

Special Problem Solution for Feedback Control-Systems – Robust Stabilisation of a Direct Drive in a Precision Measuring Machine

Because of the huge range of workpieces to be measured and the support (placement/alignment on the rotary table) occasionally manufactured by the customer, critical conditions for the feedback control of the workpiece direct drive cannot be ruled out entirely in the "big" precision measuring machines of Klingelberg Company.



Klingelberg P350 precision measuring machine with a relatively small-sized workpiece – f. i. various gearwheels with diameters up to 3,5 m can be measured

Caused by the undefined drive mechanics an exact adaption of the drive control system is not possible in this cases and therefore vibrational instability occurs very occasionally in this axis.

Due to the application of a special feedback control structure within the WIEDEG drive control system the problem could be solved with resounding success.

By means of a disturbance observer (shaft torque observer) combined with a Ferraris acceleration sensor a decoupling of the control and the loadside could be achieved.

Outcome is an absolute robust stabilisation and furthermore a stiffer control of the drive – almost completely independent from workpiece and support mechanics.

WIEDEG Elektronik GmbH

Müllenbacher Str. 14, D- 51709 Marienheide
Tel.: +49 2264/4577-0 Fax: +49 2264/4577-29
www.wiedeg.de info@wiedeg.de