

Hydraulic Design

Open Loop Design

The open loop design is common in hydraulic systems, primarily due to their uncomplicated setup, allowing for easier maintenance and very fast acceleration.

The open loop design uses fixed displacement pump and motor, requiring a manual gearbox to cover the whole torque and speed range demanded by slickline operations. This limits the effective range of speed and torque available.

Additional speed and torque control is available through the use of a relief valve, however this system is highly inefficient (heat) and unstable, and risks limiting the logging capabilities.

Advantages

- Fast acceleration and deceleration
- Uncomplicated design
- Easy maintenance

Disadvantages

- Manual gearbox
- Limited speed and torque range
- Limited lower speed capabilities

Closed Loop Design

The closed loop system uses variable displacement for both pump and motor, covering the full range of torque and speed available.

Direct control of flow to the pump results in an intuitive control system where precise, accurate speed can be reached and maintained, even at very low speeds. However, the complexity of the system slow down the response, limiting the jarring capabilities. Efficiency of the system is higher versus open loop, and the system requires a smaller hydraulic tank.

Its design also makes it susceptible to oil contamination, requiring extreme care during maintenance, and special filters for protection.

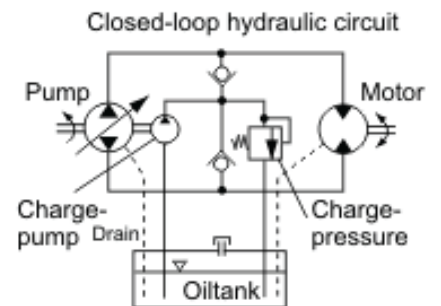
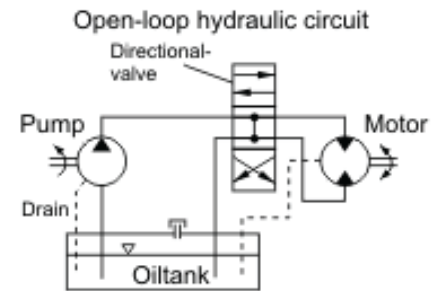
Nevertheless the closed loop design is now the reference for Slickline and Wireline units as it offers the best compromise for logging and jarring capacities.

Advantages

- Excellent logging capabilities
- Wide speed and torque range
- Capable of very slow speed
- Intuitive controls

Disadvantages

- A bit lower jarring capabilities versus open loop design
- A bit more complex design
- Requires Heavy specific and heavy filters for protection



certificate by



contact us : info@wilitec.com | visit us : www.wilitec.com

