

SEAL-LESS PLUNGER PUMP PACKAGE FOR PUMPING SOUR HYDROCARBON CONDENSATE

THE CHALLENGE

We partnered with a Calgary-based engineering firm to quickly design and supply a seal-less pumping solution for a sour (natural gas) hydrocarbon condensate project for a major Albertan oil & gas company.

The main challenge with pumping the sour condensate was that it needed to be pumped with a high pump inlet suction pressure of 580 PSI to keep it in a liquid state. Furthermore, the discharge injection pressure was only 682 PSI, resulting in a 102 PSI differential. The high inlet/suction pressure presented a considerable challenge for many typical pumps.

THE SOLUTION

After discussions with the engineering firm and the customer, our experts—Darryl Hughes and Igor Slocuh—selected a Wanner/Hydra-Cell T100 Series Reciprocating Triplex Pump to handle the high inlet pressure conditions of the application. Construction materials of stainless steel, nickel, aluminum, and bronze were chosen to ensure the pump's reliability and durability. One duty pump and one 100% stand-by pump was provided to the customer. In addition to being the best technical choice for the application it was delivered within the deadline.

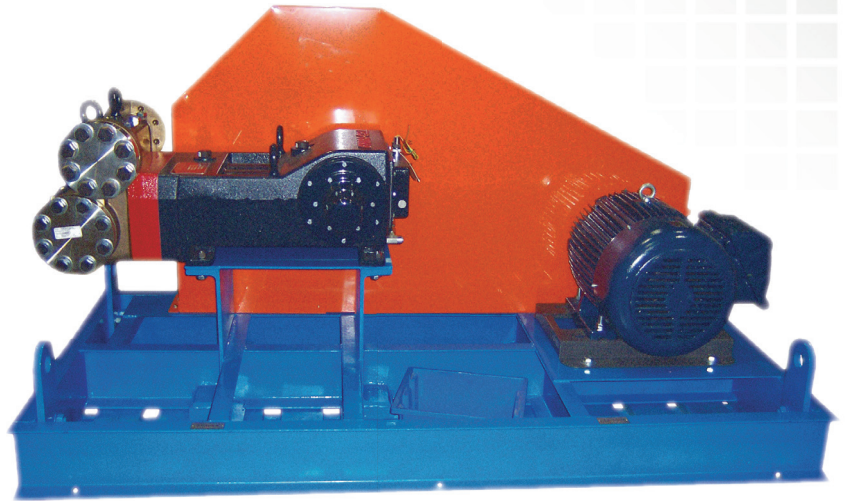
The advantages of the Hydra-Cell T100 Series Pumps are:

- They use diaphragms as wetted components to move the fluid instead of the plungers
- The seal-less design ensures the sour fluid can't leak, increasing operational safety
- No packing or external oilers needed at low speeds, resulting in cost savings over the life of the pumps
- Pull-out casing reduces maintenance costs because it can be done on-site without removing the pump
- Half the price of a comparable API 610 pump

THE RESULTS

- ▶ Reduced Operating Costs
- ▶ Increased Productivity
- ▶ Reduced Maintenance Costs

For more information on this solution or if you have a fluid handling challenge of your own - Contact a John Brooks Company Application Expert today!



OIL & GAS | SOUR CONDENSATE PUMPING

HYDRA-CELL SEAL-LESS PUMP FOR CHALLENGING HIGH INLET/SUCTION PRESSURE APPLICATION

TECHNOLOGY UTILIZED

Wanner Hydra-Cell T100 Series Seal-less Pump Package

Hydra-Cell T100 Series Seal-less Pump Specs & Pump Package Benefits:

- ▶ **Max. Flow Rate:** 40 gpm (9.08 m³/h)
- ▶ **Max. Operating Temperature:** 104°F (40°C)
- ▶ **Max. Discharge Pressure:** 680 psi (46.88 bar)
- ▶ **Max. Suction Pressure:** 582 psi (40 bar)
- ▶ **Specific Gravity:** 0.65 – 0.96
- ▶ No leaks within the pumps
- ▶ Consistent flow throughout the process providing higher mechanical efficiency than alternative solutions
- ▶ The cost of the complete rebuild kit of the Hydra-Cell pump is 30-50% less expensive annually compared to alternative pump options (e.g., traditional plunger pumps)

HOW SEAL-LESS PLUNGER PUMPS WORK

- [The Wanner/Hydra-Cell T100](#) Series pumps use suction and discharge valves like any other plunger pumps, but their unique patented design uses diaphragms as the wetted components to move the fluid instead of the plungers.
- When fluid enters the pump, it travels through the valves and into the diaphragm chamber from one side. As the pressure increases, the fluid moves into the second and third diaphragms until the pump discharges at ~680 psi (46.88 bar).
- The power ends of the T & Q series pumps are completely submersed in hydraulic oil. As a result, there is no packing and no need for external oilers at low speeds, which provides significant cost savings over the life of the pumps.