

# ZJ70/4500DZ Drilling Rig - Equipment Limits



## Crown Block - TC450

Maximal hook load 4500kN / 1,011,645 lbs 90% 910,480  
 Number of main pulley 7  
 Diameter of main pulley 1524 mm (60")  
 Diameter of steel wire rope 38mm (1 1/2")

## Derrick

Maximal hook load 4500kN / 1,011,645 lbs 90% 910,480lbs  
 Nominal drilling depth 127mm (5" drill pipe) 4000-6000 m / 114mm (4 1/2" drill pipe) 4500-7000m  
 Maximal weight of drilling string 2200 kN  
 Diameter of drilling steel wire rope 38 mm  
 Effective height 45.72m  
 Type of derrick as well as its effective height Type K, 46.6 m

## Drilling line

Minimum Braking Force is 1010kN 227,048 lbs  
 1 1/2" 38mm 6x19S IWRC

## Kelly Hose

4" Fig 1002  
 79'  
 5,000 psi wp  
 10,000 psi test

## Top Drive

BENITEC / TD 500HT  
 Hoisting Capacity: 500 ton  
 Pressure Rating: 500 bar / 7500 psi  
 AC Motor Power: 750 kW/1030 HP  
 Speed Range: 0 ... 230 rpm  
 Continuous Torque: 63,000 Nm / 45,500 ft-lbs  
 Make/ Break Torque: 100,000 Nm/ 73,760 ft-lbs  
 105,000 Nm/ 77,440 ft-lbs Static Lock Brake:  
 Ambient Temperature: 45°C ... +55°C  
 Total weight 16200kg

## Travelling Assy YC450

SWL - 1,011,645 lbs 90% 910,480  
 Weight - 8.135 t

## Setback capacity of racking board

(127mm drill pipe, 28m setback) 6,600m  
 (114mm drill pipe, 28m setback) 7,000m  
 10" drill collar 4 drill string, 8" drill collar 6 strings

## Derrick Structure Loadings

1. Maximal hook load 4500kN / 1,011,645 lbs 90% 910,480lbs

## Set back area

1. The rated load of pipe setback 2200kN 494,560lbs 90% 445,104 lbs
2. The capacity of pipe setback 127mm drill pipe 28m stands 7280m
2. Setback capacity of racking board
3. (127mm drill pipe, 28m setback) 6,600m
4. (114mm drill pipe, 28m setback) 7,000m
5. 10" drill collar 4 drill string, 8" drill collar 6 strings

## Drawworks - JC70D Rated input power 1470KW (2000hp)

Maximal fast line pulling force 485 kN  
 The dimension trough of main barrel (diameter x length) 770 x 1361mm  
 Diameter of the steel wire rope of barrel 38mm (1 1/2")  
 Auxiliary brake air cooled Eddy Current Brake  
 Rated input rotary speed 970 r/min  
 Main drum (dia. x length) 770x1361.15mm  
 Disc of brake (dia. x width) 1,600 x 76mm  
 Wire line diameter of sandline drum 14.5 mm (9/16")  
 Sandline drum (dia. x length) 356 x 1,430mm  
 Brake felloe of sandline drum (dia. x width) 1,070 x 200mm

## DZ450/10.5 Substructure (API Spec 4F)

Height of drill floor 10.5m  
 Height from rotary table beam to ground 8.92m  
 Max. Static load of rotary table 4,500kN  
 Rated load of setback 2,200kN  
 Area of drill floor 13m x 12m

## Rotary table

Model ZP-375  
 Maximal static load 5850 kN Through hole diameter 952.5 mm (37.1/2") The maximum speed revolution 300 rpm

29 1/2" Diverter 500PSI

## Mud Pumps 3NB-1600

Rated input power 1176kW  
 The rated power and quantity of motor of each pump 2 x 800 kW  
 Maximum pressure 35 MPa  
 Stroke 305 mm  
 Gear Ratio 3.81  
 Drive ratio 458r/min  
 The rated power and quantity of motor 190mm  
 Maximal cylinder sleeve size  
 Maximum pressure 35MPa 305mm Stroke Rated pumping speed 120s/min

Relation table of 3NB1600 mud pump output and pressure										
Liner Diameter		mm								
Discharge Pressure		MPa								
		190	180	170	160	150	140			
		20.4	22.8	25.5	28.8	32.8	34.3			
Stroke	Input Power		Output Power		Capacity (L/s)					
	Kw	Hp	Kw	Hp						
120	1176	1600	1059	1440	51.9	46.6	41.5	36.8	32.3	28.2
110	1079	1467	790	1320	47.6	42.7	38	33.7	29.6	25.9
100	980	1333	883	1200	43.3	38.8	34.5	30.6	26.9	23.5
90	882	1199	794	1079	38.9	35	31.1	27.6	24.2	21.2
80	785	1067	706	960	34.6	31	27.6	24.2	21.5	18.8
70	687	934	618	840	30.3	27.2	24.2	21.5	18.8	16.5
60	589	801	530	721	26	23.3	20.8	18.4	16.2	14.1
50	490	666.5	442	600	21.6	19.4	17.25	15.3	13.45	11.8