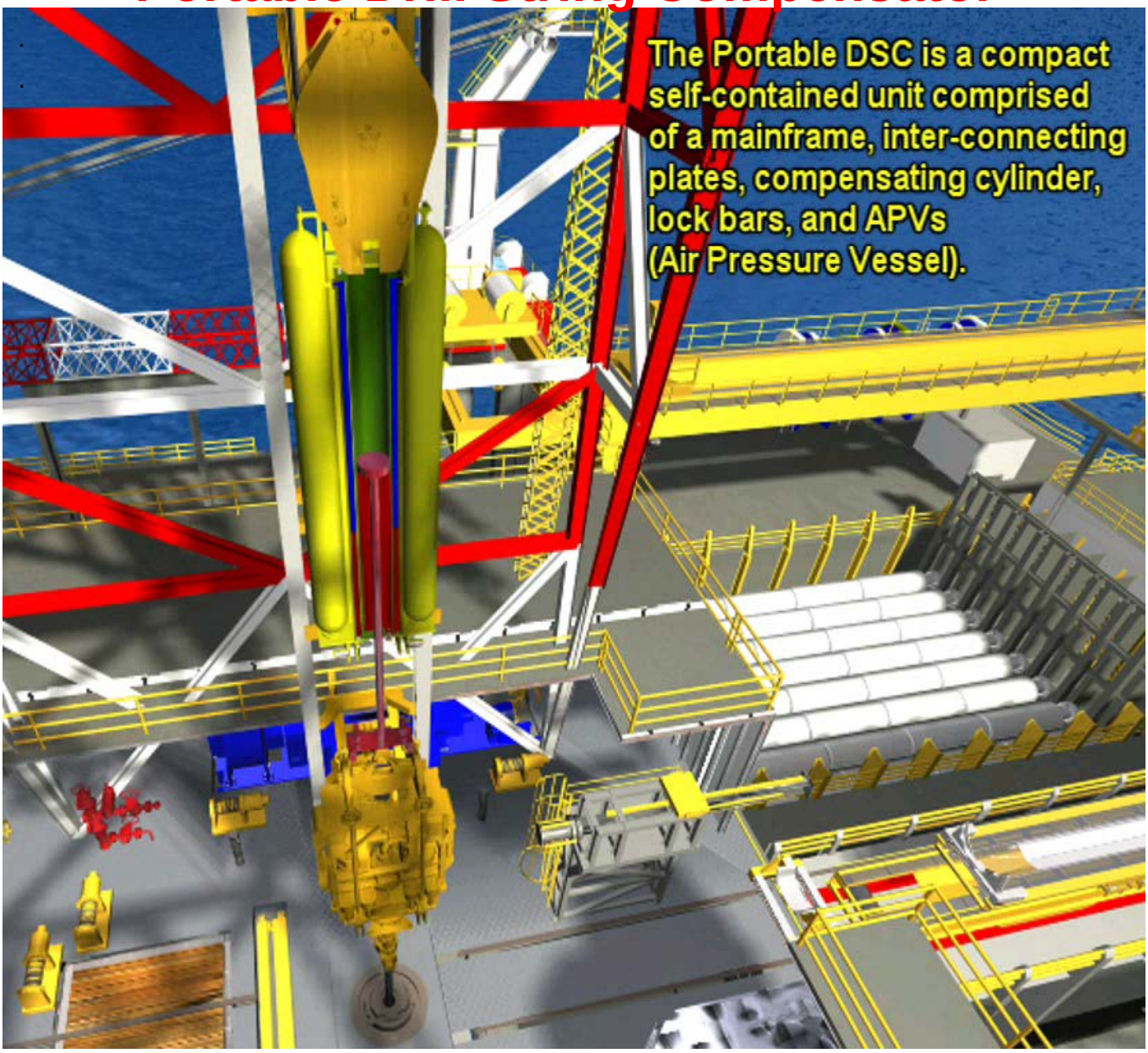
CONTROL FLOW INC.®

FLOCON MO-COMP WesTech RETSCO

Portable Drill String Compensator™



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Control Flow/Mo-Comp Products

Efficient Motion Compensation Solutions

Contact a Control Flow, Inc. sales representative for further detailed information

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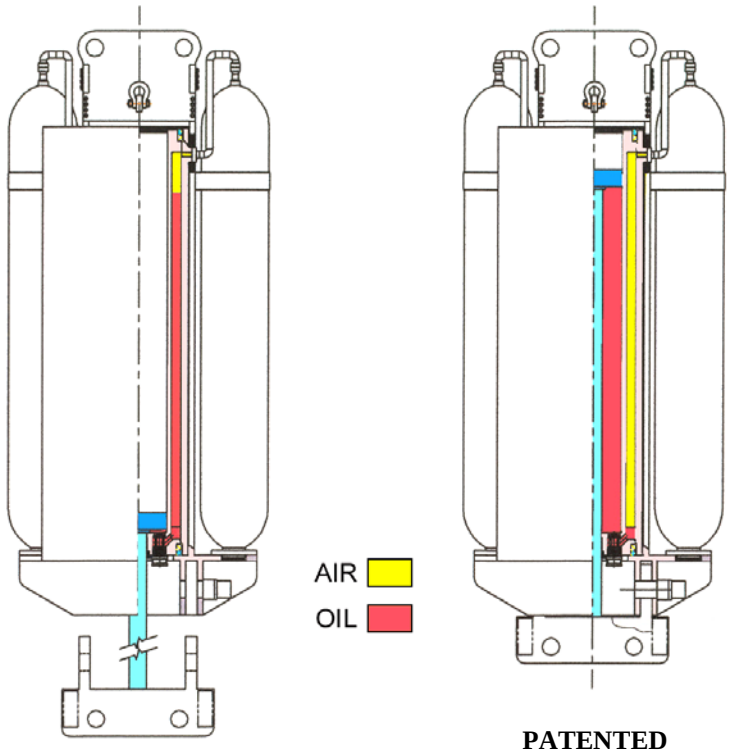
Developed by Control Flow, Inc.'s Mo-Comp group.

The CFI Portable Drill String Compensator (PDSC) can be used in conjunction with an electric powered Active Heave Draw Works and used to compensate tension on the pipe in the well in the event of power loss on the drilling rig. This is a major safety issue and need for the Portable Drill String Compensator. *The PDSC* is installed in-line between the traveling block and top drive and requires only a small umbilical to operate and monitor the DSC's functions. Conventional in-line DSC's require a bank of remotely located APV's with heavy piping and large diameter hoses to provide the operating pressure to the DSC. These hoses combined with the control lines create bulky, heavy hose bundle. The PDSC is built in capacities ranging from 250,000 to 1,000,000 lbs.

The PDSC is designed to function with the load directly attached to the lower end of the rod. Hydraulic pressure supports the load in an air over oil arrangement. The hydraulic fluid is stored in the accumulator, which surrounds the cylinder assembly and flows through the port connecting the two chambers at the lower end. High-pressure air enters the accumulator at the upper end and pressurizes the fluid. In this arrangement the cylinder assembly is situated within the accumulator allowing for a compact design. The port at the lower end also houses a shut off valve. This valve may be closed at any point in the stroke of the DSC hydraulically locking the load for lifting.



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The Portable DSC integrates the APV's into the main frame and requires no other APV's to operate. Stand-by APV's are the only other external vessels needed, and they are only used to boost working pressure when necessary.

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