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Nota di contenuto	GEARS AND GEAR DRIVES; Contents; Preface; Acknowledgments; 1 Introduction; 1.1 Power Transmissions and Mechanical Drives; 1.2 Classification of Mechanical Drives; 1.3 Choosing a Mechanical Drive; 1.4 Multi-Step Drives; 1.5 Features and Classification of Gear Drives; 1.5.1 Features of Gear Drives; 1.5.2 Classification of Gear Drives; 1.6 List of Symbols; 1.6.1 Subscripts to Symbols; 2 Geometry of Cylindrical Gears; 2.1 Fundamentals of the Theory of Toothing; 2.1.1 Centrodes, Roulettes and Axodes; 2.1.2 Envelopes, Evolutes and Involutes; 2.1.3 Cycloid and Involute of a Circle; 2.1.3.1 Cycloid 2.1.3.2 Involute of Circle 2.1.4 Main Rule of Toothing; 2.1.4.1 Analytical Determining of Mated Profiles; 2.1.4.2 Radii of Curvature of Mated Profiles; 2.2 Geometry of Pairs of Spur Gears; 2.2.1 Cycloid

Toothing; 2.2.2 Involute Toothing; 2.3 Involute Teeth and Involute Gears; 2.4 Basic Tooth Rack; 2.5 Fundamentals of Cylindrical Gears Manufacture; 2.5.1 Generating Methods; 2.5.2 Forming Methods; 2.5.3 Gear Finishing; 2.5.4 Basic Rack-Type and Pinion-Type Cutters; 2.6 Cutting Process and Geometry of Gears Cut with Rack-Type Cutter; 2.6.1 Profile Shift
2.6.2 Meshing of Rack Cutter with Work Piece, Basic Dimensions of Gear 2.6.3 Tooth Thickness at Arbitrary Circle; 2.6.4 Tip Circle Diameter; 2.6.5 Profile Boundary Point; Tooth Root Undercutting; 2.6.6 Effect of Profile Shift on Tooth Geometry; 2.6.7 Gear Control Measures; 2.6.7.1 Chordal Tooth Thickness on the Arbitrary Circle; 2.6.7.2 Constant Chord Tooth Thickness; 2.6.7.3 Span Measurement; 2.6.7.4 Dimension Over Balls; 2.7 Parameters of a Gear Pair; 2.7.1 Working Pressure Angle of a Gear Pair; 2.7.2 Centre Distance; 2.7.3 Gear Pairs With and Without Profile Shift
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2.11.1 Basic Considerations

Sommario/riassunto

Understanding how gears are formed and how they interact or 'mesh' with each other is essential when designing equipment that uses gears or gear trains. The way in which gear teeth are formed and how they mesh is determined by their geometry and kinematics, which is the topic of this book. Gears and Gear Drives provides the reader with comprehensive coverage of gears and gear drives. Spur, helical, bevel, worm and planetary gears are all covered, with consideration given to their classification, geometry, kinematics, accuracy control, load capacity and manufacturing. Cylindric