

Closed loop position control

If a drive has to reach predefined positions accurately or has to follow definite trajectories, it has to be controlled by a closed loop position control. The controller tries forcing the piston to reach or to hold the required position in any circumstance despite the forces affecting the piston. External forces which act on the piston are conceived as the disturbance in case of a closed loop position control system; these forces are so called 'load forces'.

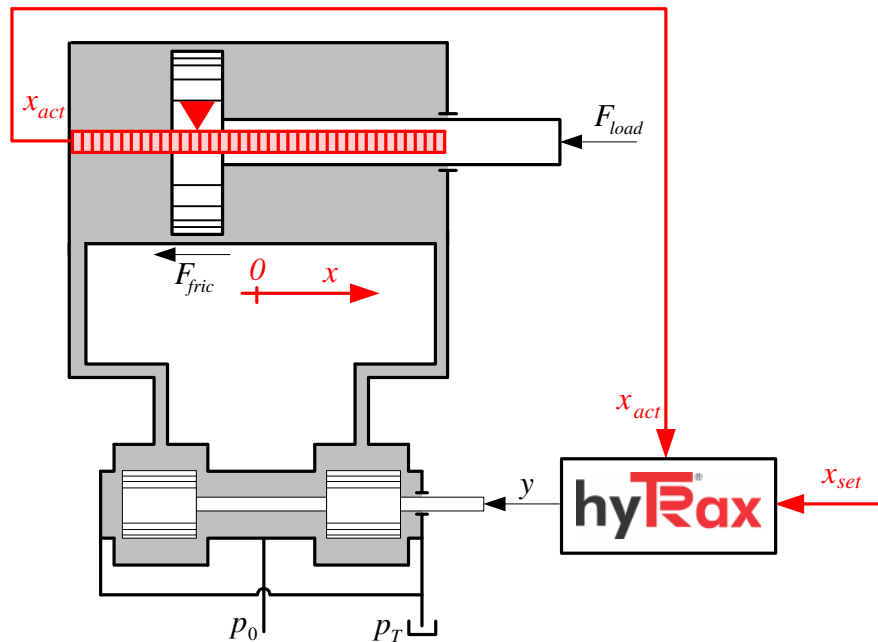


Fig.: Hydraulic cylinder drive in a closed loop position control system

Closed loop position control refers to the following: The piston's actual position is measured by a position transducer. The controller compares it to the position set signal, thus, the control error is calculated. By weighting it with the control parameters the valves control signal (e.g. voltage) is generated, until the drive has reached its set position.

If the drive has to follow a predefined trajectory, which is specified by the drive's characteristics concerning velocity, acceleration, deceleration and jerk, we recommend an implementation based on hyTRax's model based predictive controller.