

Case Study - Conductor Tension Spread

CHALLENGE

Our client required a Hydraulic Power Unit (HPU) specifically designed to control and operate a conductor tension unit (CTU). The HPU had to be capable of allowing the CTU to provide up to 400Te of tension. We also provided a separate HPU and control package to operate the deck skidding system, used to position the CTU on the Jack-Up rig tension deck.

SOLUTION

Design and manufacture of a CTU Hydraulic Power Unit (HPU) that was housed within a fully enclosed portable offshore unit that is certified to DNVGL-ST-E273, Type A, Class R60. The HPU primarily consists of 8x 54L bladder accumulators, the accumulators are charged through air driven pumps, these pumps can also be used to actuate the cylinders. The HPU is controlled through a variety of manually operated pressure reducing / relieving valves, ball valves, flow control valves and directional control valves. The system parameters can be closely monitored through system pressure gauges mounted to the main stainless steel control panel. The skid crawler unit provides control of 2x skid crawler units via 2x directional control valves with pressure gauges to monitor the push/pull force. The unit can be controlled via Local or Remote Control, during remote operations a belly box control unit is connected to the HPU via a 6 line 12m long pneumatic hose bundle, with operation of the push/pull functions via pneumatic directional control valves.


SCOPE OF WORK

CTU Tension HPU ATEX Zone 1 fitted with:

- 8 x 54ltr accumulators
- Control Panel for CTU & offline filtration system
- Filtration and pressure filters, all 316SS

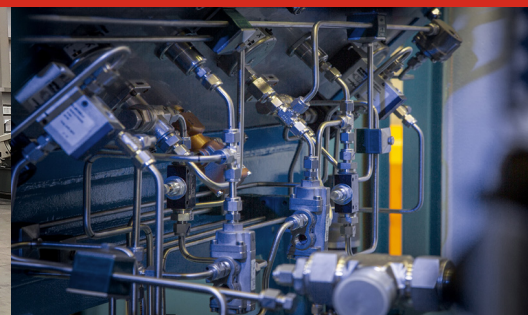
Skid Crawler HPU fitted with:

- Regulator to set system pressure
- Controlled locally or with remote control
- Stainless steel frame tested in accordance with DNVGL-ST-E273, type A Class R00



"Brimmond's professionalism and positive attitude were a major factor in completing the design, manufacture and testing in a safe and successful manner."

– Senior Project Engineer



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CONDUCTOR TENSION UNIT

- Unit houses 8 x 54L accumulators
- HPU is fitted with a range of filters; pressure filters, return filters, y-strainers, offline filtration systems
- 600L stainless steel tank with 500L useable volume
- Tank is fitted with visual level gauge & analogue temperature gauge
- All stainless steel fluid connections



SKID CRAWLER HPU

- Pneumatic powered unit housed in open stainless steel frame
- Provides control of 2 x skid crawler units via 2 x directional control valves with pressure gauges monitoring the push/pull force
- HPU unit controlled either via local or remote control
- Working pressure is 220bar
- All stainless steel imperial pipe



SAFETY FEATURES

- Fitted with a system of pressure relief valves
- Accumulator safety blocks
- Low level fluid shutdown audio alert and indicator
- Low air pressure audio alert and indicator
- All high pressure piping is housed within the unit to reduce risk



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