

Contents

Preface.....xi
Contributors xiii

Chapter 1 Evolution of Measurement..... 1
Robert J. Hocken and John A. Bosch

Chapter 2 The International Standard of Length..... 31
Dennis A. Swyt and Robert J. Hocken

Chapter 3 Specification of Design Intent: Introduction to Dimensioning and Tolerancing 41
Edward Morse

Chapter 4 Cartesian Coordinate Measuring Machines..... 57
Paulo H. Pereira

Chapter 5 Operating a Coordinate Measuring Machine..... 81
Edward Morse

Chapter 6 Probing Systems for Coordinate Measuring Machines 93
Albert Weckenmann and Jörg Hoffmann

Chapter 7 Multisensor Coordinate Metrology 125
Ralf Christoph and Hans Joachim Neumann

Chapter 8 Coordinate Measuring System Algorithms and Filters..... 153
Craig M. Shakarji

Chapter 9 Performance Evaluation 183
Steven D. Phillips

Chapter 10 Temperature Fundamentals..... 273
James B. Bryan and Ted Doiron

Chapter 11	Environmental Control.....	305
	<i>Paulo H. Pereira and Jun Ni</i>	
Chapter 12	Error Compensation of Coordinate Measuring Machines.....	319
	<i>Guoxiong Zhang</i>	
Chapter 13	“Reversal” Techniques for Coordinate Measuring Machine Calibration.....	361
	<i>Robert J. Hocken</i>	
Chapter 14	Measurement Uncertainty for Coordinate Measuring Systems.....	371
	<i>Paulo H. Pereira and Robert J. Hocken</i>	
Chapter 15	Application Considerations	387
	<i>Paulo H. Pereira and Dean E. Beutel</i>	
Chapter 16	Typical Applications.....	413
	<i>Wolfgang Knapp</i>	
Chapter 17	Non-Cartesian Coordinate Measuring Systems.....	467
	<i>Guoxiong Zhang</i>	
Chapter 18	Measurement Integration	515
	<i>Robert J. Hocken</i>	
Chapter 19	Financial Evaluations	523
	<i>Marion B. (Bill) Grant</i>	
References	547
Bibliography	563
Index	567