

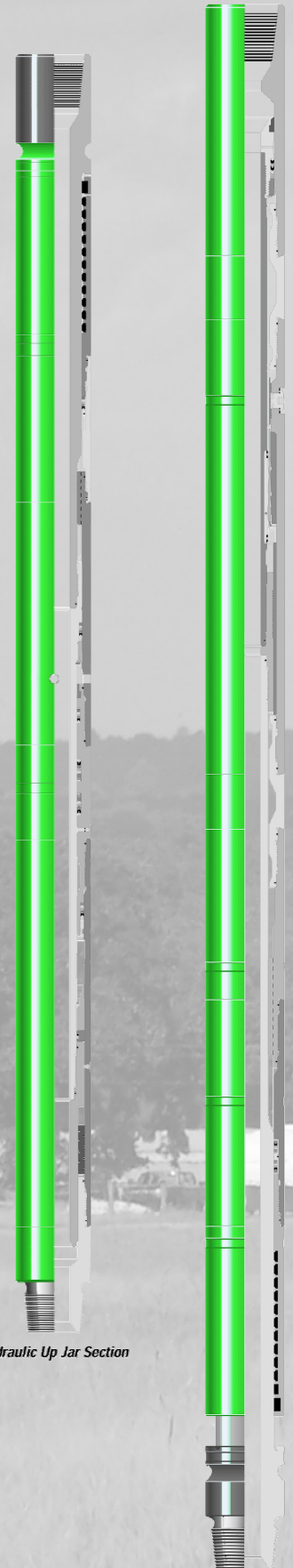


Model HM2 Hydro-Mechanical Drilling Jars

The Toro Model HM2 Hydro-Mechanical Drilling Jar has been specifically engineered to withstand the rugged abuse of demanding applications. It is a versatile tool utilizing a field proven design for the utmost reliability. The Model HM2 Drilling Jar consists of two independent sections. The upper section is a hydraulic operated unit designed to deliver a heavy upward jarring action while the lower section is a mechanically operated unit designed to deliver a heavy downward jarring action.

The Toro Model HM2 Hydro-Mechanical Drilling Jar sections may be run together as a single unit or may be installed as separate units at different locations within the drill string. The two section design makes it easy to transport and handle at the rig location. All internal components are sealed in an oil bath to keep wear at a minimum and to prevent well fluid contamination.

Drilling Jar Model		HM2-475	HM2-575	HM2-625	HM2-650	HM2-700	HM2-775	HM2-800	HM2-900
Drilling Jar Type		Hydraulic Mechanical	Hydraulic Mechanical	Hydraulic Mechanical	Hydraulic Mechanical	Hydraulic Mechanical	Hydraulic Mechanical	Hydraulic Mechanical	Hydraulic Mechanical
OD (in)		4 3/4	5 3/4	6 2/7	6 1/2	7.0	7 3/4	8.0	9.0
ID (in)		1 3/4	2 1/4	2 1/4	2 1/4	2 3/4	2 3/4	2 3/4	3.0
Section Length	Upper (ft.)	17.4	18.8	17.6	17.6	17.8	18.1	18.1	17.9
	Lower (ft.)	15.6	16.4	17.1	17.1	17.1	17.2	17.2	18.2
Total Weight (lbs)		1,433	1,918	2,403	2,646	2,976	4,299	4,683	5,732
Standard Connections		3-1/2 IF NC 38	4 -1/2 FH	4 IF NC 46	4 IF NC 46	4-1/2 IF NC 50	6-5/8 REG	6-5/8 REG	7-5/8 REG
Total Stroke	Up (in)	12.0	13.1	13.6	13.6	13.6	14.5	14.5	9.5
	Down (in)	7.0	7.1	7.0	7.0	7.0	7.0	7.0	10.0
Max. Release Load ($\pm 15\%$)	Up (lbs)	60,698	101,164	123,645	123,645	123,645	168,607	168,607	224,809
	Down (lbs)	56,202	89,924	112,404	112,404	123,645	134,885	134,885	146,126
Max. Pull Load (lbs)		314,733	449,618	494,580	494,580	517,061	562,022	562,022	629,465
Max. Torsional Load (lbs-ft)		9,588	11,063	11,063	11,063	11,063	13,276	14,751	16,226



Hydraulic Up Jar Section

Mechanical Down Jar Section

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Note: Drilling jar specifications are derived from theoretical, calculated, and/or controlled testing environment. Actual performance may vary.