



VDD 370 Super Single Rig - Automatic Pipehandling System

Chapter 1 - General

General

Type Description	Rack and Pinion
Max. Hoisting Capacity	408 short tons (370 metric tonnes)
Max. Pushing Capacity	72.8 short tons (66 metric tonnes)
Max. Drilling Depth	16,400 ft (5,000 m)
Operating Tubulars	Range III - Singles
Overall Rig Height	101.7 ft (31.0 m)
Transportation	Street Legal Loads and Weights
Horsepower Rating Hoisting System	885 hp (660 kW)
Design Temperature	-4°F to 104°F (-20°C to +40°C)

Chapter 2 - Mast with Components

Mast

Type Description	STREICHER Welded Box Type
Max. Hoisting Capacity	408 short tons (370 metric tonnes)
Mast Height	74.1 ft (22.6 m)
Free Working Height	55.8 ft (17.0 m)

Auxiliary Winch

Max. Hoisting Capacity	11,000 lbs. (5,000 kg)
Max. Hook Speed	54.2 ft/m (16.5 m/min)

Chapter 3 - Substructure & Drillfloor Equipment

Substructure

Type Description	STREICHER Modular Box-On-Box Design
Substructure Footprint	26.3 ft x 40.0 ft (8 m x 12.2 m)
Substructure Height	27.2 ft (8.3 m)
Substructure Clear Inner Width	9.8 ft (3.0 m)
Clearance underneath Rotary Beams	24.6 ft (7.5 m)
Module Connection	Quick Connectors
Wind Walls	Existing

Cathead

Line Pull	31,500 lbs. (140,000 N)
Max. Torque with 4 ft. Rig Tong	125,000 ft-lbs. (170,000 Nm)
Max. Torque with 5 ft. Rig Tong	154,900 ft-lbs. (210,000 Nm)
Stroke of Wire	6.5 ft (2,000 mm)
Weight	2,200 lbs. (1,000 kg)



VDD 370 Super Single Rig - Automatic Pipehandling System

Deadman	
Max. Retention Force	31,500 lbs. (140,000 N)
Lug Pull Force	31,500 lbs. (140,000 N)
Weight	1,100 lbs. (500 kg)

Driller's Cabin	
Type Description	STREICHER Driller's Cabin
Drilling Monitor Display	Standard
CCTV Station	Standard
Data Acquisition System	Standard
Remote Diagnostic & Service	Standard

Drillfloor Crane	
Max. Lifting Moment	112,249 ft-lbs. (152,100 Nm)
Max. Lifting Capacity	2,464 lbs. (1,120 kg)
Max. Outreach	33.8 ft (10.3 m)
Slewing Angle	400 degrees
Slewing Torque	13,060 ft-lbs. (17,700 Nm)
Weight	3,678 lbs. (1,672 kg)

Standpipe Manifold	
Max. Operating Pressure	5,000 psi (345 bar)
Standpipe Nominal Diameter	5"

BOP Handling System	
Type Description	Pneumatic Monorail Air Hoist
No. of Hoisting Units	2
Max. Carrying Capacity	2 x 44,000 lbs (2 x 20,000 kg)
Lifting Speed at Full Load	2.3 ft/min (0.7 m/min)
Lifting Speed without Load	4.6 ft/min (1.4 m/min)
Travelling Speed at Full Load	39.4 ft/min (12.0 m/min)
Travelling Speed without Load	44.3 ft/min (13.5 m/min)

Chapter 4 - Rotary Table

Rotary Table (Assisting)	
Type Description	STREICHER Hydraulic Driven Rotary Table
Max. Rotary Load	408 short tons (370 metric tonnes)
Max. Rotation Speed	10 rpm
Max. Operating Torque	33,200 ft-lbs. (45,000 Nm)
Max. Opening	37 1/2" (952.5 mm)



VDD 370 Super Single Rig - Automatic Pipehandling System

Slip Lifter	
Type Description	STREICHER Slip Lifter
Rotary Size	37 1/2" (952.5 mm)
Pipe Size Range	3 1/2" to 6 5/8" (88.9 mm to 168.3 mm)
Load Rating	408 short tons (370 metric tonnes)
Operating Pressure	870 psi (60 bar)
Flow Rate	5.3 gpm (20 l/min)
Additional Bushing sizes	Optional
Weight	550 lbs. (250 kg)

Chapter 5 - Drawworks	
Drawworks (Push/Pull)	
Type Description	Streicher Hydraulic Top Drive
Type of Drive	Hydraulic Motors
Max. Hoisting Capacity	408 short tons (370 metric tonnes)
Max. Pushing Capacity	72.8 short tons (66 metric tonnes)
Max. Travel Speed	164 fpm (50.0 m/min)
Weight	25,300 lbs. (11,500 kg)

Chapter 6 - Top Drive Unit	
Top Drive System (Rotation)	
Type Description	Streicher Hydraulic Top Drive
Type of Drive	Hydraulic Motors
Rated Capacity	408 short tons (370 metric tonnes)
Rated Power	590 hp (440 kW)
Operating Length (108" Links)	216" (5,500 mm)
Max. Continuous Drill Torque	44,280 ft-lbs. (60,000 Nm)
Intermittent Torque	62,693 ft-lbs. (85,000 Nm)
Max. Speed	190 rpm
Max. Circulating Pressure	5,000 psi (345 bar)
Weight	18,700 lbs. (8,500 kg)

Elevator	
Operation Mode	Hydraulic Remote Controlled
Component Rated Capacity	350 short tons (318 metric tonnes)
Size O.D. Range	2 3/8" to 7"
Suitable for Link Size	250 to 500 short tons
Weight	1,210 lbs. (550 kg)



VDD 370 Super Single Rig - Automatic Pipehandling System

Elevator Links	
Link size	2 3/4" x 108" (69.85 mm x 2,743 mm)
Rated Capacity	350 short tons (318 metric tonnes)
Weight	870 lbs. (394,6 kg)

Chapter 7 - Tubular Handling Equipment	
Tubular Handling Equipment	
Type Description	STREICHER Horizontal to Vertical Pipehandler
Mode of Operation	Fully Automated
Drill Pipe Range	2 3/8" to 6 5/8"
Drill Collar Range	3 1/8" to 9 3/4"
Tubular/ Casing Range	4 1/2" to 20"
Max. Hoisting Capacity	6,600 lbs. (3,000 kg)
Max. Length of Tubulars	48.0 ft (14.6 m)
Max. Travel Speed	~164 ft/min (~50 m/min)
Max. Horizontal To Vertical Torque	73,800 ft-lbs. (100,000 Nm)
Modifications For Diameter Change	Not Necessary
Type Description	STREICHER Automated Pipe Feeding System
Max. Capacity (Drillpipes 5 1/2")	12
Tubular Range	2 3/8" to 20"
Loading	Forklift
Pipe Transportation	Chain Conveyer
Weight	17,600 lbs. (8,000 kg)

Roughneck System	
Tubular Connection OD Range	2 7/8" to 9 1/2"
Max. Spin Speed	160 rpm (nominal on 5 1/2" DP)
Max. Spin Torque	2,028 ft-lbs. (2,750 Nm)
Max. Make-Up Torque	62,000 ft-lbs. (84,000 Nm)
Max. Break-Out Torque	77,500 ft-lbs. (105,000 Nm)
Horizontal Travel	19.7" (500 mm)
Connection Height	27.5" to 59" (700 mm to 1,500 mm)
Casing Ready	No
Weight	8,580 lbs. (3,900 kg)



VDD 370 Super Single Rig - Automatic Pipehandling System

Chapter 8 - Power Generation	
Generator Unit	
Type Description	STREICHER Generator Set
No. of Generator Sets	4
Day Tank Capacity	264 gallons (1,000 liters)
Rated Power	1,080 hp (805 kW)
Rated Speed	1,500 rpm
Effective Power	1,145 hp (852 kW)
Generator Rating	1,065 kVA
Voltage/ Frequency	690 V / 50 Hz
AC Drive & Monitoring System	
Type Description	STREICHER AC Drive & Monitoring System
Installations	AC System, Inverters, MCC, PLC
External Cable Connections	Plug Board and Plug Panels
Cooling System	Liquid Cooled

System Voltage Frequency	
Voltage/ Frequency	690 V/ 50 Hz
Voltage/ Frequency	400 V/ 50 Hz
Voltage/ Frequency	230 V/ 50 Hz

Chapter 9.1 - Mud Pump Module	
Mud Pump Module	
Type Description	STREICHER Mud Pump Module
Model	Triple Single Acting Piston Pump
Transmission Mode	V-Belt Drive
No. of Mud Pump Modules	2
Max. Liner Diameter	7" (177.8 mm)
Max. Stroke	12" (305 mm)
Rated Stroke	120 spm
Rated Power	1,600 hp (1,194 kW)
Max. Discharge Capacity	720 gpm (2,730 l/min)
Discharge Pulsation Dampener	19.8 gallons (75 liters)
Max. Working Pressure	5,000 psi (345 bar)
Weight	88,000 lbs. (40,000 kg)
Type of Drive	AC Motor
Max. Continious Power	1,600 hp (1,194 kW)
Max. Continious Torque	8,750 ft-lbs. (11,860 Nm)
Weight	8,500 lbs. (3,900 kg)



VDD 370 Super Single Rig - Automatic Pipehandling System

Type Description	Centrifugal Pump
Inlet Diameter	8" (203.2 mm)
Outlet Diameter	6" (152.4 mm)
Impeller Diameter	12" (304.8 mm)
Rated Power	73.7 hp (55 kW)

Chapter 9.2 - Tank System**Sand Trap Module**

Type Description	STREICHER Sand Trap Module
Dry Weight	18,920 lbs. (8,600 kg)
Tank Capacity	177 bbls. (28 m3)
Max. Specific Gravity of Fluids	7.3 kg/gallon (2.2 kg /liter)

Suction Tank Module

Type Description	STREICHER Suction Tank Module
Dry Weight	52,800 lbs. (24,000 kg)
Suction Tank Capacity	190 bbls. (30 m3)
Mix Tank Capacity	95 bbls. (15 m3)
Pill Tank Capacity	31.7 bbls. (5 m3)
Suction Line Diameter	8" (203,2 mm)
Pressure Line Diameter	6" (152,4 mm)
Max. Specific Gravity of Fluids	7.3 kg/gallon (2.2 kg /liter)

Type Description	Agitator Unit
No. of Agitator Units	4
Rated Power	10 hp (7,5 kW)
Max. Motor Speed	1,440 rpm
Max. Agitator Speed	64 rpm
Weight	678 lbs. (308 kg)

Type Description	Centrifugal Pump
No. of Pumps	2
Inlet Diameter	6" (152.4 mm)
Outlet Diameter	5" (127 mm)
Impeller Diameter	14" (355.6 mm)
Rated Power	73.7 hp (55 kW)



VDD 370 Super Single Rig - Automatic Pipehandling System

Type Description	Low Pressure Hopper
No. of Hopper Units	1
Hopper Size	6" (152.4 mm)
Max. Working Pressure	60 psi (4.1 bar)
Max. Volume Mud	1,650 gpm (6,250 l/min)
Choke Nipple Bore	2" (50.8 mm)
Weight	236 lbs. (107 kg)

Intermediate Tank Module	
Type Description	STREICHER Intermediate Tank Module
Dry Weight	52,800 lbs. (24,000 kg)
Tank Capacity	380 bbls. (60 m ³)
No. of Compartments	2 (190 bbls. each)
Suction Line Diameter	8" (203,2 mm)
Pressure Line Diameter	6" (152,4 mm)
Max. Specific Gravity of Fluids	7.3 kg/gallon (2.2 kg /liter)

Type Description	Agitator Unit
No. of Agitator Units	4
Rated Power	10 hp (7,5 kW)
Max. Motor Speed	1,440 rpm
Max. Agitator Speed	64 rpm
Weight	678 lbs. (308 kg)

Trip Tank Module	
Type Description	STREICHER Trip Tank Module
Dry Weight	18,600 lbs. (7,100 kg)
Trip Tank Capacity	18.9 bbls (3.0 m ³)
Flow-Line Diameter	14" (356 mm)
Max. Specific Gravity of Fluids	7.3 kg/gallon (2.2 kg /liter)

Type Description	Centrifugal Pump
Inlet Diameter	3" (76.2 mm)
Outlet Diameter	2" (50.8 mm)
Impeller Diameter	13" (330.2 mm)
Rated Power	37.5 hp (28 kW)



VDD 370 Super Single Rig - Automatic Pipehandling System

Chapter 9.3 - Mud Treatment**Shale Shaker Module**

Type Description	STREICHER Shale Shaker Module
Screen Mounting	Quick Release System
Max. Capacity	900 gpm (3,411 l/min)
Produced G Forces	7.3 G
No. of Shale Shakers Modules	3
Deck Angle Adjustment	-1° to +8°
Weight	9,100 lbs. (4,140 kg)

Centrifuge Module

Type Description	STREICHER Centrifuge Module
Max. Capacity	200 gpm (758 l/min)
Bowl Size	14" (356 mm)
Bowl Type	Contour Cylinder
No. of Centrifuges	2
Max. Speed	4000 rpm
Weight	13,200 lbs. (6,000 kg)

Mud Gas Separator

Type Description	STREICHER Mud/ Gas- Separator
Liquid Capacity	1,500 gpm (5,678 l/min)
Working Pressure	125 psi (8.6 bar)
Gas Capacity	17.5 MMscf/d (495.5 m3/d)
Ventline Diameter	6" (152.4 mm)
Weight	12,100 lbs. (5,500 kg)

Mud Lab Module

Type Description	STREICHER Mud Lab Module
Equiped with	Mud Workplace & Controlstation
Weight	11,000 lbs (5,000 kg)

Chapter 10 - Auxiliary Equipment**Fuel Tank**

Tank Capacity	126 bbls. (20 m3)
No. of Fuel Tanks	1
Layout	Double Walled
Autom. Generator Refill	Yes
Weight	10,600 lbs. (4,820 kg)



VDD 370 Super Single Rig - Automatic Pipehandling System

Compressed-Air System	
Rated Power	40 hp (30 kW)
Max. Capacity	24.6 bbls/min (3.9 m ³ /min)
Max. Operating Pressure	190 psi (13 bar)
Air Receiver	530 gallons (2,000 liters)
Air Dryer	Standard

Hydraulic Power Units	
Type Description	STREICHER Hydraulic Power Unit
Rated Power Main Power Unit	1,210 hp (900 kW)
Max. Volume Main Power Unit	528 gpm (2,000 l/min)
Rated Power Auxiliary Power Unit	150 hp (110 kW)
Max. Volume Auxiliary Power Unit	56 gpm (210 l/min)
Max. Working Pressure	5,000 psi (345 bar)
Tank Capacity	10.1 bbls (1.6 m ³)

Chapter 11 - Optional Equipment

Power Slip	
Type Description	Power Slip
Rotary Size	37 1/2" (952.5 mm)
Pipe Size Range	2 3/8" to 14" (60.3 mm to 355.6 mm)
Component Load Rating	500 short tons (454 metric tonnes)
Operating Pressure	2,500 psi (175 bar)
Flow Rate	10 gpm (37.9 l/min)

Manual Tong	
Type Description	Manual Drill Pipe Tong
Size Range lever	3 1/2" to 21 1/2"
Length of Lever Arm	46" (1,170 mm)

Driller's Cabin	
Redundant Drilling Operation Chairs	Optional
BOP and C/K Panel	Optional
Fire and Gas Display Panels	Optional
Satelite Communication	Optional

Drillfloor Crane	
Equipped With Work Basket	Optional



VDD 370 Super Single Rig - Automatic Pipehandling System

Well Control Equipment (Exemplary)	
Type Description	T3 7082 Annular BOP
Bore Size	13 5/8" (346 mm)
Operating Pressure	5,000 psi (345 bar)
Hydraulic Operating Pressure	1,500 psi (105 bar)
Weight	13,500 lbs. (6,120 kg)
Type Description	T3 6012 Double Ram BOP
Bore Size	13 5/8" (346 mm)
Operating Pressure	10,000 psi (690 bar)
Weight	27,720 lbs. (12,600 kg)
Type Description	T3 Single Ram BOP with Tandem Shear Boosters
Bore Size	13 5/8" (346 mm)
Operating Pressure	10,000 psi (690 bar)
Weight	13,640 lbs. (6,200 kg)
Type Description	T3 BOP Control System (Accumulator Unit)
No. of Remote Controls	2
Bottle Capacity	240 gallons (910 liters)
Operating Pressure	3,000 psi (207 bar)
Weight	34,100 lbs. (15,500 kg)
Type Description	T3 Choke- & Kill- Manifold
Max. Operating Pressure	10,000 psi (690 bar)
Choke Line Inside Diameter	3"

Active Tank Module	
Additional Hopper	Optional

Solids Control	
Mud Pre-Separator	Optional
Vacuum Degasser	Optional
Triple-Deck Shale Shakers	Optional
Flocculation System	Optional
Barite Silos	Optional
Water Silos	Optional
Additional Intermediate Tanks	Optional
Additional Mud Pumps	Optional
Additional Centrifuges	Optional



VDD 370 Super Single Rig - Automatic Pipehandling System

System Voltage - Frequency	
Different Type of Voltage/ Frequency	Optional

Miscellaneous	
Side-Lighting	Optional
Winterisation Package	Optional
BOP-Trolley	Optional
Casing Running- /Casing Drilling	Optional
Soft Torque and Soft Pump	Optional
Different Type of Roughneck	Optional
Sound Proofing for Generator Package	Optional
Forklift	Optional
Piperacks	Optional
Drillpipe and Downholeequipment	Optional
Storagecontainer	Optional
Workshopcontainer	Optional
Officecontainer	Optional
Modules Skid Mounted	Optional
Modules Trailer Mounted	Optional
STREICHER Skidding-/ Walking System	Optional
STREICHER Fire & Gas System	Optional
Preparation for Grid Supply	Optional
Preparation for Grid Supply	Optional

Chapter 12 - Applied Standards & Regulations
Applied Standards & Regulations
European Machinery Directive 2006/42/EC (CE-Declaration of Conformity)
European Pressure Equipment Directive 97/23/EC
Explosion Proof Equipment Directive 94/9/EC
Low Voltage Equipment 2006/95/EC
Electromagnetic Compatibility 2004/108/EC
API Spec. 4F (Specification for Drilling and Well Servicing Structures)
API Spec. 8C (Specification for Drilling and Production Hoisting Equipment)