

Drill string compensator



What is a Drill string Compensator (DSC)?

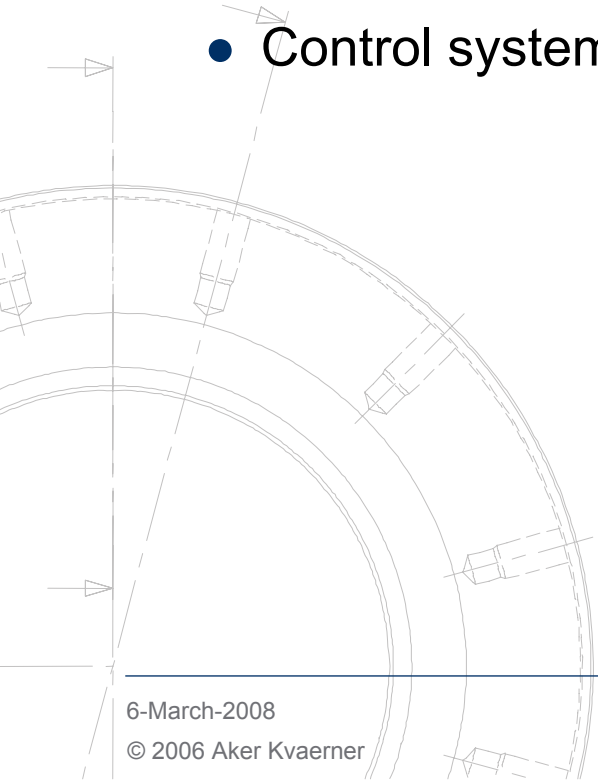
- The purpose with the DSC is to apply a constant tension to the drill string, and compensate for any rig movements. Correct weight on bit (tension in drill string) is extremely important in order to obtain efficient drilling and long lifetime on drill bit. The MH DSC is installed on top of the derrick. It comprises a pair of two inclined cylinders which functions are to convert hook load into hydraulic pressure. The piston rods of the cylinders are attached directly to the crown block.
- Since the crown block will move in relation to the derrick, some form of length compensation will be required for the drill line. Therefore the compensator comprises four guide sheaves on pivoted arms. Both fast- and deadline - passing from the crown block, reeved over the guide sheaves so that the distance between the traveling- and the crown block will be kept constant.
- Compensator fluid is used on the cylinder side of the system so that the crown block can be locked in any position. Safety valve in the circuit will automatically shut off the Compensator fluid to the cylinders if the system gets a momentary drop in pressure at the valve port. This might be the result if the drill line breaks while compensating or due to sudden loss of load in hook.





Scope Of work

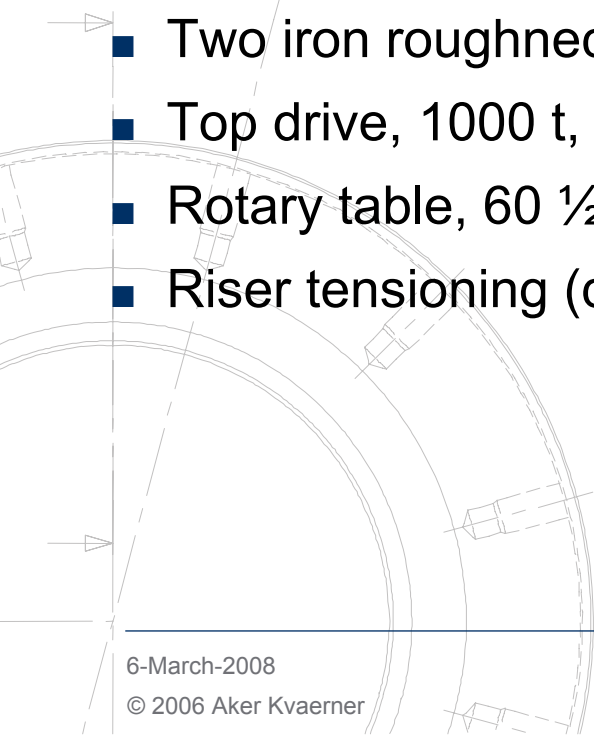
- Drilling equipment package
 - Drilling equipment
 - Tensioning / Compensating equipment
 - BOP / X-mas tree handling equipment
 - Mud treatment
 - Manifolds
 - DRAWWORKS & MUD pumps
 - Control system





Main Capacity

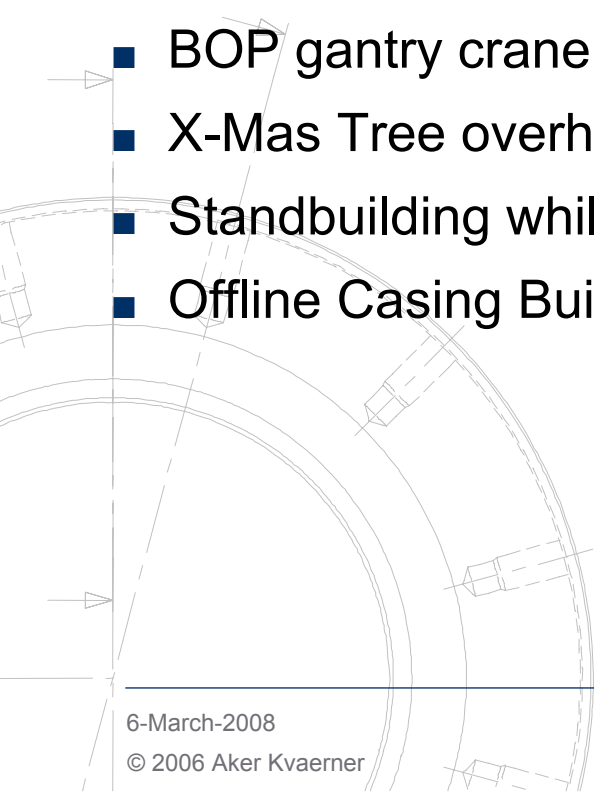
- GH 4500 AC drawwork, with Balyor Brake & feed off control/Auto Driller
- Derrick, 46x52 ft base, 210 ft height, SWL 2.000.000 lbs (1000 sh.t)
- Racking capacity 40000 ft 6 5/8" DP and 9500 ft 9 5/8" casing
- DSC 1000 kips, 25 ft stroke
- Bridge crane vertical pipe handling system
- Two iron roughnecks on drill floor
- Top drive, 1000 t, AC
- Rotary table, 60 1/2" hydraulic
- Riser tensioning (direct acting) 3.200.000 lbs, trip saver included





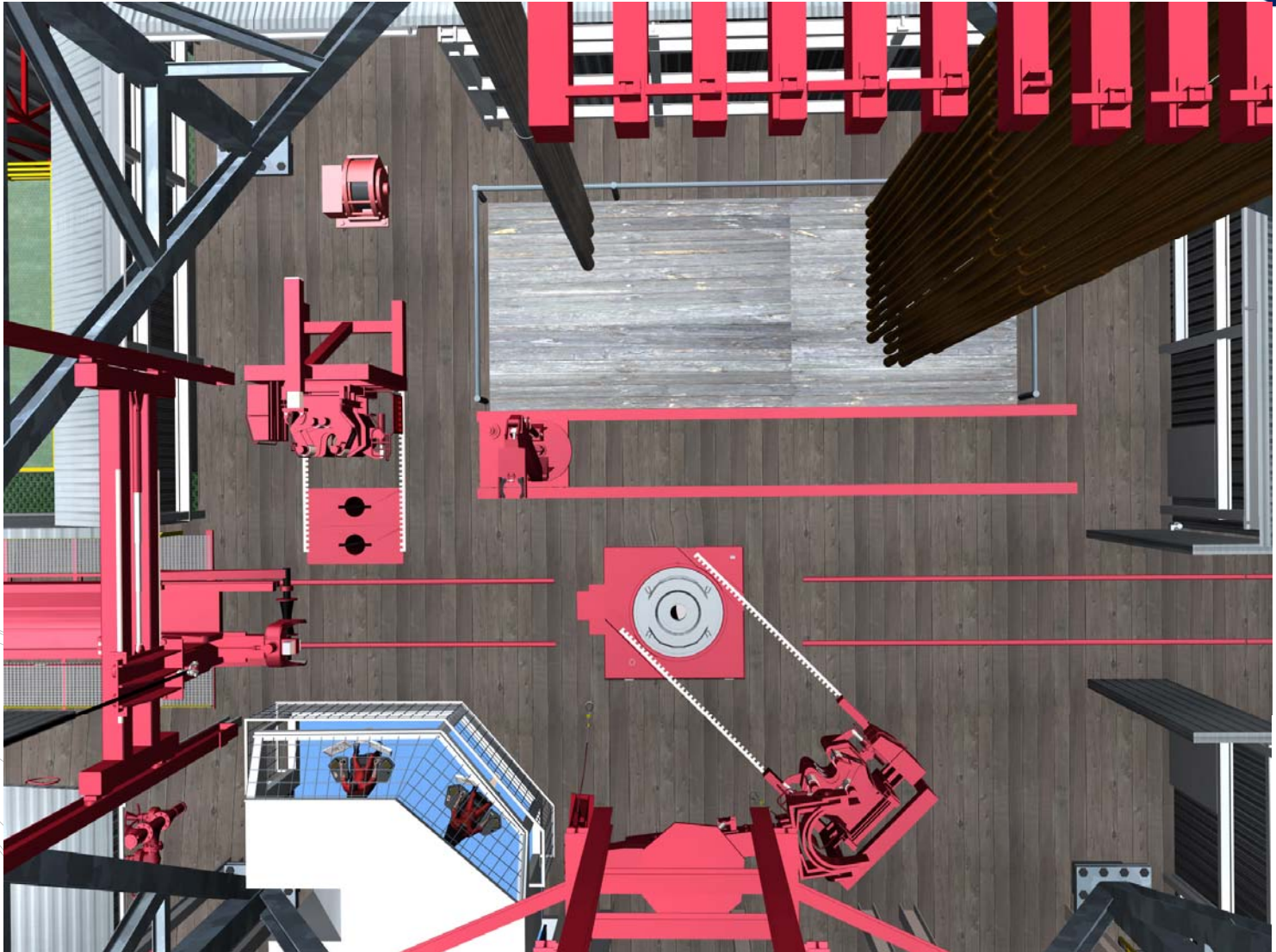
Main Capacity

- HP mud pumps, 4 off 2200 HP, 7500 psi
- Drillers control room with 2 operator stations
- Kill & choke manifold, 15000 PSI
- Utility winches, 5 mT, 10 mT, manrider
- BOP Transporter, 520 mT
- BOP gantry crane, 2x75 mT
- X-Mas Tree overhead Crane 2x100 mT
- Standbuilding while drilling (drillpipe/casing)
- Offline Casing Building



Lay out

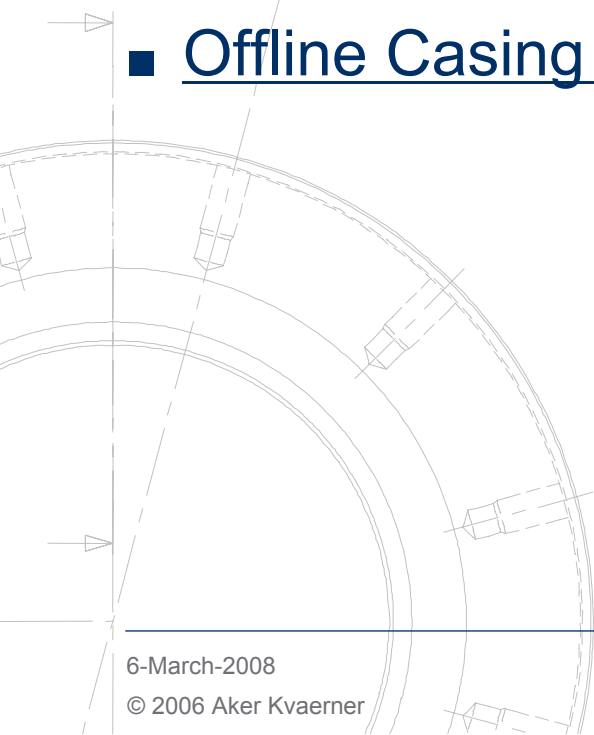
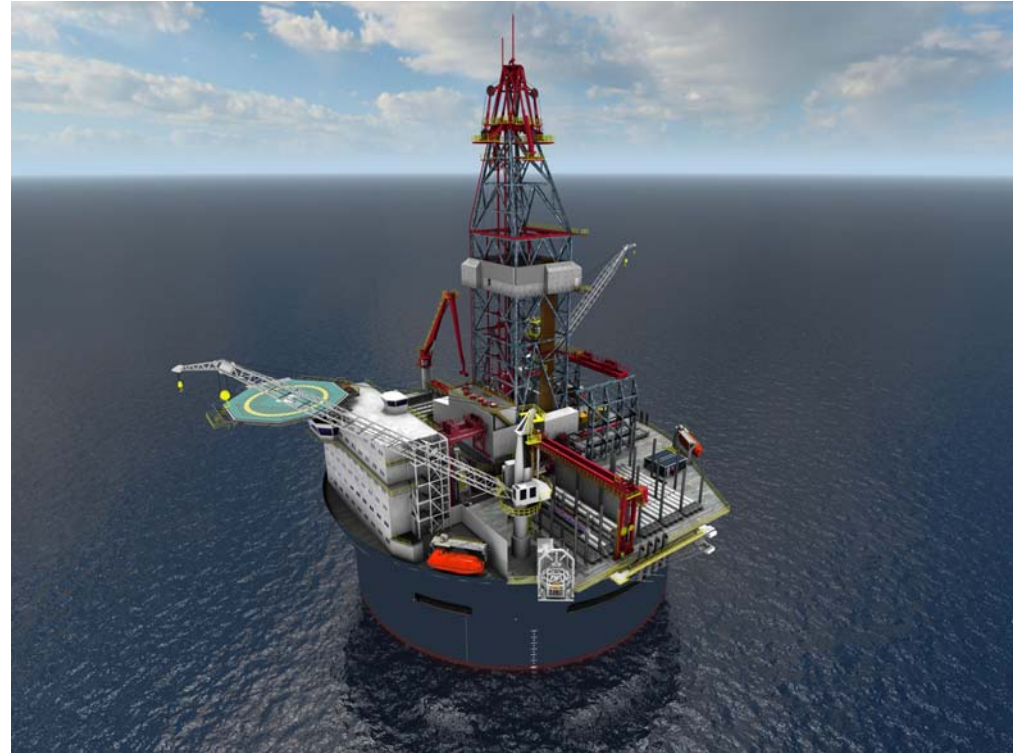
Fly around



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Animation Sequences

- Drilling/Tripping
- Stand Building
- BOP handling
- X-mas handling
- Riser Handling
- Offline Casing Building



Derrick

- Base: 14.2 x 15,8 meters (46 ft x 52 ft)
- Top: 5.5 x 5.5 meters (18 ft x 18 ft)
- Clear working height: 64 meters (211 ft)
- V-door: h=22.8 meters (75'), w=4 meters (13 ft)
- Dynamic Hook load: 2 mill lbs. (14 lines)

- Accessories:

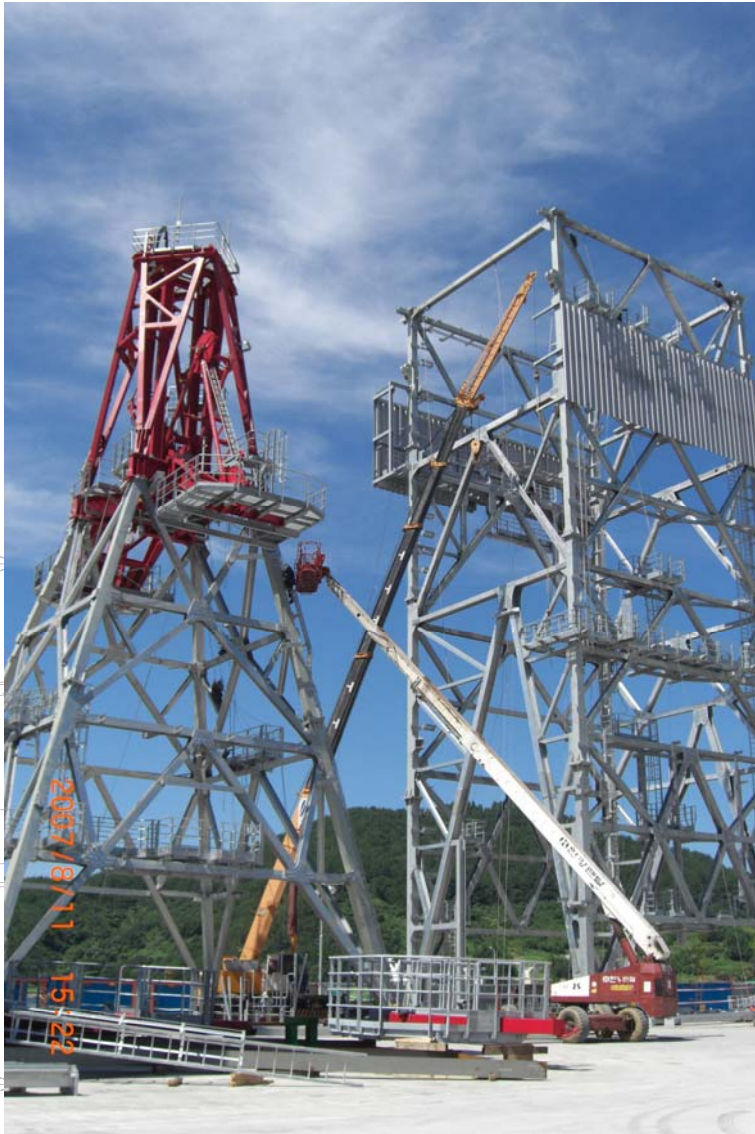
- Top drive guide rails
- Ladders and platforms
- Equipment supports
- Connection and anchor bolts
- Levelling equipment
- V-door rollers
- Drill line sheaves and rollers
- Escape line system
- Pad eyes with shackles and blocks
- Cladding
- Piping/Electrical/Instrument
- Lighting/Navigational aids

Drawings



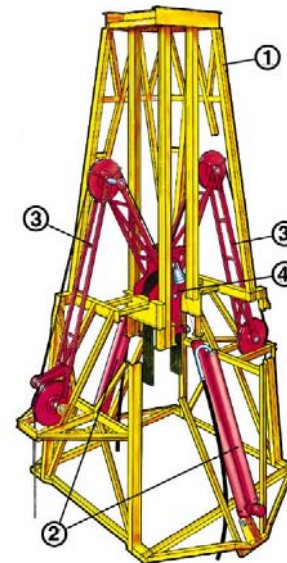
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Derrick



Drillstring compensator

- Technical data:
 - Max. comp. Load of 454 MT
 - Max rating limited to 2000000 lbs, same as for derrick
 - 907 MT crown block 72" sheaves for 2" wire
 - Crown block travel of 7.68 meters (25 ft.)
- Scope of supply:
 - Air pressure vessel (APV's)
 - Crown block
 - Rocker arms
 - Main cylinders
 - Cushioning bumper units
 - Hydraulic pump unit (HPU)
 - Main valve/isolation valve control box
 - Control cubicle
 - Control valve unit (CVU)



- 1 Top hat structure
- 2 Main Cylinders/accumulators
- 3 Rocker Arms
- 4 Crown block



AKMH Drilling package

Jan Ove Sabo
Regional Manager China
Aker Kvaerner MH

A technical line drawing of a drilling package, showing a circular cross-section with several internal components and dashed lines indicating movement or assembly. The drawing is positioned on the right side of the slide, partially overlapping the Aker Kvaerner logo.

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