

Electronic Open Circuit (eOC): Hydraulic Pump Control

DYNAMICALLY CONTROL TRAVEL AND WORKING HYDRAULIC FUNCTIONS

The Bosch Rexroth Electronic Open Circuit (eOC) system redefines what's possible in working hydraulics by giving machine builders and operators the power to dynamically configure Bosch Rexroth pumps in real-time. With the electrification of axial piston units, hydro-mechanical control functions and interfaces are transferred into software to enable customizable control modes and adjustable hydraulic pump dynamics during operation. By integrating electronics and software, traditional mechanical open loop pump controls for pressure compensation, load sense, horsepower, and displacement can now be combined into a single pump.

Using just a laptop, machine builders can set and change pump dynamics, monitor performance, and optimize machine operation safely and efficiently, all while the machine is running. With eOC dynamic pump control, complexity in the hydraulic system is handled via software, revealing new potential for mobile machines by making them more productive, more responsive, and easier to adjust to operating conditions.



Productivity and Performance

- Improved machine performance and productivity
- Precise, adaptable power control
- Improved disturbance response
- No need for live configuration work

Flexibility and Customization

- Variable control parameter
- Variable machine dynamics
- Eliminated reliance on fixed mechanical controls

Logistics and Simplification

- Fewer pump variants needed
- Consolidated control modes into a single software platform
- Simplified machine assembly

Efficiency and Energy Savings

- Lower energy consumption
- Less fuel consumption and optimized battery usage
- Minimal control losses and pressure margins across working conditions

800-569-9801 • info@evolutionmotion.com
evolutionmotion.com/electronic-open-circuit





eOC Pump

- Sensors and software electronically control open-circuit hydraulic pumps
- Swivel angle sensor and pressure sensors precisely monitor pump behavior
- Ensure proper control of setpoint values for torque, pressure, or flow
- Variable pump dynamics and independent control of hydraulic parameters
- Seamless switching or combining of control modes in operation
- Real-time configuration via laptop or CAN interface

eOC Software

- Communicates via a CAN interface to adjust pump output based on real-time application data
- Precise control of machine behavior under changing load conditions
- Modify control modes individually or together during operation
- Adjust the pump's dynamics and control strategy to match application needs
- Independently control pressure, torque, flow, and the swivel angle
- Electronically closed control circuit
- Constant adaptation to hydraulic power and available engine torque

A Focus on Travel Drive

- Maintains the layout of an open circuit, requiring just one pump for both travel and working hydraulics
- Significantly reduces system complexity and minimizes component count
- Travel direction and brake valves are no longer needed
- Simplifies system integration
- Improves machine responsiveness
- Creates more design freedom



800-569-9801 • info@evolutionmotion.com
evolutionmotion.com