

HYDX-4 Full Hydraulic Drilling Rig



I. Brief Introduction

The core drill rig of full hydraulic and rotator adopted the technology of wire-line coring has been the dominant type rig for solid mineral deposits prospecting in developed countries in the world. It is also the developing direction of drilling technique and drilling equipment in China. Under these circumstances, Lianyungang Huanghai Machinery Co., Ltd. has developed the HYDX-4 core drill rig successfully according to the situation of China. This type of drill rig could substitute imported products. It could be applied to exploration and prospecting of geology, metallurgy, coal, petroleum, natural gas, groundwater and other industries. The drill rig is equipped with a series motor driving pump. The feeding and lifting of rotator are driven in the structure of cylinder directly pushing, with a 3.5m (11.5 feet) stroke. The rotation of spindle is driven by a single engine. It has four mechanical shifts of

range of speeds, and the speed could be adjusted hydraulically with steeples change.

The rig is simple in structure. It is light and easy for transference; the mast has the functions of sliding and touching ground; the spindle lifted and lowered with hydraulic cylinder; it could be folded for transport and relocation. The spindle hole is in large diameter.

II. Main Parameters

The figures in these tables have been calculated, based on field experiences, and may be reasonably expected. Actual drilling capacity will depend on in-hold tools and conditions, drilling techniques and equipment used.

Diesel Engine	Model	Cummins 6BTA5.9-C180 (turbocharged and charge water cooled)
	Displacement	5.9L (1.56 US Gallons)
	Power	132Kw (180HP)
	Rated RPM(Factory setting)	2200rpm
Drilling Capacity	BQ	1000m(3280feet)
	NQ	700m(2296 feet)
	HQ	500m(1640 feet)
	PQ	300m(984 feet)
	Rotation Motor	Hydraulic Motor-variable Maker:

		SAUER-DANFOSS
	RPM	Four Shifts/ Steeples Change 0-1100 RPM
	Ratios	1st 14.422:1 2nd 8.171:1 3rd 4.519:1 4th 2.652:1
Drill Head	Head Opener	Pivoting style, Manual actuated
	Hydraulic Chuck(PQ)	Hydraulically opened, Disc Spring Clamping, Normally C Closed Type Axial Holding Capacity of 222 400 N
	Max. Torque	3700 N·m(2727 lbf·ft)
	Hold Diameter	121 mm(4.76 inch)
	Max. Lifting capacity of Spindle	150 kN(33720 lbf)
	Max. Feeding Power	60 kN(13480 lbf)
	Hydraulic pump Axial Piston variable displacement Triplex pump for driving of rotator,	Maker: DANFOSS 1st Pump: 148LPM at 31.5MPa 2nd Pump: 120LPM at 28MPa 3rd Pump: 50

	system.	
	Capacity	310 L (82 US Gallons)
	Hoisting force (single wire)	57kN(12814 lbf) (bare drum)
	Hoisting Speed (single wire)	38-70m/min(bare drum)
Hoist	Steel Wire Diameter	18 mm(0.71 inch)
	Steel Wire Length	50 m(164 feet)
	Hoisting Force (single wire)	1200 Kg(2646 lb) (bare drum)
	Hoisting Speed (single wire)	60-90m/min (bare drum)
	Steel Wire Diameter	5.3 mm(0.2 inch)
	Steel Wire Length	1000 m(3280 feet)
	Mast Height	9.6 m(31.49 feet)
	Mast Adjusting Angle	0°—90°
	Drilling Angle	45° off horizontal to 90°vertical down
	Feed Pull	15000kg(33075 lb)
Mast	Feed Thrust	6000kg(13230 lb)
	Rod Pull	3m or 6m(9.84feet or 19.68feet)
	Feeding Stroke	3500 mm(137.80 inch)
	Slippage Stroke	600 mm(23.62 inch)
	Type	Reciprocating pump Triplex

		Plunger
Mud Pump	Model	BW160/10
	Stroke	70mm(2.76 inch)
	Discharge pressure	2.5, 4.0, 6.5, 10.0 Mpa (363, 580, 943, 1450 psi)
	Clamping Scope	55.5-110 mm(2.19-4.33 inch) through hole Φ 154mm(6.06 inch)
	Weight (platform type)	9300 Kg(20506 lb)
Others	Dimensions (L×W×H)	5100×2200×2650mm (200×86.6×104.3 inch)
	Transport Way	Crawler