

Berendsen Supply Hydraulics for Dredge.

Berendsen Fluid Power's Adelaide Branch has recently completed the supply and commissioning of the pumps and valving for a new dredge which is part of a dredging program designed to keep the mouth of the Murray River open. Built by Maritime Constructions, this new dredge is called The Ngurunderi and is named after the aboriginal dream time creature which created the mouth of the river.

Dredges have unique operating systems and therefore have specific hydraulic requirements. They operate in arduous conditions, the Ngurunderi operating 24 hours a day since its commissioning, with only short periods of down time for servicing. Additionally, people who have extensive dredging knowledge, but not necessarily hydraulic knowledge operate them. Maritime Construction required a hydraulic system that addressed these factors.

The dredges being used for this project are Cutter Suction Dredges. An important aspect in the design of these dredges is that the cutter head can suffer high shock loads depending on the material being dredged. For this reason it was vital that the hydraulic system was simple and robust. Gear pumps running at nominal 140 bar were employed to achieve this. A large filter area was also developed to catch as much contaminant as possible in each pass of the oil, ensuring longer element life.

The hydraulic requirements of the winches were very specific, in that they need to operate quickly for setting up the dredge in position, then very slowly to swing the cutter head across the face of the cut. For this application a pressure compensated variable piston pump in an open circuit was designed.

A vital requirement of this project was that the amount of seawater required to cool the hydraulic system be minimised as much as possible. This was important in order to reduce the amount of seawater the dredge pumps were required to pump through the system, thus allowing the pumps to be utilised elsewhere. Berendsen were able to meet this requirement by designing a more efficient hydraulic system that effectively reduced the cooling requirement and therefore reducing its dependency on the seawater.

The breadth of Berendsen Fluid Power's product range also enabled them to directly provide the majority of the products required for the job. Products sourced from a variety of suppliers and selected on a 'fitness for purpose' basis were utilised for the job, including Vickers piston pumps, Eaton aluminium gear motors, Salami spool valves, MP Filtri filters, Hystar solenoid vented relief valves and a solenoid directional valve.

To date, approximately 2 million cubic metres of sand have been moved from the mouth of the River. It is expected that the dredges will continue to operate around the clock until there is enough natural flow to keep the mouth open naturally. Berendsen will continue to provide on going service to this dredge and are currently refitting another dredge.