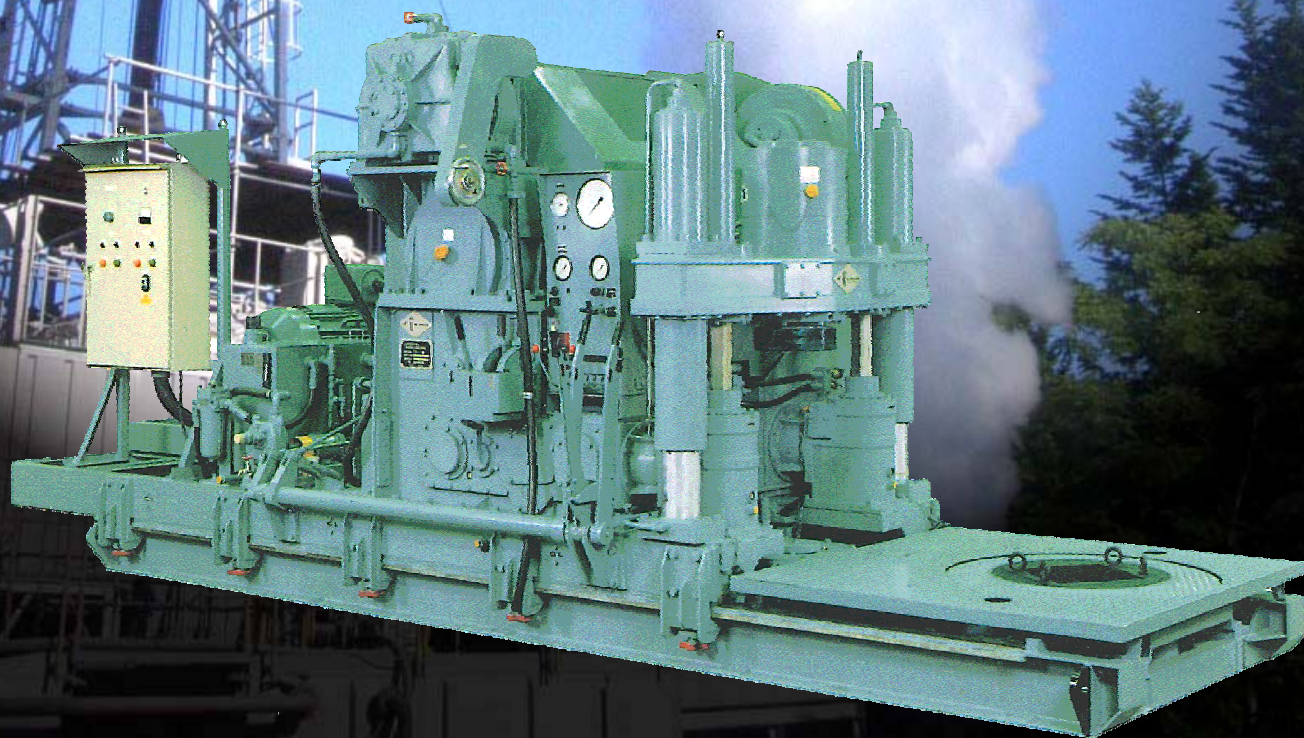


"TSL-1" & "TSL-HD" UNIVERSAL DRILL

- Tough combination of rotary table and spindle allows both of core and non-core drilling
- High portability with its compactness and lightness provides essential characteristic for deep hole drilling in remote locations
- Hydraulic braking system ensures safety hoisting work of drill strings

Applications

- Geothermal prospecting and development
- Deep water well
- Deep geological investigation
- Deep large diameter hole



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URL: <http://www.toa-tone.jp>

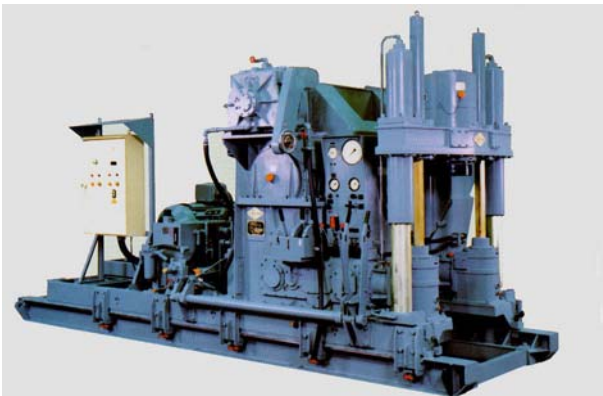
Technical Specifications

Max. line pull (kN)	TSL-1	TSL-HD	Hydraulic Brake	
	333.2 at 4 line	441.0 at 4 line	Type	Fluid, multi-stage
			Braking speed (min ⁻¹)	1,700
Drive Head			Balance speed (m/sec)	8.00 at single line
Type	Twin hydraulic cylinder, torque balanced, with hydraulic chuck		Brake capacity (kN)	490.00 at 6 line
			Cooling Water Pump	
Inner diameter (mm)	160		Type	Self-priming
Stroke (mm)	750		Discharge volume (L/min.)	50
Bit speed (min ⁻¹)	TSL-1	TSL-HD	Pressure (MPa)	0.083
Forward	60, 125, 265, 420	47, 97, 206, 327	Hydraulic Kelley Balance	
Reverse	36, 75, 160, 255	28, 58, 124, 198	Type	Radial piston oil motor
Torque (kNm)	7.35		Balance speed (cm/min.)	15 - 300
Max. feed (kN)	164.64		Balance capacity (kN)	TSL-1: 88.20, TSL-HD: 117.60
Max. balance (kN)	323.40		Frame	
Type of chuck	Hydraulic		Type	Skid base with hydraulic slide base
Transmission			Slide stroke (mm)	1300
Type	Sliding gear		Max. tool passage (mm)	700
Type of clutch	Single plate dry disc		Rotary Table	
Hoist			Table speed (min ⁻¹)	TSL-1: 30, 60, 132, 210, TSL-HD: 24, 48, 103, 164
Type	Planetary gear, hand brake		Forward	30, 60, 132, 210
	TSL-1	TSL-HD	Reverse	18, 38, 80, 127
Drum size, D x L (mm)	400 x 325	500 x 594	Torque (kNm)	14.70
Rope capacity	25mmx210m	25mmx326m	Table opening	17-1/2"
Rope speed (min ⁻¹)	42, 88, 185, 295	31, 64, 136, 216	Load capacity (kN)	490.00
Max. single line pull (kN)	88.20	117.60	Power Unit	
Hydraulic Pump			Electric motor (kW)	TSL-1: 90 - 110, TSL-HD: 110 - 132
Type	Combination gear pump		Engine (PS)	TSL-1: 150 - 175, TSL-HD: 200
Discharge volume (L/min.)	40 + 21		Dimensions	
Working pressure (MPa)	0 - 20.58		L x W x H (mm)	TSL-1: 5000x2200x2400, TSL-HD: 5660x2500x2610
Max. pressure (MPa)	29.40		Weight w/o power unit (kg)	TSL-1: 11,000, TSL-HD: 15,500
			Gauges	Bit load gauge, tool weight indicator

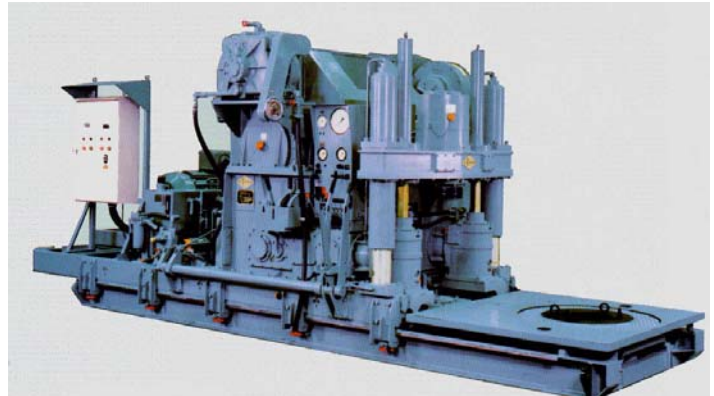
Optional Items: Master bushing, Kelley drive bushing, Deadline weight indicator, Torque indicator, Hydraulic breakout system

Remarks: We reserve the right to change technical specifications without prior notice.

How to use for both of core and non-core drilling



Status of machine for core drilling using drive head with hydraulic chuck



Status of machine for non-core drilling using rotary table with Kelley bar



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