# **CONTENTS**

- Main concepts
- How a shaving cutter works
- Quality degree obtainable by shaving
- Definition of profile, helix and spacing errors
- Inspection graphs before and after shaving
- Workpiece material and tool steel

# Shaving tool designing

- Even contacts method
- Even contacts method limits

# Shaving methods

- Cross-of-axes angle
- Parallel shaving
- Diagonal shaving
- Underpass shaving
- Plunge shaving

#### Helix angle

#### Serration

- Serration characteristics
- Serrations errors

#### • Other manufacturing characteristics of shaving cutters

- Centering bore
- Cutter width
- Faces parallelism
- Faces perpendicularity with reference to the bore
- Tooth root relief
- Lightening holes

#### Profiles and preshaving tools

- Influence of protuberance on the even contacts conditions
- Shape and dimension of protuberance, and other types of reliefs

#### Shaving working conditions

- Shaving stock removal
- Stroke length
- Number of passes
- Cutting speed
- Cutting feed
- Lubrication and coolant

# Shaving cutters performances

- Conditions influencing performances
- When a shaving cutter has to be replaced?
- How many resharpening can a shaving cutter undergo?

#### **Shaving cutter resharpening**

- The importance of a correct resharpening
- Profile and helix correction
- How to perform profile modification
  - Profile correction in plunge cutters
  - Cutter profile in the various sections
- How to carry out helix profile modifications

# Gear tooth width measurements

- Span size measurement ("W<sub>n</sub>")
- Size over pins (SOP)
- Size over pin and bore
- **Eccentricity and pitching errors inspection**
- Common errors in shaving and their causes
- **Gamma Four commented examples**
- List of the symbols used in the book