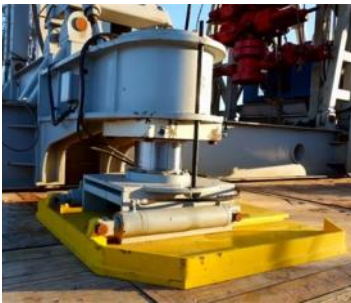


Automation and Human Machine Interfaces

Controlled Fluids applies years of experience in human machine interfaces to designing and fabricating automated and semi-automated motion control solutions for rig walking systems. These motion controls allow operators the ability to have unparalleled control over the movement and positioning of land rigs. Utilizing the latest in hydraulic, pneumatic, electronic, and remote control technologies, Controlled Fluids' HMI systems give operators a safe, simple to use, and reliable system for moving a rig exactly where it is needed.



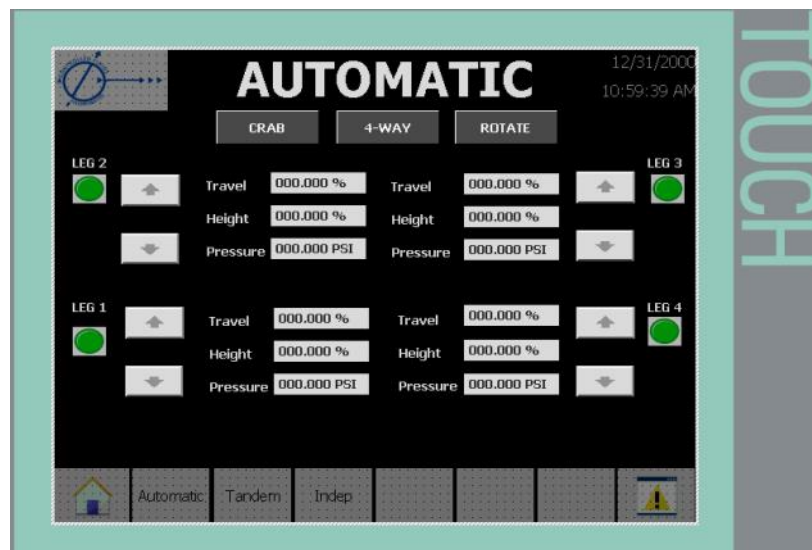
Three Control Modes for Maximum Flexibility



To tackle the demanding environments of an oilfield, Controlled Fluids designed motion controls for rig walking systems offer three control modes to ensure flexible and adaptable operation. Furthermore, each control mode has three additional functionalities, giving the operator the resources and versatility to position a rig exactly where it is needed. The array of options provided by a Controlled Fluids' rig walking motion control system increase overall efficiency and productivity through reduced operator man hours.

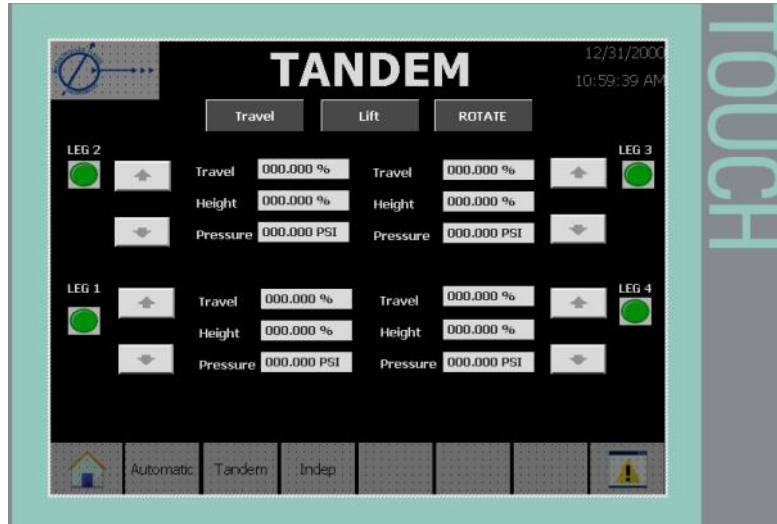
Automatic Control Mode

Automatic control allows the system to run from a set of three distinct predetermined programs including crab, 4-way, and rotate. These programs are chosen by a selector switch on the HMI. With crab mode activated, all four legs of the rig point in one direction, allowing the rigs to move sideways in a straight line. Using 4-way mode causes the front two feet point in one direction while the two rear feet point in the opposite direction. This allows the operator to rotate the rig in a circle around a central point. In rotate mode, any of the legs can be selected to be the point of rotation. Using the rotate mode gives the operator the ability to rotate the three other legs using the selected leg as the pivot point.



Tandem Control Mode

Tandem control mode allows the operator to take more direct operator control over the rig walking system by transferring overall system control to one paddle which moves all four legs in unison in three orientations chosen by a selector switch including; rotate, travel, and lift. In rotate mode, any of the legs can be selected to be the point of rotation, giving an operator the ability to rotate the three other legs in unison using the selected leg as the pivot point. With travel mode engaged, the system allows the operator to physically walk the rig in a straight line to a desired location, the user maintains control over the entire system with a paddle on the HMI. Using lift mode allows the operator to use the HMI to raise or lower the entire system to a desired height.



Independent Control Mode

In independent control mode, the HMI gives the operator maximum control over the rig walking system by providing to control to an individual leg to a corresponding paddle, allowing each leg to be controlled independently. The orientation is determined by there operator by toggling a selector switch on the HMI. With rotate mode active, any of the legs can be selected to be the point of rotation, giving an operator the ability to rotate the three other legs individually using the selected leg as the pivot point. By engaging travel mode, the operator directly controls each individual leg via corresponding paddles on the HMI to precisely position the rig over a desired location. In lift mode the operator uses the HMI's control paddles to raise or lower any of the legs independently of the other three legs to give the operator enhanced flexibility in moving the rig.

