# PRODUCT DESIGN FOR DIE CASTING

## CONTENTS

1. **The Die Casting Option**
   - 1.1 Die Casting Advantages: Summary
   - 1.2 Advances in Die Casting Process Technology
   - 1.3 Developments in Die Casting Alloys
   - 1.4 Die Casting’s Range of Product Capabilities
   - 1.5 The Economic Equation
   - 1.6 The Benefits of Designing for Manufacturing
   - 1.7 Miniature, Heat Treated, High Vacuum, Squeeze & Semi-Solid Metal Casting
   - 1.8 Serviceability & Recycling

2. **Product Development**
   - 2.1 Working Environment
   - 2.2 Structural Criteria
   - 2.3 Manufacturing Economics
   - 2.4 Die Casting Versus Other Processes

3. **Product Design**
   - 3.1 Geometry Optimization
   - 3.2 Assemblies
   - 3.3 Machining
   - 3.4 Surface Finishing
   - 3.5 Prototyping

4. **The Conventional Die Casting Process**
   - 4.1 Understanding the Die Casting Cycle
   - 4.2 Characteristics of Die Casting
   - 4.3 Preventing Casting Defects
   - 4.4 Alloys and Properties
   - 4.5 Aluminum Die Castings
   - 4.6 Magnesium Alloys
   - 4.7 Zinc
   - 4.8 ZA Alloys
   - 4.9 Early Designer-Die Caster Interaction
   - 4.10 Alloy Selection

5. **High Integrity Die Castings**
   - 5.1 High Vacuum Die Casting
   - 5.2 Squeeze Casting
   - 5.3 Semi-solid