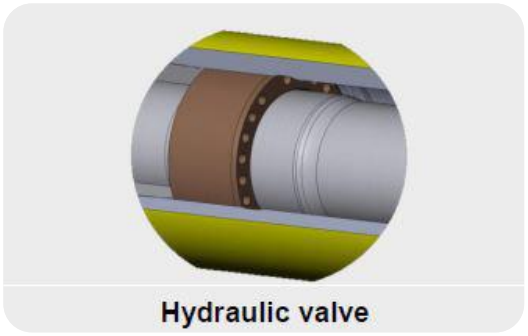
► The jar operates with a simple up and down motion and is not affected by torque.

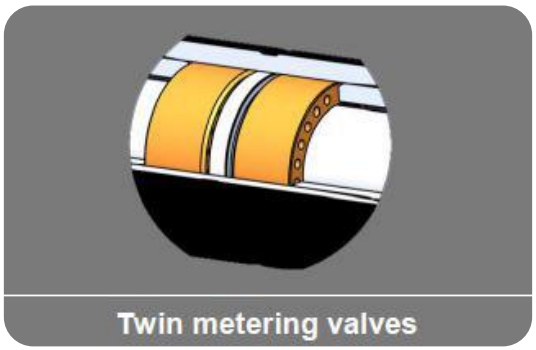
► Standard seals in the tool are rated to 250ºF (120ºC). The jar can be dressed with seals rated to 400ºF (200ºC) for hot hole environments.

► External sealing surfaces are tungsten carbide-coated to enhance wear and corrosion resistance.

► New design and technologies used in manufacturing provide for dramatically increased allowable overpull forces as well as overall tool robustness.


Latch section


Hydraulic valve


Twin metering valves

Hydraulic Mechanical jar is a double acting jar. designed to deliver hydraulic delay when jarring in the up direction. and mechanical release when jarring in the down direction. The HMJ incorporates a latch mechanism to keep the jar locked in the neutral position and eliminate unexpected jarring while tripping or racking on the derrick.

Features & Benefits

►The HMJ is normally operated in the latched position to reduce unexpected jarring while drilling and eliminate movement between jar components increasing service life.

►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 become filled with cuttings/debris and restrict the down jar stroke.

►With the latch mechanism in the latched position the inner mandrel and outer housing work integrally essentially eliminating seal and inner tool wear during normal drilling conditions. There is no need to un-latch or open the jar before running in the hole.

►The HMJ can be run in tension or in compression within the preset latch setting.

Specifications (Imperial)			
	HMJ475	**HMJ675**	**HMJ800**
Nominal OD (A), in	4.88	6.73	8
Thru Bore (B), in	2.16	2.75	2.75
Free stroke Up, in	9	9	9
Free stroke Down, in	5.9	5.9	5.9
Length in fixed position (C), ft	22.14	22.15	22.97
Hydraulic delay time, sec	30 – 150	30 – 150	30 – 150
Nominal Up latch setting, lbs	55,000	130,000	154,300
Nominal Down latch setting, lbs	35,900	70,500	99,200
Pump Open Area, in.sq.	11.78	23.7	30.69
Maximum pull during hydraulic delay, lbs	76,200	189,600	242,500
Tensile yield, lbs	391,000	705,500	804,500
Torsional limit, ft-lbs	13,276	36,100	61,900
Connecting threads	NC38	NC50	6 5/8 Reg
Make up torque, ft-lbs	**8,851 – 10,325**	**28,750 – 33,200**	**47,900 – 51,500**
Maximum operating temperature, °F	302	302	302
Weight, lb	749	1926	2866

Specifications (Metric)			
	HMJ475	**HMJ675**	**HMJ800**
Nominal OD, mm	124	175	203
Thru Bore, mm	55	70	70
Free stroke Up, mm	230	230	230
Free stroke Down, mm	150	150	150
Length in fixed position, mm	6750	6750	7000
Hydraulic delay time, sec	30 – 150	30 – 150	30 – 150
Nominal Up latch setting, kgf	25,000	59,000	70,000
Nominal Down latch setting, kgf	16,300	32,000	45,000
Pump Open Area, sm.sq.	76	153	198
Maximum pull during hydraulic delay, kgf	34,600	86,000	110,000
Tensile yield, kgf	177,350	320,000	365,000
Torsional limit, Nm	18,000	49,000	84,000
Connecting threads	NC38	NC50	6 5/8 Reg
Make up torque, kgf*m	1200 – 1400	3900 – 4500	6500 – 7000
Maximum operating temperature, °C	150	150	150
Weight, kg	340	874	1 300

*** Actual values are supplied in tool test report**

**** Tool should be sent for maintenance every 250 hours when used in environment with chloride content higher than 50,000 mg/l**

***** As per special request tool can be equipped with seals of up to 175 deg C (350 deg °F)**

Hydraulic Jar (HJ) is a bi-directional drilling jar incorporating hydraulic delay without a latch mechanism. This type of jar allows operator to apply variable impact in both the up and down directions. The HJDA is intended for use in highly deviated or high friction wells where conditions may prevent applying sufficient force to release a mechanical latch.

Features & Benefits

►The HJ is hydraulically controlled and jars in both directions with impact force controlled by the operator.

►Impact force is controlled by a metering device that ensures consistent delay times over the full range of operating temperatures.

►The HJ operates via a simple up and down motion and is unaffected by torque.

Specifications (Imperial)			
	HJ475	**HJ650**	**HJ800**
Nominal OD, in	4.88	6.61	8.15
Thru Bore, in	2.2	2.76	2.76
Length in open position, ft	18	18.4	22.3
Length in closed position, ft	16	16.4	20.3
Free stroke after hyd. delay during extension, in	7.28	7.48	7.87
Free stroke after hyd. delay during compression, in	7.28	7.48	7.87
Hydraulic delay time*, sec	30 – 150	30 – 150	30 – 150
Pump Open Area, in.sq.	11.78	23.7	30.7
Maximum tensile (compressive) load during hydraulic delay, lbs	77,150	176,370	242,500
Maximum tensile load during pulling out of hole, lbs	286,600	617,290	804,700
Maximum torque, ft-lbs	13,000	22,120	60,700
Connecting threads	NC38	NC50	6 5/8 Reg
Make up torque, ft-lbs	8680– 10120	18400 – 19900	47000 – 50600
Maximum operating temperature***, °F	248	248	248
Weight, lb	705.5	1 313	2 425
Overhaul period, hrs below the rotary table**, hrs	500	750	750

Specifications (Metric)			
	HJ475	**HJ650**	**HJ800**
Nominal OD (A), mm	124	168	207
Thru Bore (B), mm	56	70	70
Length in open position, mm	5 500	5 600	6 800
Length in closed position (C), mm	4 900	5 000	6 190
Free stroke after hyd. delay during extension, mm	185	190	190
Free stroke after hyd. delay during compression, mm	185	190	190
Hydraulic delay time*, sec	30 – 150	30 – 150	30 – 150
Pump Open Area, sm.sq.	76	153	198
Maximum tensile (compressive) load during hydraulic delay, kgf	35,000	80,000	110,000
Maximum tensile load during pulling out of hole, kgf	130,000	280,000	365,000
Maximum torque, kgf*m	1800	3000	8390
Connecting threads	NC38	NC50	6 5/8 Reg
Make up torque, kgf*m	1200 – 1400	2500 – 2700	6500 – 7000
Maximum operating temperature***, °C	120	120	120
Weight, kg	320	596	1 100
Overhaul period, hrs below the rotary table**, hrs	500	750	750

*** Actual values are supplied in tool test report**
**** Tool should be sent for maintenance every 250 hours when used in environment with chloride content higher than 50,000 mg/l**
***** As per special request tool can be equipped with seals of up to 175 deg C (350 deg °F)**

Hydraulic jar with mechanical latch is a double acting jar designed to deliver hydraulic delay when jarring up or down equipped with mechanical lock in each direction. The HJML 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 & Benefits

►The HJML is normally operated in the latched position to reduce unexpected jarring while drilling and eliminate movement between jar components increasing service life.

►The HJML operates with a simple up and down motion and is not affected by torque.

Specifications (Imperial)			
	HJML475	**HJML650**	**HJML800**
Nominal OD, in	4.88	6.61	8.15
Thru Bore, in	2.2	2.76	2.76
Length in fixed position, ft	23.13	24.1	24.93
Free stroke after hyd. delay during extension, in	7.28	7.48	7.87
Free stroke after hyd. delay during compression, in	7.28	7.48	7.87
Hydraulic delay time*, sec	30 – 150	30 – 150	30 – 150
Nominal Up latch setting, lbs	55,000	130,000	154300
Nominal Down latch setting, lbs	35,900	70,500	99,200
Pump open area, in.sq.	11.78	24.8	30.7
Maximum tensile (compressive) load during hydraulic delay, lbs	77,150	176,370	242,500
Tensile yield, lbs	286,600	617,290	804,700
Maximum torque, ft-lbs	13,000	22,120	60,700
Thread connections	NC38	NC50	6 5/8 Reg
Make up torque, ft-lbs	8680 - 10120	18400 - 19900	47000 - 50600
Maximum operating temperature ***, °F	248	248	248
Weight, lb	930	1 800	3 140
Time between service, hrs below rotary table**, hrs	500	750	750

Specifications (Metric)			
	HJML475	**HJML650**	**HJML800**
Nominal OD, mm	124	168	207
Thru Bore, mm	56	70	70
Length in fixed position, mm	7050	7350	7600
Free stroke after hyd. delay during extension, mm	185	190	200
Free stroke after hyd. delay during compression, mm	185	190	200
Hydraulic delay time*, sec	30 – 150	30 – 150	30 – 150
Nominal Up latch setting, kgf	25,000	59,000	70,000
Nominal Down latch setting, kgf	16,300	32,000	45,000
Pump open area, sm.sq.	76	153	198
Maximum tensile (compressive) load during hydraulic delay, kgf	35,000	80,000	110,000
Tensile yield, kgf	130,000	280,000	365,000
Maximum torque, kgf*m	1800	3000	8400
Thread connections	NC38	NC50	6 5/8 Reg
Make up torque, kgf*m	1200 – 1400	2500 – 2700	6500 –7000
Maximum operating temperature ***, °C	120	120	120
Weight, kg	422	820	1 425
Time between service, hrs below rotary table**, hrs	500	750	750

*** Actual values are supplied in tool test report**

**** Tool should be sent for maintenance every 250 hours when used in environment with chloride content higher than 50,000 mg/l**

***** As per special request tool can be equipped with seals of up to 175 deg C (350 deg °F)**