

# numerical engineering research + design

Engineering Consultants  
Specializing in Honing Technology and Precision Metrology

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## Rk Parameters and Applications in Honing

The introduction of the Rk Family of Parameters has revolutionized Plateau Honing in the production environment. With these parameters, it is possible to monitor and control the plateau hone operation with relative ease. This course is designed to explain the basic of surface finish measurement, leading into detailed descriptions of the Rk parameters and their application to the plateau honing process. The information presented is relevant to hone operators, manufacturing engineers and product engineers. Course Outline:

### Instrument types

- Skidded
- Non-Skidded

### Filtering

- 2RC
- PC
- Gaussian (M1)
- Anti-Aliasing
- Bandwidth

### Standard Parameters

- Extreme Value Parameters
- Average Extreme Value Parameters
- Statistical Parameters

### Graphical Parameters

- Amplitude Distribution Function
- Bearing Area Curve
- Frequency Distribution (Fourier Transform)

### Stratified Surfaces – Plateau Honing

- Filter Distortion
- Phase Correct Filter

- Longer Cutoffs
- Ra not adequate

### Quantifying a Plateau Surface

- Bearing Area Curve
- Early “Rk Type” Parameters
- ABC Parameters

### Rk Family of Parameters

- Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, etc.
- Derivation
- Descriptions

### Rq Parameters

- Probability Plotting
- Origins
- Applications

### Application to Honing

- Plateau Honing Overview
- Machine Adjustments
- Process Adjustments
- Abrasive Selection
- Parameter Controls

### Some Relationships and Uses

- Plateauness Indicators
- Ra vs. Rk
- Rk vs. Rpk
- Rk vs. Rvk
- Rvk vs. Rpk

### Specifications

- Which parameters to use and when
- Reducing large parameter lists
- Eliminating Redundant Parameters
- Avoiding “Impossible” specifications
- Correlation and Sensitivity

### Statistical Process Control

- Repeatability
- Averaging
- Central Limit Theorem

### Standards

- ISO
- ANSI/ASME
- DIN

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