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Modernization of the measuring carriage on the interference comparator for calibrating the line scales

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[interference comparator line scales](#)

Abstract

The article presents the measurement results together with the method for determining the geometrical errors of the air table and their impact on the measurement uncertainty of line scales.

Bibliography

- [1] R. Koops, A. Mares, J. Nieuwenkamp: A new standard for line-scale calibrations in the Netherlands. Mikroniek nr 4, 2010.
- [2] M. Sawabe, F. Maeda, Y. Yarmayo, T. Simomura, Y. Saruki, T. Kubo, H. Sakai, S. Aoyagi: A new vacuum interferometric comparator for calibrating the fine linear encoders and scales. Precis. Eng., vol. 28 (2004), 320.
- [3] Air bearing application and design guide. New Way Precision, 2003.
- [4] HP 5528A – Laser Measurement System-User's Guide.
- [5] G. Bönsch, E. Potulski: Measurement of the refractive index of air and comparison with modified Edlen's formulae. Metrologia, vol. 35, p. 133.
- [6] PN-EN ISO/IEC 17025 Ogólne wymagania dotyczące kompetencji laboratoriów badawczych i wzorcujących.
- [7] Guide to the expression of uncertainty in measurement. JCGM 100:2008.
- [8] P. Sosinowski: Źródła niepewności przy wzorcowaniu wzorców kreskowych na komparatorze interferencyjnym. Biuletyn GUM, 2011.
- [9] R. Koning, J. Flugge, H. Bosse: A method for the in situ determination of Abbe errors and their correction. Measurement Science and Technology, vol. 18 (2007).
- [10] A. Jakstas, S. Kausinis, R. Barauskas, A. Kasparaitis, A. Barakauskas: Investigation of dynamics-induced errors of long line scale calibration systems. Measurement, vol. 44 (2011), p. 976.
- [11] R. Köning, J. Flügge, H. Bosse: Achievement of sub nanometer reproducibility in line scale measurements with the Nanometer Comparator. Proc. SPIE, vol. 6518 (2007).

- [12] R. R. Baldwin, L. E. Truhe, D. C. Woodruff: Laser optical components for machine tool and other calibrations. H-P Journal, 1983.
- [13] A. Lassila: MIKES fibre-coupled differential dynamic line scale interferometer. Measurement Science and Technology, vol. 23 (2012).
- [14] Final Report EUROMET.L-K7 - Key Comparison: Calibration of line scales. Metrologia, vol. 49 (2012), Tech. Suppl., 04006.

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