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Principles of MHs and touch trigger probes -- 5.3 Performance

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Sommario/riassunto

This book presents the main methods and techniques for measuring and monitoring the accuracy of geometrical parameters of precision Computer Numerically Controlled (CNC) and automated machines, including modern coordinate measuring machines (CMMs). Standard methods and means of testing are discussed, together with methods newly developed and tested by the authors. Various parameters, such as straightness, perpendicularity, flatness, pitch, yaw, roll, and so on, are introduced and the principal processes for measurement of these parameters are explained. Lists and tables of geometrical accuracy parameters, together with diagrams of arrangements for their control and evaluation of measurement results, are added. Special methods and some original new devices for measurement and monitoring are also presented. Information measuring systems, consisting of laser interferometers, photoelectric raster encoders or scales, and so on, are discussed and methods for the measurement and testing of circular scales, length scales, and encoders are included. Particular attention is given to the analysis of ISO written standards of accuracy control, terms and definitions, and methods for evaluation of the measurement results during performance verification. Methods for measuring small lengths, gaps, and distances between two surfaces are also presented. The resolution of measurement remains very high, at least within the range 0.05 [μ]m to 0.005 [μ]m.
