

FORWARD

FORWARD TDR-50

Full Hydraulic Multifunction Top Drive Drill Rig

COMPANY INTRODUCTION

Head office of FORWARD GROUP is located in Kazan city, capital of Tatarstan Republic, Russia. There are many sales offices and service centers all over the world. Factory of FORWARD GROUP is located in the Lianyungang free economic zone, Jiangsu province, China. At present our production area is 5500m² and production capacity is about 100 drill rigs per year. FORWARD factory has ISO9001:2008 and CE certificates. FORWARD pays a lot of attention to the technical innovations and products development; there are design and engineering teams in Russia, Germany, Australia and China. Our mission is to provide high-quality drilling equipment that is good value for money to the clients.



Made by FORWARD

TDR-50 Drilling Method

TDR -50 is mainly used for coal bed methane exploration, water well drilling, rescue well drilling, shallow oil and gas, mine exploration drilling etc.

The TDR-50 multifunction top drive rig enables each user to drill with following methods, with bore-hole diameters of 4" (108 mm) to 47" (1 200mm) and drilling depths up to 1500m

- Rotary-drilling with direct circulation
- Rotary-drill with reverse circulation
- Auger drilling
- Percussion core drilling(ram coring)
- Wire line core drilling
- Down-The-Hole hammer DC and RC drilling

Drilling Depth Guidelines

Use 5" rod	600 – 1 000 m
Use 4-1/2" rod	800 – 1 300 m
Use 3-1/2" rod	1 000 – 1 500 m

The figures in these tables have been calculated, based on field experiences, based on a vertical, straight, and clean down hole. Actual drilling capacity depends on in-hole tools, conditions, drilling techniques and equipment used.

Main Components Description

General

The TDR-50 which is assembled by FORWARD Heavy Instruction Machinery Co., Ltd, is mounted on the undercarriage of excavator with a total weight of 35 ton. The engine power 243 Kw.

Mast

Constructed of high tensile steel and hydraulically elevated, mast lifting and lowering and degree of slope controlled by four (4) double acting hydraulic cylinders. The mast is equipped with 4 guide rails for the carrier of the drill head and a suspension for the feed device. The rig is also equipped with slipper system, in order to the mast slip, and the stroke is 3.65m, the mast can be reliably based on the ground. The rig can be set up the blowout preventer and other systems.

Mud Line System

All mud lines on the TDR-50 Drilling Rig have 3" (76.2mm) diameter, in order to reduce friction losses to a minimum.

Top Drive head

Top drive head suits for tricone bit, DTH hammer, PDC Drill bit and diamond bit which meets special demand of rotate speed and torque during work. The 4-shift Gearbox using spur gear drive, oil bath lubrication. Hydraulic Motor and gearbox could provide for much high speed and torque to be adjusted.

The angle of rotate unit could be adjusted as needed, ranges from 0° (vertical) -90°.

The water connector can hold a pressure maximum 35Mpa.

Electrical System

Generator and battery are driven by diesel engine and provide 24V direct-current power supply. All cables are protected with seal line. Furthermore, all circuits are equipped with short-circuited plunger.

Additional Rig Components

TDR-50 Rig can be modified. All kinds of aggregates, required for different drilling methods, can be installed on the rig at customer request, or supplied as stand-by aggregates.

TDR-50 Rig Components	
Top Drive Head	■
Foam Pump	□
Line Oiler	□
Winch	□
Coring Winch	□
Power Tong	□
Hydraulic Driven Generator	□
Optor Cabin with Air Condition	□
Camera System	□

□ – Standard Equipment ■ – Optional Equipment

Technical specifications

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Mounting	
Crawler, Undercarriage of Excavator.	
Moving Speed	3 Km/h
Power Unit	
Diesel Engine	STEYR-WEICHAJ Diesel engine, 2 valves, turbocharged intercooled.
Power	330 HP
Cylinder and Displacement	6 cylinders, 9.726 L
Capacity of Fuel Tank	680 L
Mast	
Length of Mast (Fully Expanded)	62" (18.9m)
Length of Mast (Fully Retracted)	39.4" (12 m)
Stroke of Feeding	45.93" (14 m)
Stoke of Mast Slipping	143.7" (3.65m)
Rod and Casing	I (18-22 feet), II (27-30 feet), III (38-45 feet)
Feeding System	
Capacity of Pull Back Force	110 230 lbf (500 KN)
Capacity of Pull Down Force	26 455 lbf (120 KN)
Max. Pull Back Speed	19 m/min
Max. Pull Down Speed	55 m/min
Drill Head	
4 Shifts, 8 Speeds	
1st shift	270 - 600 RPM 3 850 – 2 150 Nm
2nd shift	150 - 280 RPM 3 850 – 6 850 Nm
3rd shift	95 – 170 RPM 6 250 – 11 000 Nm
4th shift	60 – 110 RPM 9 000 – 16 800 Nm
Luffing Angle of Drill Head	0 - 90° (from perpendicular to vertical level)
Main Winch	
Line Pull	30 KN
Wire Rope Diameter	14 mm
Wire Rope Length	45 m
Coring Winch	
Line Pull	15 KN
Pull Speed	0-280 m/min
Pull Speed	0-280 m/min
Power Tong	
The tongs are designed and manufactured according to SY/T5074 standard and API Spec 7K" Specification for Drilling and Well Servicing Equipment".	
Size Rang	3 1/2" coupling - 8" body
Max.Torque	100 KNm
Rotation Speed	2.7 – 40 RPM
Dimensions and Weight	
Length in Transport / Working Position	12.1 m / 8.16 m
Width in Transport / Working Position	2.9 m / 2.9 m
Height in Transport / Working Position	3.4 m / 18.9 m
Weight	33 000 Kg



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CONTACT INFORMATION: FORWARD GROUP

HEAD OFFICE

420111, Russia, Kazan city, Universitetskaya street, 14
Tel.: +7 843 238 73 00, +7 843 238 73 01, +7 843 238 73 06,
+7 843 238 75 04
Fax: +7 843 238 73 00
E-mail: info@forward-corp.com
Web-site: www.forward-corp.com

FACTORY

Lianyungang Forward Heavy Industrial Machinery Co., LTD
99#, New East Rod, Lianyungang Economic and Technological
Development Zone, Lianyungang city, Jiangsu province,
China, 222047
Tel: +86 518 81089618
Fax: +86 518 81599918
E-mail: info@forward-corp.com
Web-site: www.forward-corp.com