
SELECTING AND VALIDATING THE HYDRAULIC CIRCUIT OF HYDRAULIC ACTUATING GEAR OF SUSTAINED POWER WITH COMPUTER CONTROL

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Abstract

The article considers different circuits of hydraulic actuators with volumetric control. It is established that the application of the actuators circuits with pump and motor control does not provide a wide range of speed variation. One of the prospective hydraulic circuits with the extended range of regulating the stepless speed of the output shaft is a hydraulic actuating gear comprising a hydraulic motor unit which has two hydraulic machines working for the common gear shaft. The first hydraulic machine is an uncontrolled hydraulic motor; the second one is a controlled pump-motor. The hydraulic motor unit allows getting an extended range of speed regulation compared to the controlled hydraulic motor of the equivalent displacement volume. The controlled motor can perform a reversal and change to the pumping mode, which theoretically allows getting the regulation of the motor total volume from maximum to zero.

Keywords

Hydraulic actuator with volumetric control, range of regulation, controlled pump, controlled hydraulic motor, uncontrolled hydraulic motor, hydraulic motor unit, total volume, displacement volume of hydraulic motor, range of speed variation

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References

- [1] Prokof'yev V.N., ed. Aksial'no porshnevoy reguliruemyy gidroprivod [Axial piston variable hydraulic drive]. Moscow, Mashinostroenie publ., 1969, 496 p.
- [2] Nikitin O.F., Fedenkov V.V. Gidroprivod stacionarnykh i mobil'nykh ob"ektov (konspekt lektsiy) [Hydraulic drive of stationary and mobile objects (compendium of lectures)]. Moscow, Bauman Press, 2000, 96 p.
- [3] Chemodanov B.K., ed. Sledyashchie privody. Kn. 2 [Slave drives. P. 2]. Moscow, Energiya publ., 1976, 384 p.

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