EPPC™

Electronic Pneumatic Position Control

Real-time level control for efficient vibration insulation of vibration sensitive, highly dynamic machines and strict requirements on positional accuracy and setting time.

Please watch our EPPC™ video!

ELECTRONIC PNEUMATIC POSITION CONTROL EPPC™

EPPC™ System properties

- Real-time control of up to six degrees of freedom
- Optimum positional accuracy (+/-8 µm)
- Individually adjustable system parameters (such as damping)
- Short deflection and settling times in response to load changes
- One high-performance servo valve and one displacement sensor per degree of freedom
- Optimized connecting system using CAN bus technology
- Intelligent browser-based user interface for setting, diagnostics and monitoring, connection via Ethernet, remote maintenance possible
- Operator state display, (for example, ready, working position, motion complete, error)
- Digital I/O interface for external control and monitoring
- Optimized pneumatic design
- Noiseless control using high-resolution signal processing and servo valve technology
- Robust and proven air spring technology, can be combined with Bilz standard air springs
- No disturbing heat generation, magnetic field fluctuations or high power consumption as is the case with electro-magnetic actuators

Applications:

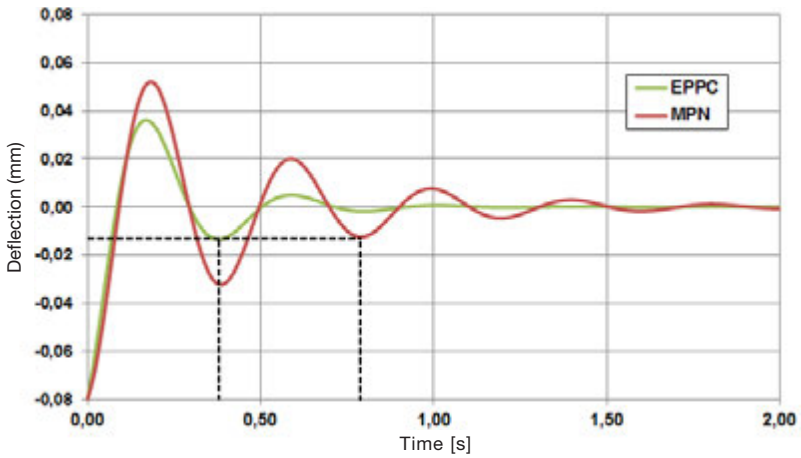
- High-precision machines
- Vibration-sensitive and highly dynamic measuring machines
- Microscopes
- Test and production machines in the semiconductor industry

EPPC™ real-time level control achieves an optimum production accuracy of +/- 8 µm and a significant reduction of the deflection and settling times in response to dynamic load changes

EPPC™ can be combined with three to six air spring control groups and control up to six degrees of freedom. Bilz offer a wide range of different size air springs for system design.

The high-performance electronics (14 bit AD converter, 16-bit signal processor) and compressed air valves are mounted directly to the respective air springs, enabling virtually noise-free control without losses due to a pressure drop in the hose connections. The use of CAN Bus technology ensures the simplest electrical cabling and makes it possible to install the control unit up to 20 m away.

In comparison to conventional mechanical-pneumatic level control systems (for example Bilz MPN) the settling time can be significantly reduced using EPPC™.



Theoretical MPN vibration curve compared with EPPC™. At a deflection of -80 µm the MPN reaches a stable position within a tolerance of +/-15 µm after 0.75 seconds. With EPPC™ the deflection time is reduced by 45 % to 0.4 seconds.