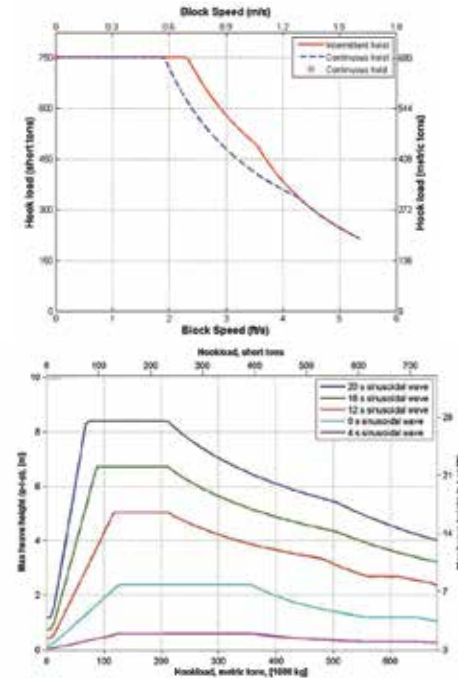
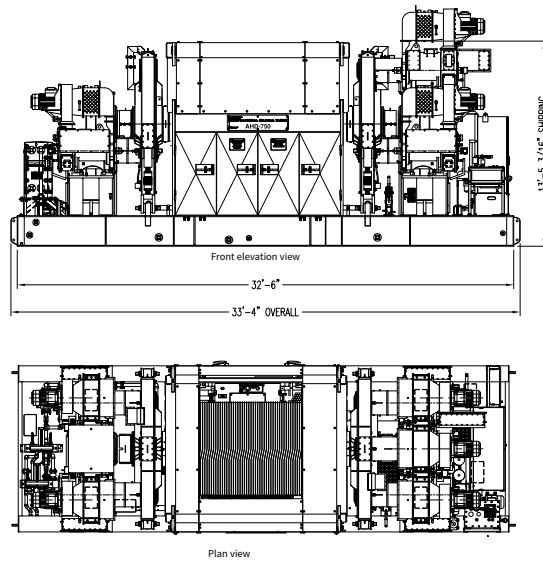




Active Heave Drilling Drawworks (AHD) combine the latest technology in controls and design. These drawworks eliminate the need for overhead motion compensation machinery. In addition, braking energy is regenerated and fed back into the electrical

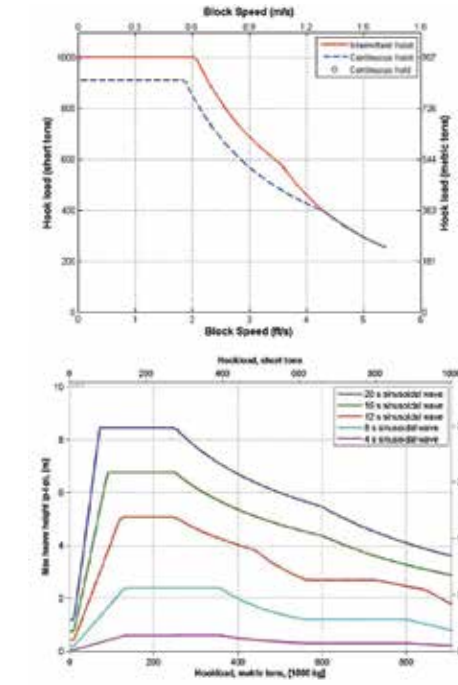
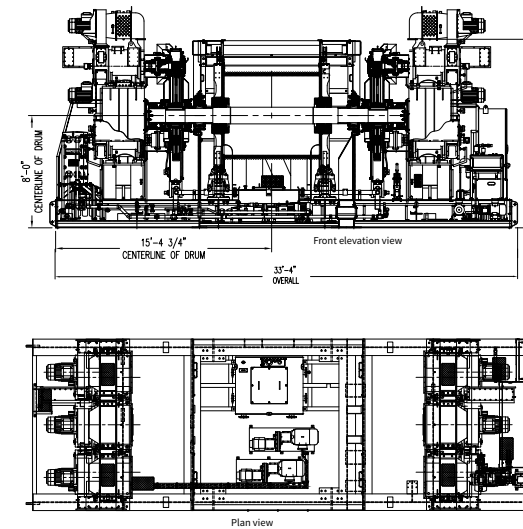
system of the drilling rig, which increases overall rig efficiency. The active heave compensation also expands the "drilling operational window" by allowing drilling programs to continue in heavier seas than conventional drawworks.

AHD-750



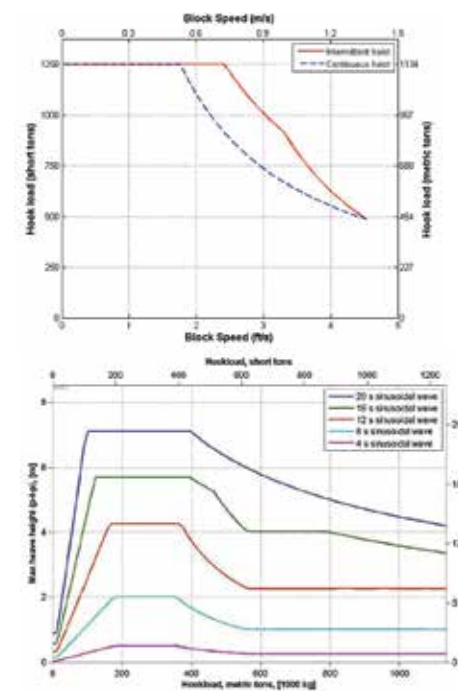
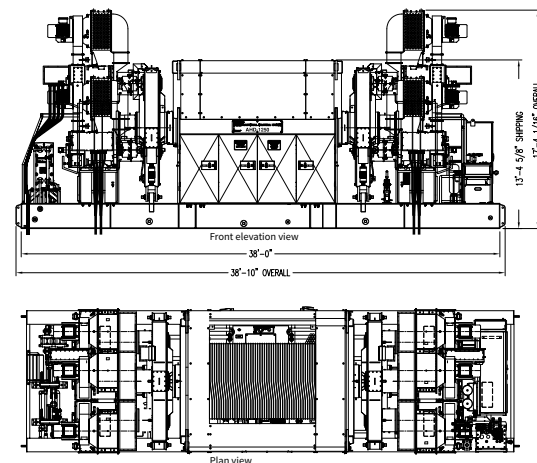
Technical specifications	
DESIGN DATA	
Max hook load 14 lines	750 sT (680 mT)
Max hook load 12 lines	652 sT (591 mT)
Fast line pull	119,585 lbs (54,243 kg)
Weight	200,442 lbs (90,919 kg)
Drill line diameter	1 3/4" (44.45 mm)
Max continuous power	5,750 Hp
Max intermittent power	7,000 Hp
Max block travel 14 lines (4 layers)	252 ft (76.7 m)
Max block travel 12 lines (4 layers)	294 ft (89.5 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 90°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB22A5 TEWAC
Number of motors	5
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

AHD-1000



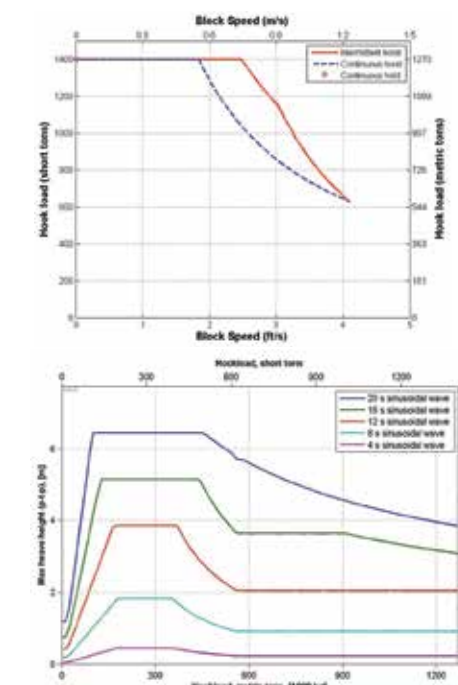
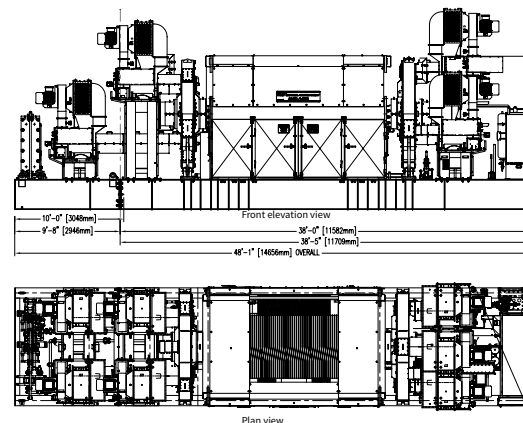
Technical specifications	
DESIGN DATA	
Max hook load 14 lines	1,000 sT (907 mT)
Max hook load 12 lines	867 sT (788 mT)
Fast line pull	159,447 lbs (72,324 kg)
Weight	207,851 lbs (94,180 kg)
Drill line diameter	2" (50.8 mm)
Max continuous power	6,900 Hp
Max intermittent power	8,400 Hp
Max block travel 14 lines (4 layers)	221 ft (67.4 m)
Max block travel 12 lines (4 layers)	258 ft (78.5 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 90°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB22A5 TEWAC
Number of motors	6
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

AHD-1250



Technical specifications	
DESIGN DATA	
Max hook load 16 lines	1,250 sT (1,134 mT)
Max hook load 14 lines	1,094 sT (992 mT)
Fast line pull	176,913 lbs (80,246 kg)
Weight	255,048 lbs (115,688 kg)
Drill line diameter	2 1/8" (53.98 mm)
Max continuous power	9,000 Hp
Max intermittent power	12,600 Hp
Max block travel 16 lines (4 layers)	216 ft (65.8 m)
Max block travel 14 lines (4 layers)	247 ft (75.3 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 90°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB28A5 TEWAC
Number of motors	6
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

AHD-1400



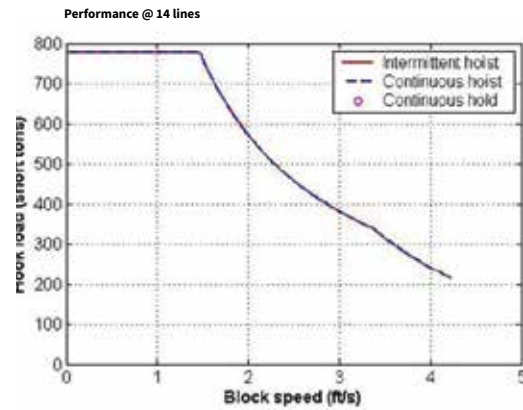
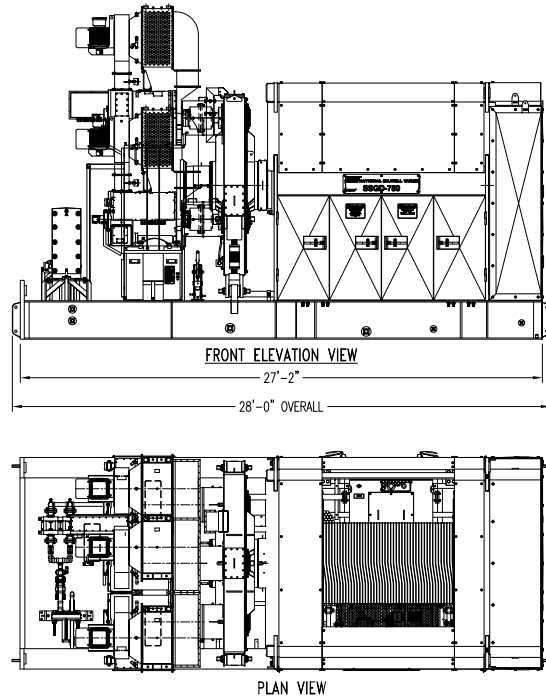
Technical specifications	
DESIGN DATA	
Max hook load 16 lines	1,400 sT (1,270 mT)
Max hook load 14 lines	1,242 sT (1,126 mT)
Fast line pull	198,142 lbs (88,876 kg)
Weight	341,289 lbs (154,806 kg)
Drill line diameter	2 1/8" (53.98 mm)
Max continuous power	10,500 Hp
Max intermittent power	12,800 Hp
Max block travel 16 lines (4 layers)	216 ft (65.8 m)
Max block travel 14 lines (4 layers)	247 ft (75.3 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 90°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB28A5 TEWAC
Number of motors	7
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)



The AC electric powered Single Speed Gear Driven (SSGD) Drawworks offers a design unique to the industry. By overpowering a drawworks with AC motors, we are able to create a single shaft, single speed drawworks with the hoisting performance comparable to a conventional drawworks. The result is a

simple design with few mechanical parts, a small footprint and light weight. These drawworks require minimal maintenance, are entirely self-contained and completely enclosed. Fail safe spring applied disc brakes are utilized for parking and emergency only.

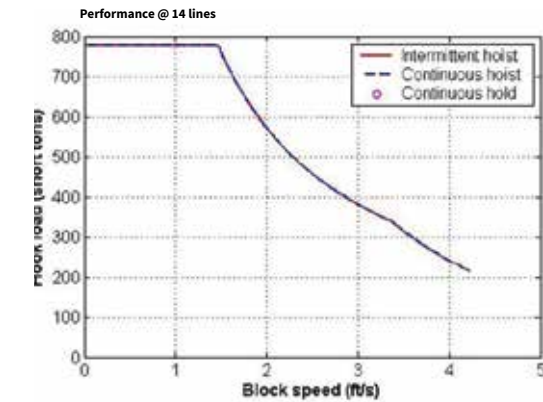
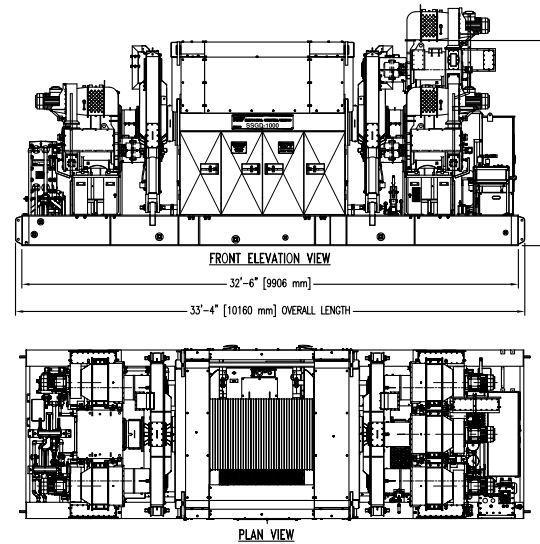
SSGD-750



Technical specifications

DESIGN DATA	
Max hook load 14 lines	750 sT (680 mT)
Max hook load 12 lines	675 sT (612 mT)
Fast line pull	119,585 lbs (54,243 kg)
Weight	142,000 lbs (64,428 kg)
Drill line diameter	1 5/8"
Max continuous power	4,600 Hp
Max intermittent power	6,440 Hp
Max block travel 14 lines (4 layers)	180 ft (55 m)
Max block travel 12 lines (4 layers)	210 ft (64 m)
Area classification	Zone 1 (zone 2 for ATEX certified systems)
Design temperature	14°F up to 104°F (-10°C up to 40°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (76 l/min @ 36°C)
DRILLING MOTOR	
Type	GEB22A / Baylor CM628TUT
Number of motors	4
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

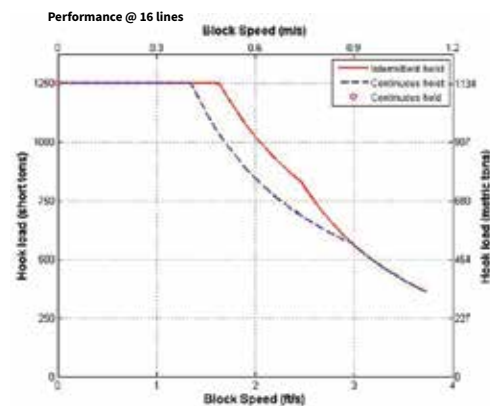
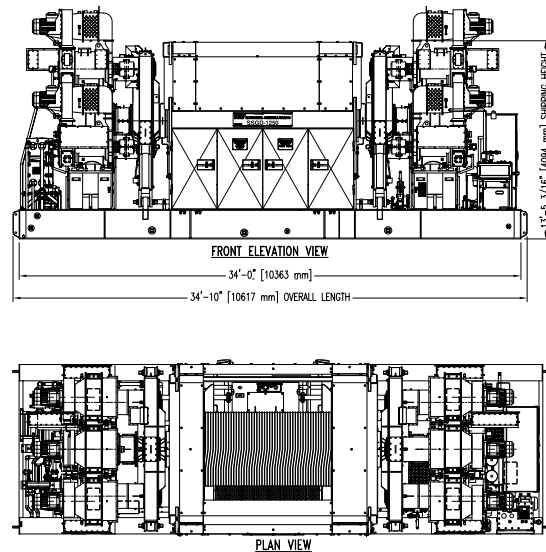
SSGD-1000



Technical specifications

DESIGN DATA	
Max hook load 14 lines	1,000 sT (907 mT)
Max hook load 12 lines	850 sT (771 mT)
Fast line pull	159,447 lbs (72,324 kg)
Weight	185,000 lbs (83,940 kg)
Drill line diameter	2"
Max continuous power	5,750 Hp
Max intermittent power	8,050 Hp
Max block travel 14 lines (4 layers)	174 ft (53 m)
Max block travel 12 lines (4 layers)	203 ft (62 m)
Area classification	Zone 1 (zone 2 for ATEX certified systems)
Design temperature	14°F up to 104°F (-10°C up to 40°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (76 l/min @ 36°C)
DRILLING MOTOR	
Type	GEB22A / Baylor CM628TUT
Number of motors	5
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

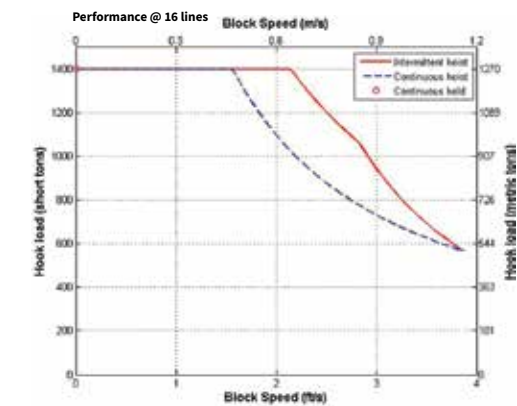
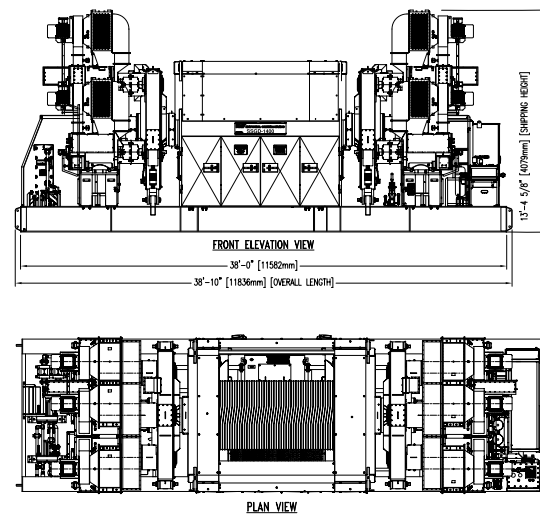
SSGD-1250



Technical specifications

DESIGN DATA	
Max hook load 16 lines	1,250 sT (1,134 mT)
Max hook load 14 lines	1,109 sT (1,006 mT)
Fast line pull	176,913 lbs (80,246 kg)
Weight	218,493 lbs (99,107 kg)
Drill line diameter	2 1/8" (53.98 mm)
Max continuous power	6,900 Hp
Max intermittent power	8,400 Hp
Max block travel 16 lines (4 layers)	191 ft (58.2 m)
Max block travel 14 lines (4 layers)	218 ft (66.5 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 97°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB22A5 TEWAC
Number of motors	6
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

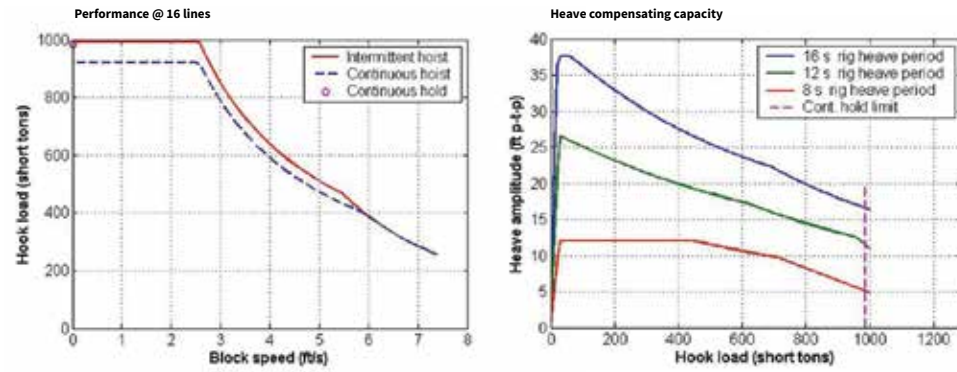
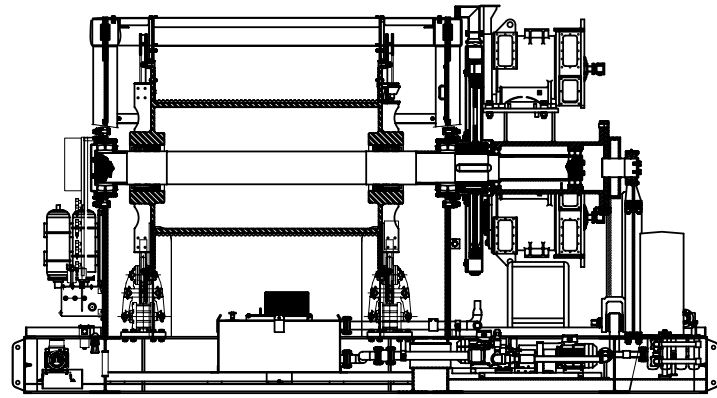
SSGD-1400



Technical specifications

DESIGN DATA	
Max hook load 16 lines	1,400 sT (1,270 mT)
Max hook load 14 lines	1,243 sT (1,128 mT)
Fast line pull	198,142 lbs (86,876 kg)
Weight	256,410 lbs (116,306 kg)
Drill line diameter	2 1/8" (53.98 mm)
Max continuous power	9,000 Hp
Max intermittent power	10,968 Hp
Max block travel 16 lines (4 layers)	186 ft (57 m)
Max block travel 14 lines (4 layers)	212 ft (65 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	Ac motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB28A1 TEWAC
Number of motors	6
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motoros	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

AHDD-1000

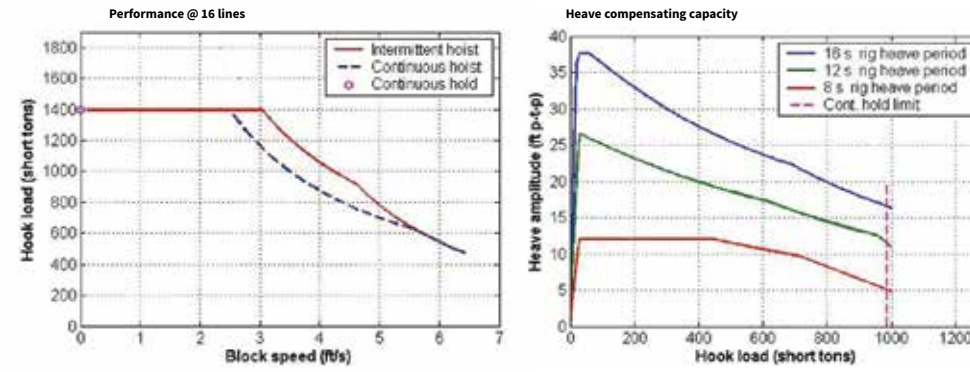
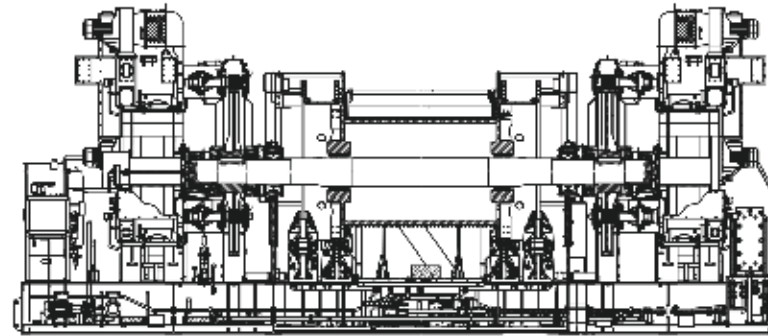


Technical specifications*

DESIGN DATA	
Max hook load dual drawworks 16 lines	1,000 sT (907 mT)
Max hook load single drawworks 16 lines	1,000 sT (907 mT)
Fast line pull	137,789 lbs (62,500 kg)
Weight	142,000 lbs (69,400 kg) x 2
Dimensions (LxWxH)	30' 2 1/4" x 15' 3 3/8" x 17' 2 1/8" (9,201 mm x 4,663 mm x 5,236 mm)
Drill line diameter	1 3/4"
Max continuous power	9,200 Hp
Max intermittent power	12,880 Hp
Max block travel 16 lines (Dual drawworks)	303 ft (92.5 m)
Max block travel 16 lines (Single drawworks)	151 ft (46.2 m)
Area classification	Zone 1 (zone 2 for ATEX certified systems)
Design temperature	-4°F up to 104°F (-20°C up to 40°C)
Brake system main	AC motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (76 l/min @ 36°C)
DRILLING MOTOR	
Type	GEB22A2 (AC)
Number of motors (each drawworks)	4 x 2
Power requirement	690 VAC, 60 Hz, 3 phases
Fresh/sea water supply, main AC motors	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

* Technical specifications shown are for one of the two drawworks included in the AHDD system

AHDD-1400

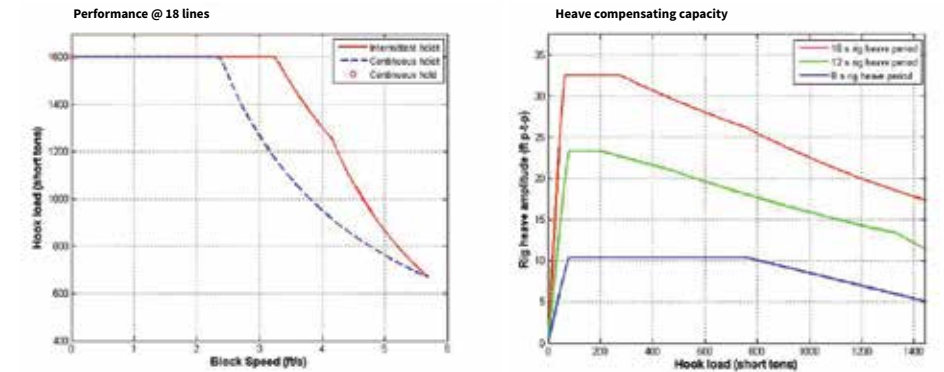
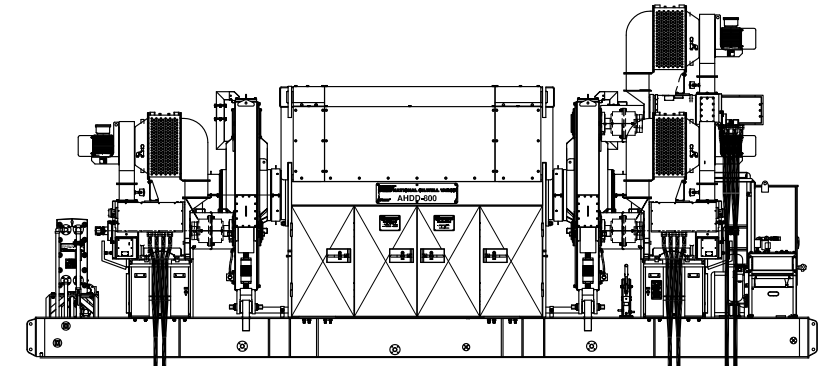


Technical specifications*

DESIGN DATA	
Max hook load 16 lines	1,400 sT (1,270 mT)
Max hook load 14 lines	1,234 sT (1,119 mT)
Fast line pull	192,904 lbs (87,500 kg)
Weight	300,038 lbs (136,095 kg) x 2
Drill line diameter	2 1/4"
Max continuous power	13,800 Hp
Max intermittent power	16,698 Hp
Max block travel 16 lines (3 layers)	293 ft (89 m)
Max block travel 14 lines (3 layers)	335 ft (102 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	AC motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	40 GPM @ 96.8°F (9.08 m³/hr @ 36°C)
DRILLING MOTOR	
Type	GEB22A5 TEWAC
Number of motors (each drawworks)	6 x 2
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motors	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

* Technical specifications shown are for one of the two drawworks included in the AHDD system

AHDD-1600

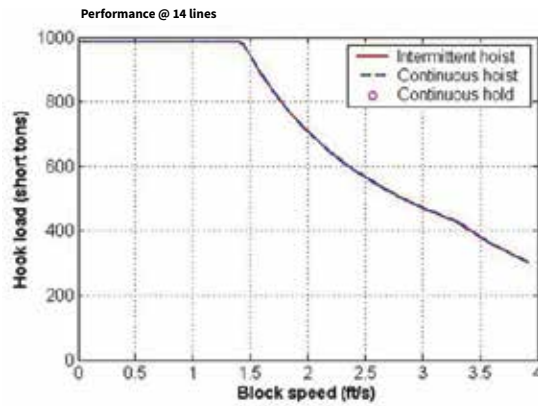
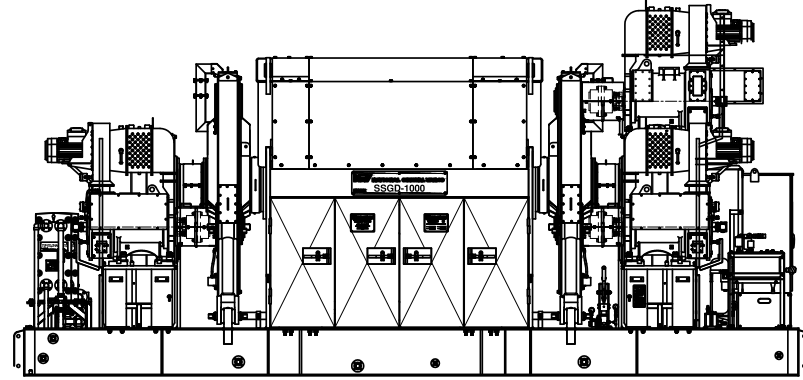


Technical specifications*

DESIGN DATA	
Max hook load 18 lines	1,600 sT (1,451 mT)
Max hook load 16 lines	1,442 sT (1,308 mT)
Fast line pull	191,376 lbs (86,807 kg)
Weight	TBC
Drill line diameter	2 1/8"
Max continuous power	15,000 Hp
Max intermittent power	18,280 Hp
Max block travel 18 lines (4 layers)	384 ft (117 m)
Max block travel 16 lines (4 layers)	432 ft (131.7 m)
Area classification	Zone 2
Design temperature	-4°F up to 104°F (-20°C up to 40°C)
Brake system main	AC motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	GEB28A1 TEWAC
Number of motors (each drawworks)	5 x 2
Power requirement	690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motors	100 GPM @ 97°F (22.7 m³/hr @ 36°C)

* Technical specifications shown are for one of the two drawworks included in the AHDD system

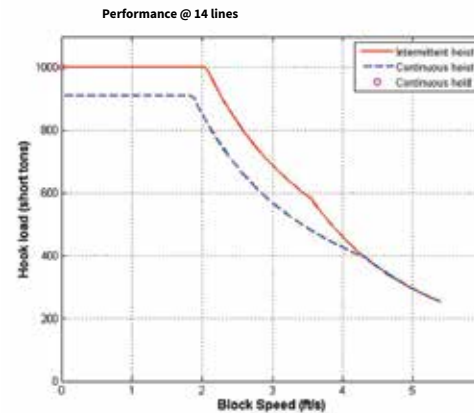
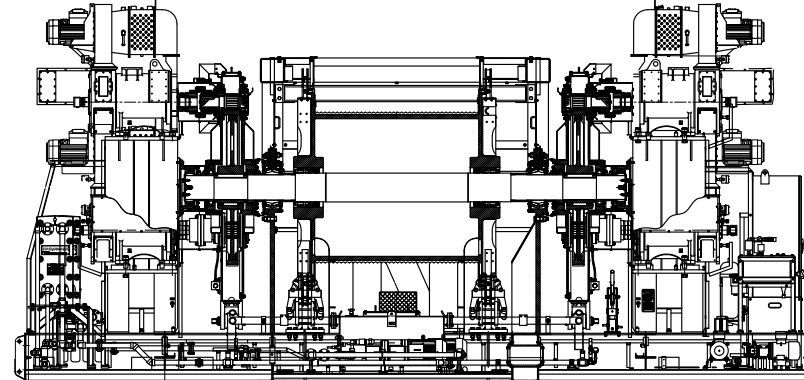
SSGD-1000



- Single shaft, single speed drawworks with hoisting performance comparable to conventional drawworks
- Simple design, few mechanical parts, small footprint and light weight
- Self-contained, completely enclosed and requires minimal maintenance

Technical specifications	
DESIGN DATA	
Max hook load 14 lines	1,000 sT (907 mT)
Max hook load 12 lines	850 sT (771 mT)
Fast line pull	159,447 lbs (72,324 kg)
Weight	185,000 lbs (83,940 kg)
Dimensions (LxWxH)	31' 7¼" x 13' 10" x 13' 9¾" (9,663 mm x 4,217 mm x 4,208 mm)
Drill line diameter	2"
Max continuous power	5,750 Hp
Max intermittent power	8,050 Hp
Max block travel 14 lines (4 layers)	174 ft (53 m)
Max block travel 12 lines (4 layers)	203 ft (62 m)
Area classification	Zone 1 (zone 2 for ATEX certified systems)
Design temperature	14°F up to 104°F (-10°C up to 40°C)
Brake system main	AC motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (76 l/min @ 36°C)
DRILLING MOTOR	
Type	GEB22A
Number of motors	5
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motors	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

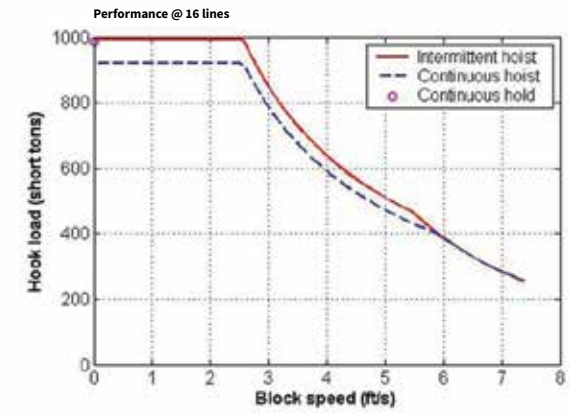
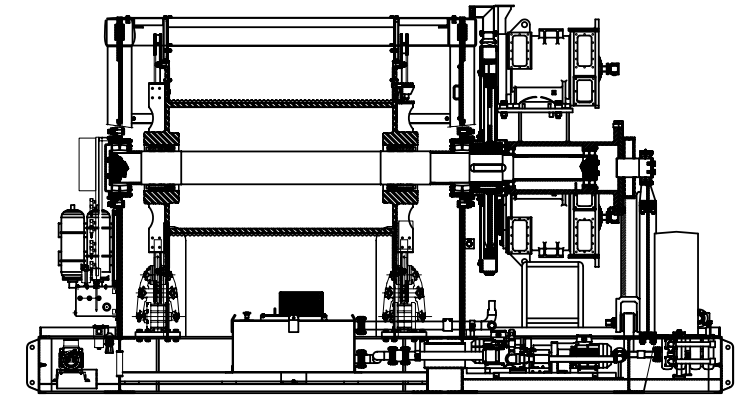
AHD-1000



- Eliminates the need for overhead motion compensation machinery
- Braking energy is regenerated and fed back into the electrical system of the drilling rig, which increases overall rig efficiency
- Active Heave Compensation expands the "drilling operational window" by allowing drilling programs to continue in heavier seas than conventional drawworks

Technical specifications	
DESIGN DATA	
Max hook load 14 lines	1,000 sT (907 mT)
Max hook load 12 lines	867 sT (788 mT)
Fast line pull	159,447 lbs (72,324 kg)
Weight	207,851 lbs (94,180 kg)
Dimensions (LxWxH)	32' 6" x 12' 9¼" x 16' 6¾" (9,906 mm x 3,893 mm x 5,033 mm)
Drill line diameter	2" (50.8 mm)
Max continuous power	6,900 Hp
Max intermittent power	8,400 Hp
Max block travel 14 lines (4 layers)	221 ft (67.4 m)
Max block travel 12 lines (4 layers)	258 ft (78.5 m)
Area classification	Zone 2
Design temperature	-4°F up to 113°F (-20°C up to 45°C)
Brake system main	AC motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 90°F (4.54 m³/hr @ 36°C)
DRILLING MOTOR	
Type	5GEB22A5 TEWAC
Number of motors	6
Power requirement	600/690 VAC, 60 Hz, 3~
Fresh/sea water supply, main AC motors	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

AHDD-1000



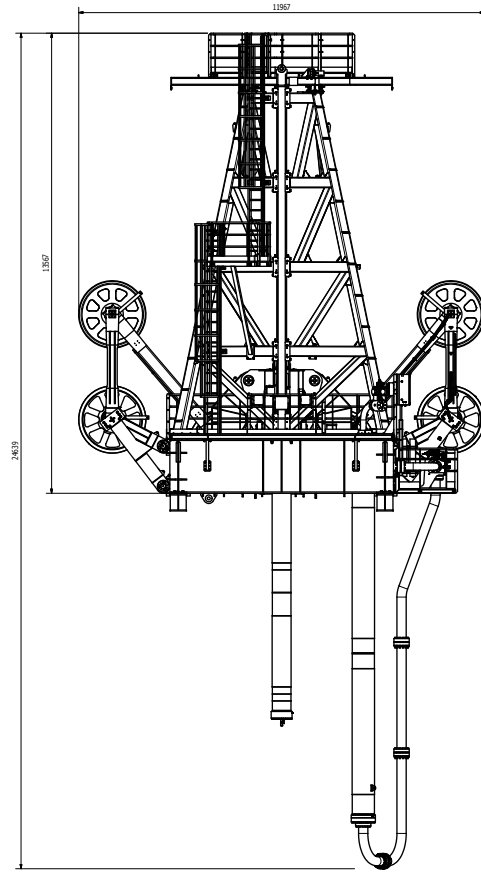
- Fully redundant hoisting system
- Superior hoisting speed and wire line life
- Based on the trusted and proven AHD technology

Technical specifications*	
DESIGN DATA	
Max hook load dual drawworks 16 lines	1,000 sT (907 mT)
Max hook load single drawworks 16 lines	1,000 sT (907 mT)
Fast line pull	137,789 lbs (62,500 kg)
Weight	142,000 lbs (69,400 kg) x 2
Dimensions (LxWxH)	30' 2¼" x 15' 3¾" x 17' 2½" (9,201 mm x 4,663 mm x 5,236 mm)
Drill line diameter	1¾"
Max continuous power	9,200 Hp
Max intermittent power	12,880 Hp
Max block travel 16 lines (Dual drawworks)	303 ft (92.5 m)
Max block travel 16 lines (Single drawworks)	151 ft (46.2 m)
Area classification	Zone 1 (zone 2 for ATEX certified systems)
Design temperature	-4°F up to 104°F (-20°C up to 40°C)
Brake system main	AC motors
Brake system emergency	Disc brakes
Brake disc cooling method	Air cooling
Fresh/sea water supply, lube oil heat exchanger	20 GPM @ 96.8°F (76 l/min @ 36°C)
DRILLING MOTOR	
Type	GEB22A2 (AC)
Number of motors	4 x 2
Power requirement	690 VAC, 60 Hz, 3 phases
Fresh/sea water supply, main AC motors	100 GPM @ 97°F (22.7 m³/hr @ 33°C)

* Technical specifications shown are for one of the two drawworks included in the AHDD system

Crown Mounted Compensator (CMC)

Specialized for locked bottom operations



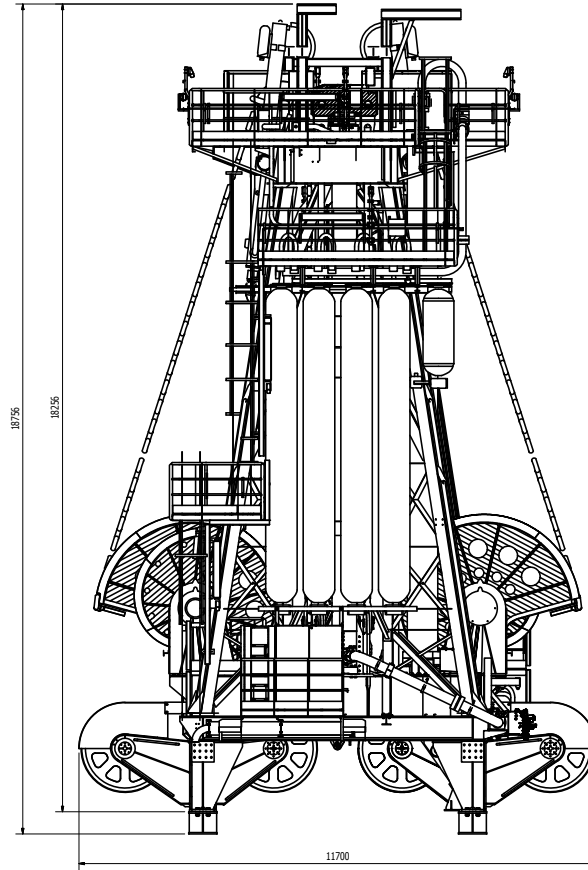
Standard delivery includes

- Set of two (2) compensator cylinders.
- Fluid/Gas Accumulator.
- Fluid Storage Unit with pumps for installation at deck level.
- Control cabinet for installation in safe zone at deck level.
- Single PV lling (Working PV's).
- Mechanically prepared for AHC.

Technical specifications			
Model	600-25	800-25	1000-25
Crown block capacity, static	1,500 Kips	1,500 Kips	1,500-2,800 Kips
Compensator capacity, dynamic	600 Kips	800 Kips	1,000 Kips
Compensator stroke	25 ft	25 ft	25 ft
Crown block sheave configuration	6 x 72"	6 x 72"	7 x 72" or 78"
Weight (complete)	110 mT	120 mT	110-145 mT

CMC-E

The one piece solution



Standard delivery includes

- One complete CMC-E including cylinder, accumulators, working gas PVs, crown block and equalizing system.
- Fluid/Gas Accumulator.
- Fluid Storage Unit with pumps for installation at deck level.
- Control cabinet for installation in safe zone at deck level.
- Single PV lling (Working PV's).
- Mechanically prepared for AHC.

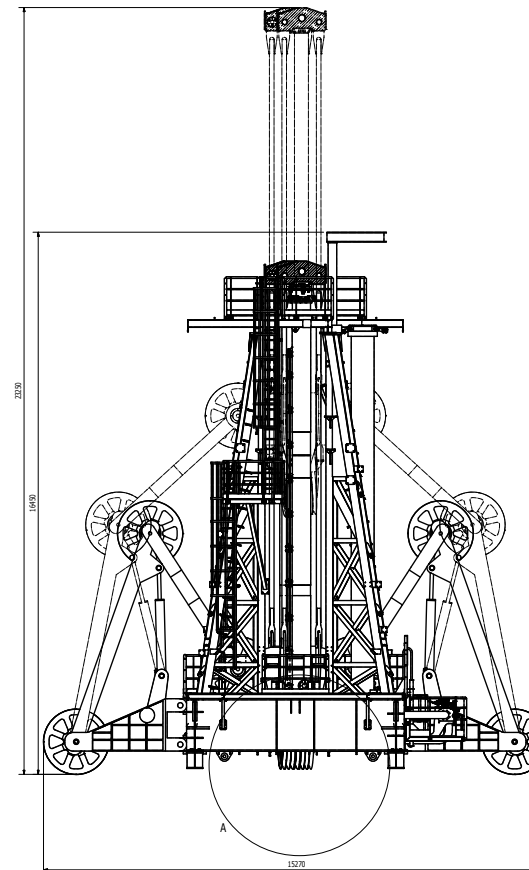
Options

- Service handling tool (SHT)

Technical specifications	
Compensating load-in	695 mT (1,533 kips) w/ 16,14,12 lines
Crown block capacity (max)	1,134 mT (2,500 kips)
Compensator stroke	7,77m w/16 lines
	7,62m w/14 lines
	7,41m w/12 lines
Crownblock and Idler sheave OD diameter	72"
Crown block and Idler sheave wireline grooves	2"
Weight	240 mT

CMC-H/H2

Excellent performance made for SSGD rigs



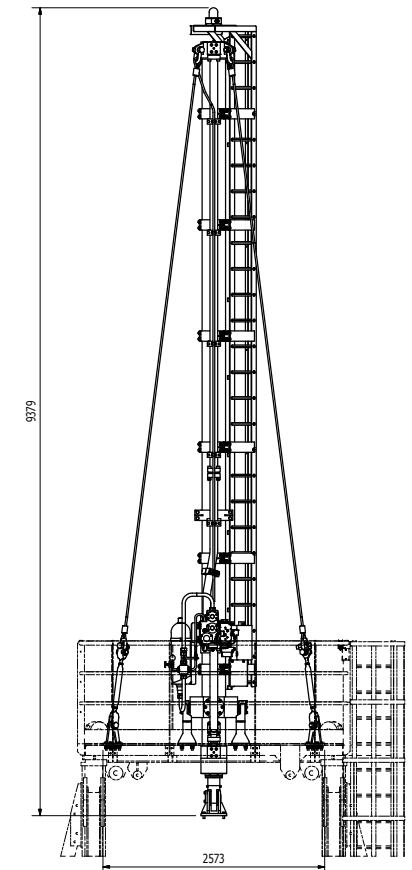
Standard delivery includes

- Set of two (2) compensator cylinders.
- Fluid/Gas Accumulator.
- Fluid Storage Unit with pumps for installation at deck level.
- Control cabinet for installation in safe zone at deck level.
- On H2: Tilttable Crown Block
- Single PV lling (Working PV's)
- Mechanically prepared for AHC

Technical specifications			
Model	CMC-H-600-25	CMC-H-1000-25	CMC-H2-1500-25
Crown block capacity, static	1,500 Kips	2,000 Kips	2,800-3,200 Kips
Compensator capacity, dynamic	600 Kips	1,000 Kips	1,500 Kips
Compensator stroke	25 ft	25 ft	25 ft
Crown block sheave configuration	6 x 72"	6 x 72"	7 x 78" / 8 x 78"
Weight (complete)	120 mT	163 mT	190 mT

Active Heave Compensator (AHC)

Designed for position control of the CMC



AHC cylinder is primarily used for the following purposes

- Optimization of the CMC performance during operations like landing of components onto seabed, like BOP or Christmas trees.
- Wire line logging inside well without the need for wire rigging against slip joint and required weak link.
- ADC (Auto Driller Controller) ready

Delivery includes

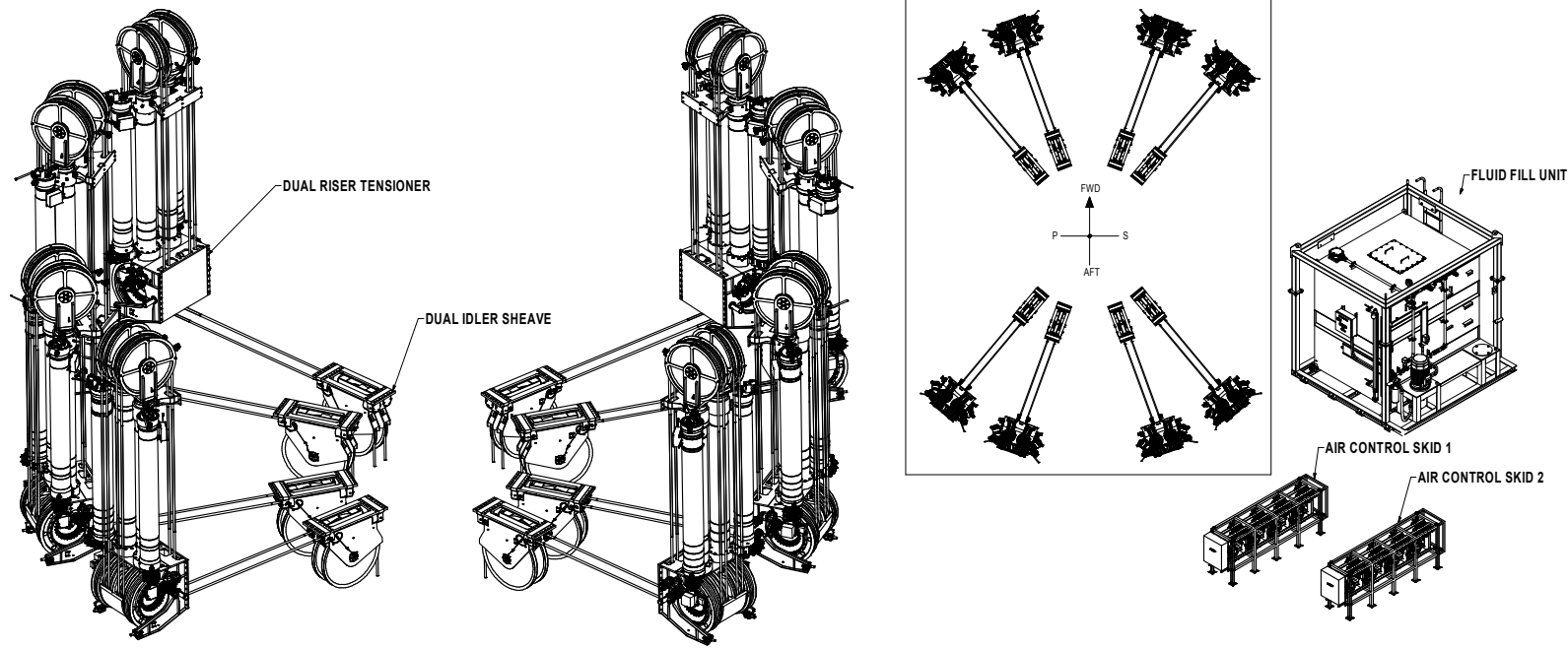
- Motion Reference Unit (MRU)
- Wireline mode, Part of control system
- AHC cylinder controls and Wire Line Mode are executed by the CMC PLC controller and integrated into the CMC control cabinet.

Optional delivery

- Standalone Hydraulic Power Unit for AHC

Technical specifications		
Model	AHC/CMC-25	AHC/CMC-35
Capacity	25 mT	35 mT
Max speed	1,22 m/s	1,22 m/s
Cylinder stroke	7,800mm / 9,070mm	7,800mm
Weight AHC complete	4.5 mT	4.7 mT

Wireline Riser Tensioner (WRT)



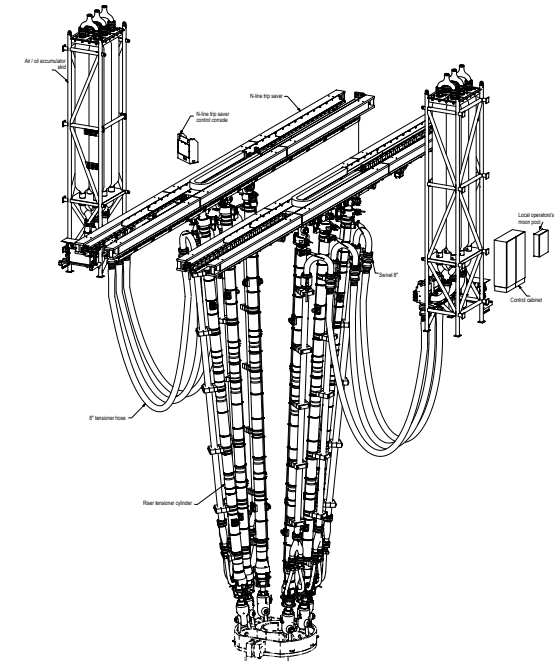
Description

The wireline tensioner provides positive tension to the marine riser, and compensates for the relative motion between the riser and the drilling rig. The tensioners are installed diametrically opposite to each other. This is to avoid any lateral forces in the riser tensioner ring when reducing tension in one unit (bleeding off air for wire cut/slip etc.). The tensioners maintain tension in each support wire, which is connected to the support ring on the marine riser pipe. The wires from the support ring runs over the pivot hinged idler sheaves, via the fixed lead-in sheaves and then around the two double sheave assemblies on each end of the tensioner cylinders. The wires are then attached to the wire rope anchors.

- A four to one mechanical advantage is obtained, cylinder stroke of 12.5 ft. is transferred to 50 ft. of wire rope travel
- A fluid connection block is installed between the accumulator and cylinder
- Prevents damage on the cylinder and other equipment
- Accumulator gas side is connected to a gas reservoir to obtain constant tension in marine riser pipe
- Centralized control of tensioners
- Driller's control panel interfaces with control unit for operator to start, operate, monitor or shut down the total system

Technical specifications	WRT-120	WRT-200	WRT-225	WRT-250	WRT-280
Dynamic capacity (ex. total kips)	120 kips (960 kips)	200 kips (1,600 kips)	225 kips (3,600 kips)	250 kips (4,000 kips)	280 kips (2,240 kips)
Weight single	14 mT	28 mT	28 mT	30 mT	32 mT
Weight double	23 mT	50 mT	50 mT	63 mT	67 mT
Comp. stroke	3.81 m (12.5')	3.81 m (12.5')	3.81 m (12.5')	3.81 m (12.5')	3.81 m (12.5')
Wire travel	15.24 m (50')	15.24 m (50')	15.24 m (50')	15.24 m (50')	15.24 m (50')
Sheave diameter (groove)	1.321 m (52")	1.829 m (72")	1.829 m (72")	2.083 m (82")	2.083 m (82")
Wire diameter	2"	2½"	2½"	2¾"	2¾"
Design temperature	-20°C to +45°C	-20°C to +45°C	-20°C to +45°C	-20°C to +45°C	-20°C to +45°C
Max op. press	207 bar (3,000 psi)	207 bar (3,000 psi)	207 bar (3,000 psi)	207 bar (3,000 psi)	207 bar (3,000 psi)
SYSTEM					
Tensioners	4 or 8 dual or single	4 or 8 dual or single	8 or 16 dual or single	8 or 16 dual or single	4 or 8 dual or single
Working APV volume/cyl.	2,000 l	3,200 l	4,000 l	4,700 l	5,800 l
Standby APV	Individual	Individual	Individual	Individual	Individual
Compressor	2 pcs. 138 nm³/h	2 pcs. 138 nm³/h	2 pcs. 138 nm³/h	2 pcs. 138 nm³/h	2 pcs. 138 nm³/h
Idler sheaves	4 or 8 dual or single	4 or 8 dual or single	8 or 16 dual or single	8 or 16 dual or single	4 or 8 dual or single
control equipment	1 or 2 unit, riser tensioner air control skid 1 PLC control panel 1 Remote control panel	1 or 2 unit, riser tensioner air control skid Control skid 1 PLC control panel 1 Remote control panel	1 or 2 unit, riser tensioner air control skid Control skid 1 PLC control panel 1 Remote control panel	1 or 2 unit, riser tensioner air control skid Control skid 1 PLC control panel 1 Remote control panel	1 or 2 unit, riser tensioner air control skid Control skid 1 PLC control panel 1 Remote control panel

N-Line Riser Tensioner (NRT)



Description

The wireline tensioner provides positive tension to the marine riser, and compensates for the relative motion between the riser and the drilling rig. The tensioners are installed diametrically opposite to each other. This is to avoid any lateral forces in the riser tensioner ring when reducing tension in one unit (bleeding off air for wire cut/slip etc.). The tensioners maintain tension in each support wire, which is connected to the support ring on the marine riser pipe. The wires from the support ring runs over the pivot hinged idler sheaves, via the fixed lead-in sheaves and then around the two double sheave assemblies on each end of the tensioner cylinders. The wires are then attached to the wire rope anchors.

- A four to one mechanical advantage is obtained, cylinder stroke of 12.5 ft. is transferred to 50 ft. of wire rope travel
- A fluid connection block is installed between the accumulator and cylinder
- Prevents damage on the cylinder and other equipment
- Accumulator gas side is connected to a gas reservoir to obtain constant tension in marine riser pipe
- Centralized control of tensioners
- Driller's control panel interfaces with control unit for operator to start, operate, monitor or shut down the total system

Technical specifications	NRT-1800	NRT-3600	NRT-4800
Max tension capacity (at midstroke)	1,800 kips (8,007 kN)	3,600 kips (16,014 kN)	4,800 kips (21,352 kN)
No. of tension cylinders	6	6	6
Weight (installed)	268 mT	280 mT	298 mT
Comp. stroke	15.24 m (50')	15.24 m (50')	15.24 m (50')
Gas volume (standard)	76,800 l	76,800 l	114,600 l
Hose connection	8"	8"	8"
Design temp.	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C
Max op. press	207 bar (3,000 psi)	207 bar (3,000 psi)	207 bar (3,000 psi)
Design press.	230 bar (3,336 psi)	230 bar (3,336 psi)	230 bar (3,336 psi)
Piston speed (max)	2 m/s	2 m/s	2 m/s
Piston speed (extreme)	4 m/s	4 m/s	4 m/s
Anti-recoil valve	Yes, 8"	Yes, 8"	Yes, 8"
Hydraulic fluid	Water/glycol (HFC)	Water/glycol (HFC)	Water/glycol (HFC)
Remote controlled from drillers cabin (cyberbase)	Yes	Yes	Yes
Local control panel	Yes	Yes	Yes
Trip saver	Possible	Possible	Possible