



VDD 400 Offshore Super Single - Automated Pipehandling System

Chapter 1 - General

General

Type Description	Rack and Pinion
Max. Hoisting Capacity	400 short tons (363 metric tonnes)
Max. Pushing Capacity	100 short tons (91 metric tonnes)
Max. Drilling Depth	16,500 ft (5,000 m)
Operating Tubulars	Range III - Singles
Max. Module Weight	12.1 short tons (11.0 metric tonnes)
Overall Rig Height	139.5 ft (42.5 m)
Transportation	Street Legal Loads and Weights
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	400 short tons (363 metric tonnes)
Mast Height	91.8 ft (28.0 m)
Free Working Height	62.3 ft (19.0 m)
Erection System	Self Erecting Bootstrap-System

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	19.7 ft x 19.7 ft (6.0 m x 6.0 m)
Substructure Height	42.6 ft (13.0 m)
Substructure Clear Inner Width	10.2 ft (3.1 m)
Clearance underneath Rotary Beams	29.5 ft (9.0 m)

Type Description	STREICHER Baseframe System
No. of Baseframes	2
Baseframe Length	51.8 ft (15.8 m)
Baseframe Height	8.2 ft (2.5 m)
Weight	23,300 lbs (10,600 kg)



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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	1,962 lbs. (890 kg)

Deadman	
Type Description	STREICHER Deadman
Max. Retention 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	132,840 ft-lbs. (180,000 Nm)
Max. Lifting Capacity	17,600 lbs. (8,000 kg)
Max. Outreach	61.7 ft (18.0 m)
Slewing Angle	400 degrees
Slewing Torque	17,000 ft-lbs. (23,000 Nm)
Weight	9,240 lbs. (4,200 kg)

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

BOP Handling System	
Type Description	STREICHER BOP/ Mast Trolley
Rated Power	4 x 2.0 hp (4 x 1.5 kW)
Rated Load BOP Trolley	88,000 lbs. (40,000 kg)
Rated Load Mast Trolley	26,400 lbs. (12,000 kg)
Weight	7,700 lbs. (3,500 kg)



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Chapter 4 - Rotary Table

Rotary Table (Assisting)

Type Description	STREICHER Hydraulic Driven Rotary Table
Max. Rotary Load	400 short tons (363 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)

Ship 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	500 short tons (454 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

Hoisting System

Type Description	STREICHER Hydraulic Hoisting System
Type of Drive	Hydraulic Motors
Max. Hoisting Capacity	400 short tons (363 metric tonnes)
Max. Push Capacity	100 short tons (91 metric tonnes)
Max. Travel Speed	
Weight	35,200 lbs. (16,000 kg)

Chapter 6 - Top Drive Unit

Top Drive

Type Description	STREICHER Hydraulic Top Drive
Type of Drive	Hydraulic Motors
Rated Capacity	400 short tons (363 metric tonnes)
Rated Power	1,110 hp (828 kW)
Weight	13,600 lbs. (6,200 kg)
Operating Length (132" Links)	290" (7,400 m)
Max. Continuous Drill Torque	44,280 ft-lbs. (60,000 Nm)
Intermittent Torque	62,730 ft-lbs. (85,000 Nm)
Max. Speed	200 rpm
Max. Circulating Pressure	5,000 psi (345 bar)



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Elevator	
Operation Mode	Hydraulic Remote Controlled
Rated Capacity	500 short tons (454 metric tonnes)
Size O.D. Range	2 3/8" to 9 3/4"
Suitable for Link Size	2 3/4" to 4 3/4"
Weight	2,040 lbs. (924 kg)

Elevator Link Set	
Link size	3 1/2" x 132" (88.9 mm x 3,352 mm)
Rated Capacity	500 short tons (454 metric tonnes)
Weight	1,670 lbs. (759 kg)

Chapter 7 - Tubular Handling Equipment

Tubular Handling Equipment	
Type Description	STREICHER Horizontal to Vertical Pipe Gripper
Tubular Range	2 3/8" to 20"
Max.Hositing Capacity	6,600 lbs. (3,000 kg)
Max.Length of Tubulars	55.8 ft (17.0 m)
Modifications for Diameter Change	Not Necessary
Type Description	STREICHER Automated Pipe Feeding System
Max. Capacity (Drillpipes 3 1/2")	15
Tubular Range	2 3/8" to 20"
Kind of Replenishment	STREICHER Pipe Deck Crane
Kind of Pipe Transportation	Chain Conveyer
Weight	27,500 lbs. (12,500 kg)
Type Description	STREICHER Pipe Deck Crane
Max. Outreach	46.0 ft (14.0 m)
Tubular Range	2 3/8" to 20"
Max. Lift Capacity	6,600 lbs. @ 46.0 ft (3,000 kg @ 14.0 m)
Weight	23,100 lbs. (10,500 kg)

Roughneck System	
Overall Weight	18,200 lbs. (8,200 kg)
Tubular Connection OD Range	2 3/8" to 20"
Max. Spin Speed	35 rpm (nominal on 5" DP)
Max. Spin Torque	5,170 ft-lbs. (7,000 Nm)
Max. Make-Up Torque	151,300 ft-lbs. (205,000 Nm)
Max. Break-Out Torque	151,300 ft-lbs. (205,000 Nm)
Horizontal Travel	Guide Rail System
Connection Height	28" to 102" (700 mm to 2,600 mm)
Casing Ready	Yes



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Chapter 8 - Power Generation Unit

Generator Unit

Type Description	STREICHER Generator Set
No. of Generator Sets	3
Day Tank Capacity	264 gallons (1,000 liters)
Rated Power	1,770 hp (1,320 kW)
Rated Speed	1,500 rpm
Effective Power	1,610 hp (1,200 kW)
Generator Rating	1,500 kVA
Voltage/ Frequency	690 V / 50 Hz

AC Drive & Monitoring System

Type Description	STREICHER AC Drive & Monitoring System
Installations	A/C System, Inverters, MCC, PLC, ...
External Cable Connections	Plug Board and Plug Panels
Cooling System	Air 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 Pumps

Mud Pump Module

Type Description	STREICHER Mud Pump Module
Rated Power	750 hp (560 kW)
No. of Mud Pump Modules	4
Model	Triple Single Acting Piston Pump
Transmission Mode	V-Belt Drive
Max. Liner Diameter	7" (177.8 mm)
Max. Stroke	8" (203 mm)
Rated Stroke	120 spm
Max. Discharge Capacity	480 gpm (1,820 l/min)
Max. Working Pressure	5,000 psi (345 bar)
Weight	28,600 lbs. (13,000 kg)
Type of Drive	AC Motor
Max. Continuous Power	885 hp (660 kW)
Max. Continuous Torque	3,200 ft-lbs. (4,332 Nm)
Weight	6,930 lbs. (3,150 kg)



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Type Description	Centrifugal Pump
Inlet Diameter	6" (152.4 mm)
Outlet Diameter	5" (127.0 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
No. of Sand Trap Modules	2
Dry Weight	24,860 lbs. (11,300 kg)
Tank Capacity	161 bbls. (25.5 m3)
Max. Specific Gravity of Fluids	7.3 kg/gallon (2.2 kg /liter)

Suction Tank Module

Type Description	STREICHER Suction Tank Module
No. of Suction Tank Modules	2
Dry Weight	24,200 lbs. (11,000 kg)
Suction Tank Capacity	175 bbls. (27,8 m3)
Pill Tank Capacity	44 bbls. (7.9 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	2
Rated Power	9.1 hp (6,8 kW)
Max. Motor Speed	1,440 rpm
Max. Agitator Speed	64 rpm
Weight	678 lbs. (308 kg)

Type Description	Centrifugal Pump
No. of Centrifugal Pumps	1
Inlet Diameter	6" (152.4 mm)
Outlet Diameter	5" (127 mm)
Impeller Diameter	14" (355.6 mm)
Motor Power	73.7 hp (55 kW)



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Trip Tank Module	
Type Description	STREICHER Trip Tank Module
Dry Weight	18,600 lbs. (7,100 kg)
Trip Tank Capacity	2 x 31.6 bbls. (2 x 5.0 m ³)
Flow-Line Diameter	14" (356 mm)
Max. Specific Gravity of Fluids	7.3 kg/gallon (2.2 kg /liter)
Centrifugal Pump	
Type Description	Centrifugal Pump
Inlet Diameter	3" (76.2 mm)
Outlet Diameter	2" (50.8 mm)
Impeller Diameter	13" (330.2 mm)
Motor Power	37.5 hp (28 kW)

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	4.0 to 8.0 G
No. of Shale Shakers Modules	2
Deck Angle Adjustment	-0° to +7°
Weight	5,370 lbs. (2,436 kg)

Mud/Gas-Separator	
Type Description	STREICHER Mud/ Gas- Separator
Working Pressure	150 psi (10.3 bar)
Gas Capacity	9.0 MMscf/d (254.8 m ³ /d)
Ventline Diameter	10" (254.0 mm)
Operating Weight	13,070 lbs. (5,940 kg)

Chapter 10 - Auxiliary Equipment

Hydraulic Power Unit	
Type Description	STREICHER Hydraulic Power Unit
No. of Hydraulic Power Units	2
Rated Power	1,180 hp (880 kW)
Layout	Redundant
Max. Working Pressure	5,400 psi (370 bar)
Max. Volume	145.1 gpm (550 l/min)
Tank Capacity	11.4 bbls (1.8 m ³)
Weight	51,700 lbs (23,500 kg)



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Chapter 11 - Additional Equipment

Power Slip

Type Description	NOV PS 21 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)
Load Rating	500 short tons (454 metric tons)
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
Satellite Communication	Optional

Drillfloor Crane

Equipped With Work Basket	Optional
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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)



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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"

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

System Voltage - Frequency	
Different Type of Voltage/ Frequency	Optional

Miscellaneous	
Side-Lighting	Optional
Winterisation Package	Optional
Casing Running- /Casing Drilling	Optional
Soft Torque and Soft Pump	Optional
Different Type of Roughneck	Optional
Sound Proofing for Generator Package	Optional
Drillpipe and Downholeequipment	Optional
Storagecontainer	Optional
Workshopcontainer	Optional
Officecontainer	Optional
STREICHER Fire & Gas System	Optional
Preparation for Grid Supply	Optional



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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)