

# P 3123

Ultrasonic testing instrument  
for non-destructive hardness depth testing  
of heat-treated parts



QNET

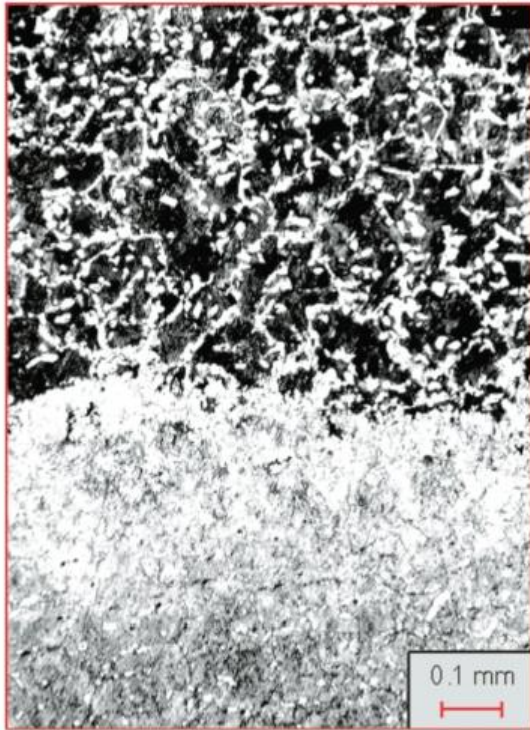
# Hardness Depth Testing of Heat-treated Parts

- Non-destructive testing with ultrasonic backscattering technique,
- portable testing system,
- designed for tough industrial environment,
- 4-channel ultrasonic board,
- Also suitable for testing of complex geometries e.g. crankshafts, gears, ...
- optional automated testing.

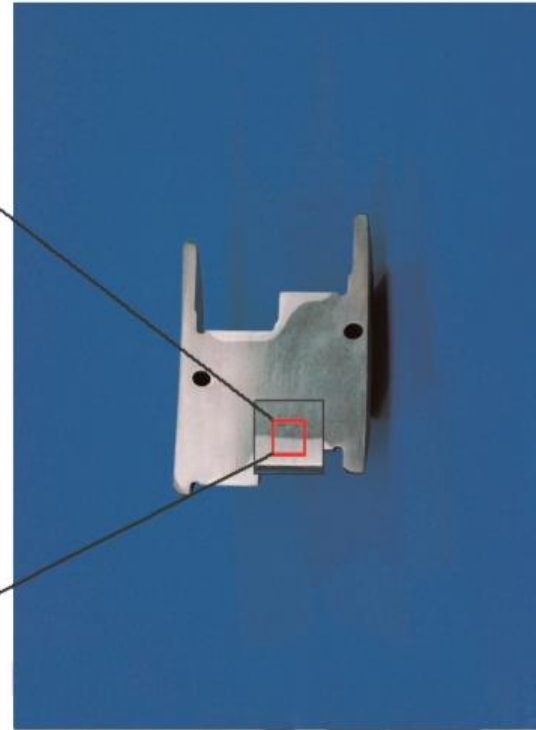


# Microstructure of Hardened Parts

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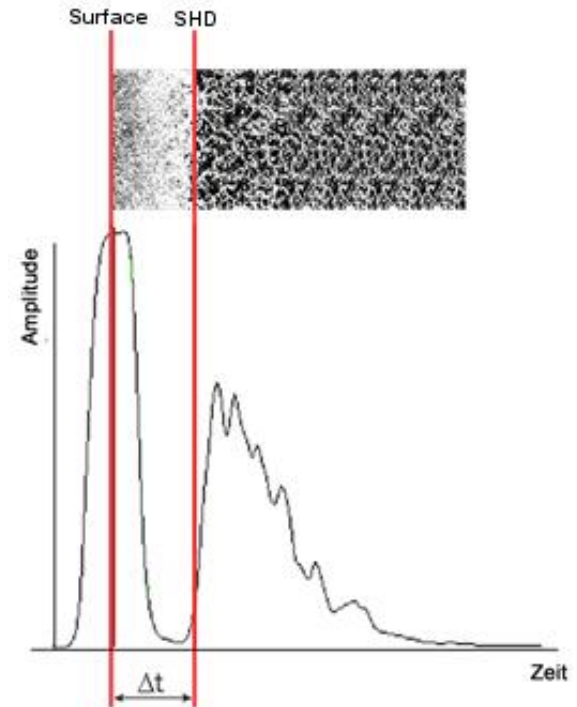
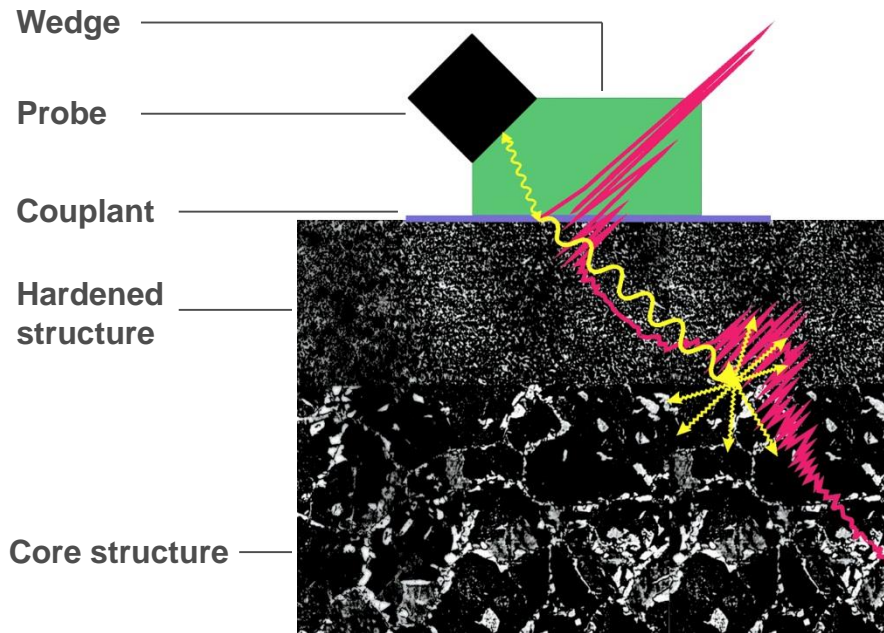


Microstructure



Macrostructure

# Ultrasonic Backscattering Technique



# System Components

## Ultrasonic Search Units

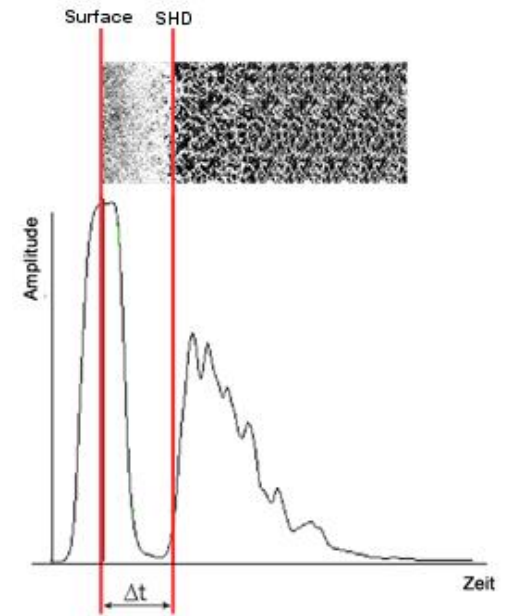
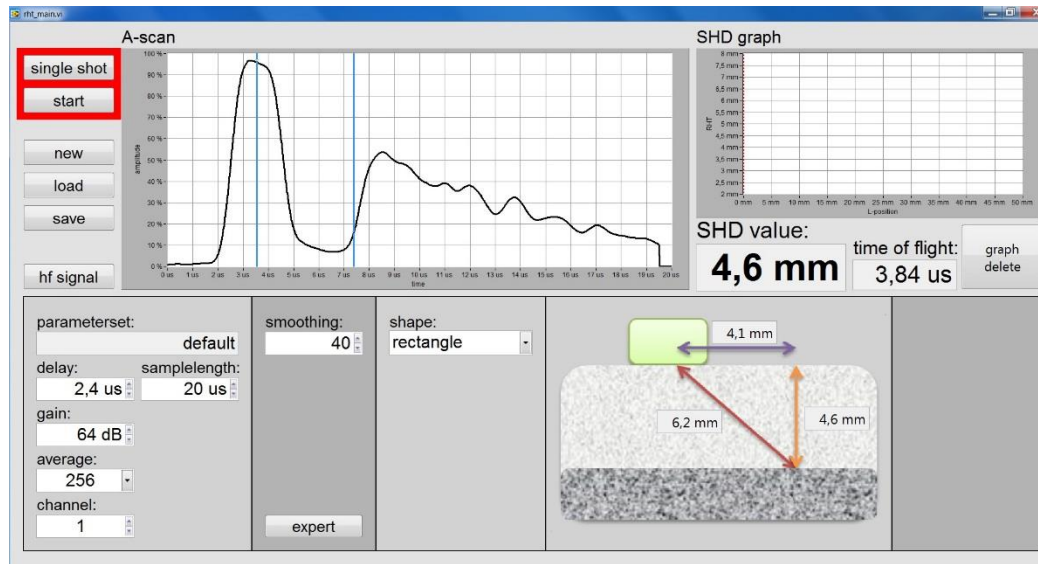
- Coupling wedge
- Ultrasonic transducer
- Double-shielded transducer cable

## Industry Notebook including:

- 4-Channel ultrasonic electronics
- Software SHD Studio
- Windows 7, 10
- DVD writer
- MIL-STD 810G, IP65, MIL-STD 461F certified
- W-LAN



# Software SHD Studio



- Creation of testing programs and databases for parameter sets, transducers, materials, etc.
- Modules for routine testing, series testing, and signal analysis
- Real-time display of signals (A-scans), line-scans and real measuring point
- Automatic signal analysis and display of test results
- Automatic setting of zero point - no range setting required

# Industry Notebook and Hard Case

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**Industry Notebook**



**Case with foam interior**

## Coupling Wedges

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**Standard design:**  
Flat, convex, concave



**Custom design:**  
Double sensors with housing



## Accessories

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**Transducers 20 MHz,**  
Diameters: 6 mm or 11 mm

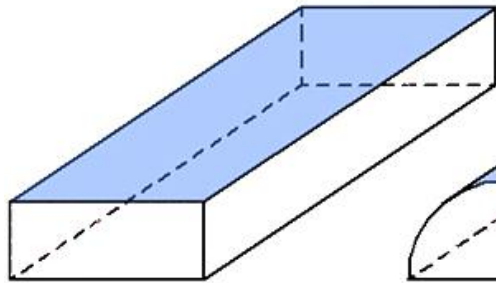


**Double-shielded  
transducer cables**

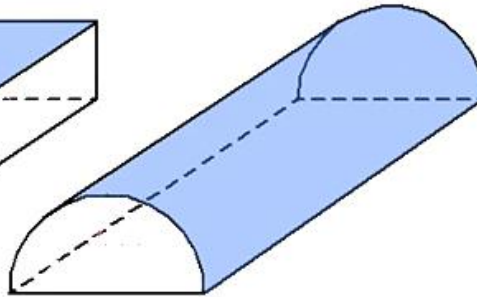


**USB pedal**

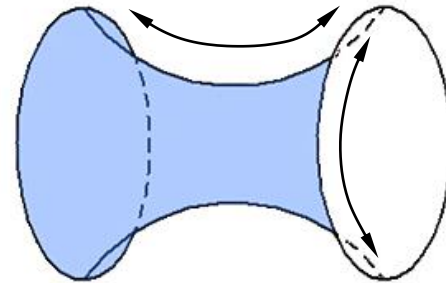
# Typical Inspection Geometries



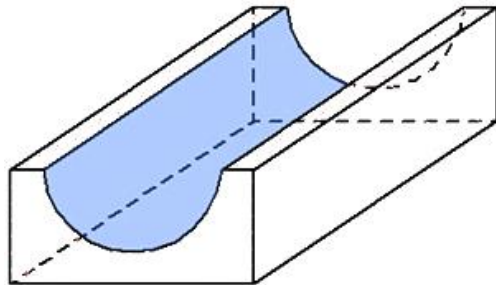
flat



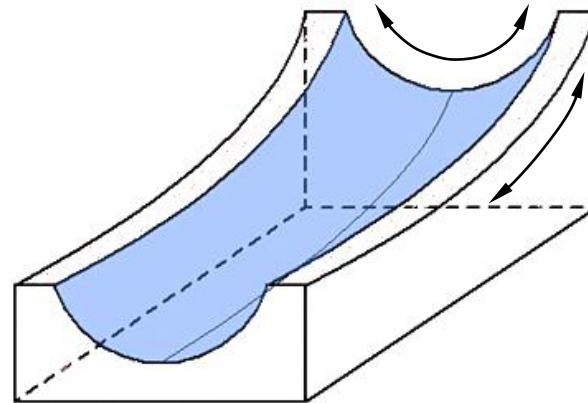
convex



double-curved



concave



double-curved

## Usage Examples

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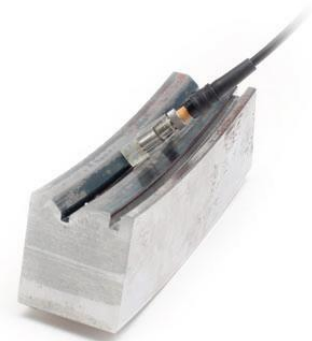


### Hardness depth testing of heat-treated parts

such as:

- large-diameter slewing rings,
- crankshafts,
- tooth systems,
- spindles,
- axles arms,
- rolls,
- ... and many more

## Usage Example: Large-diameter Slewing Rings



Testing the **pitch surfaces** of the rolling element (flat or curved),  
the **tooth flanks** and **bottom lands**

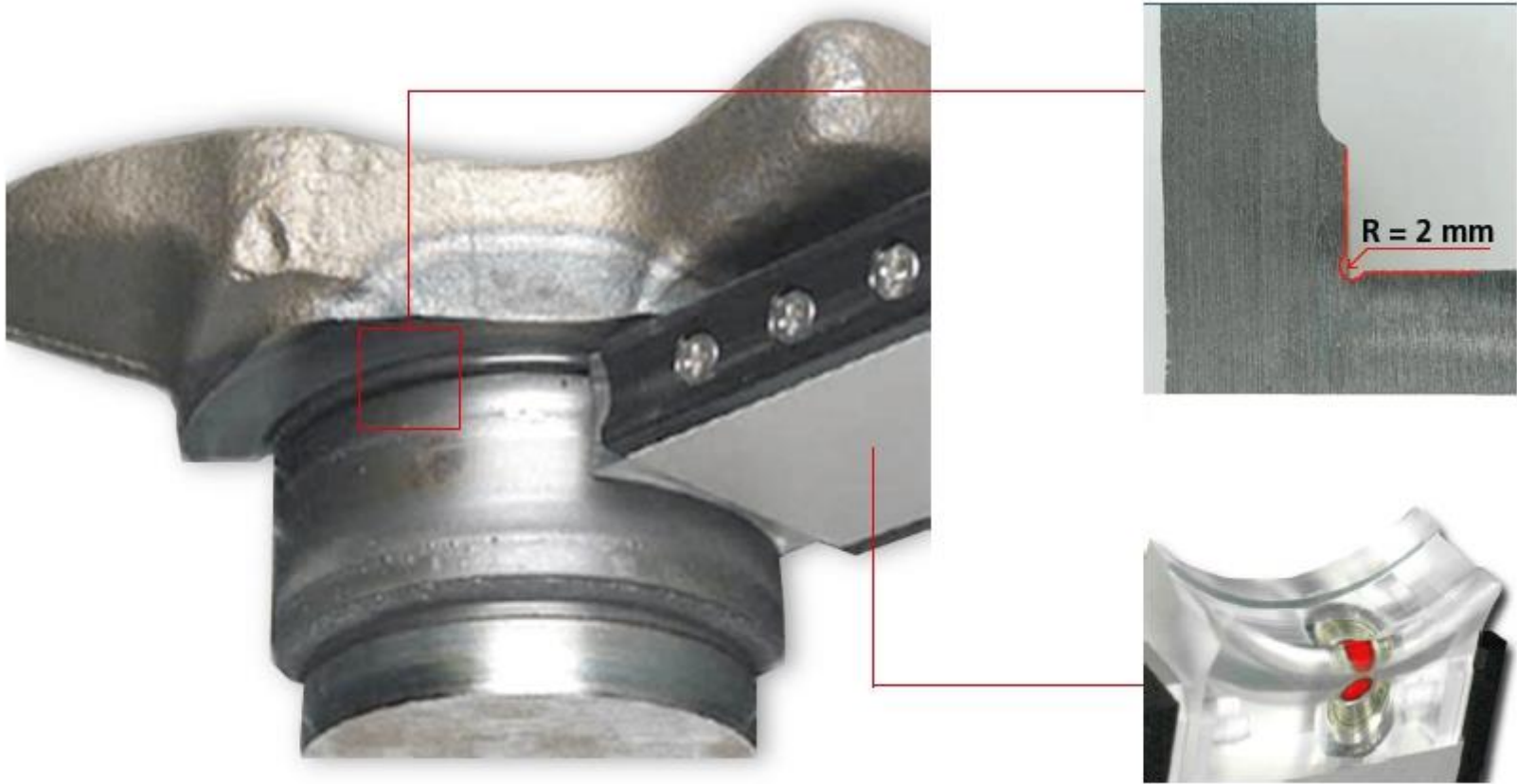
## Usage Example: Crankshafts

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Testing the **flange / pins, journals** and **fillet radii**

## Usage Example: Testing of Fillet Radii



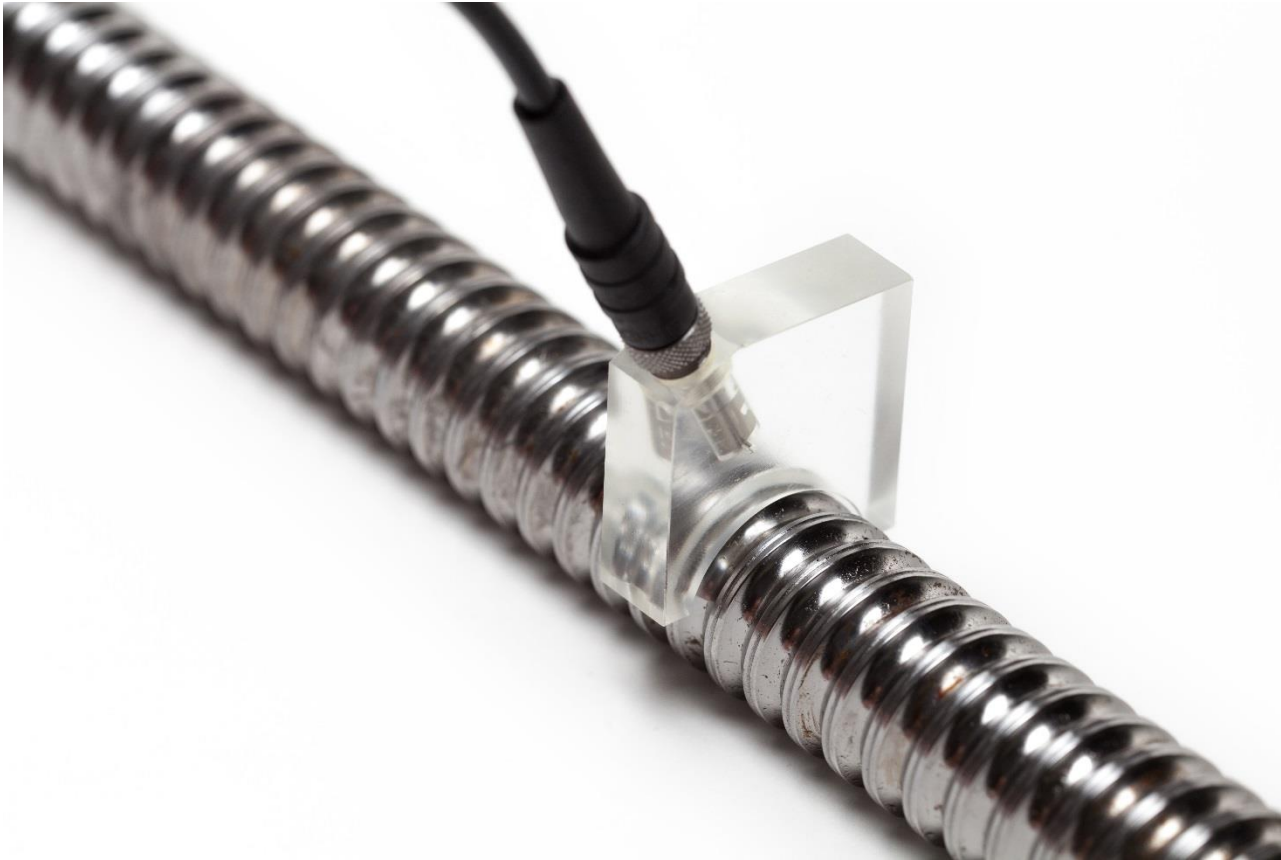
## Usage Example: Testing of Tooth Systems



Testing of tooth systems: top and bottom lands and tooth flanks

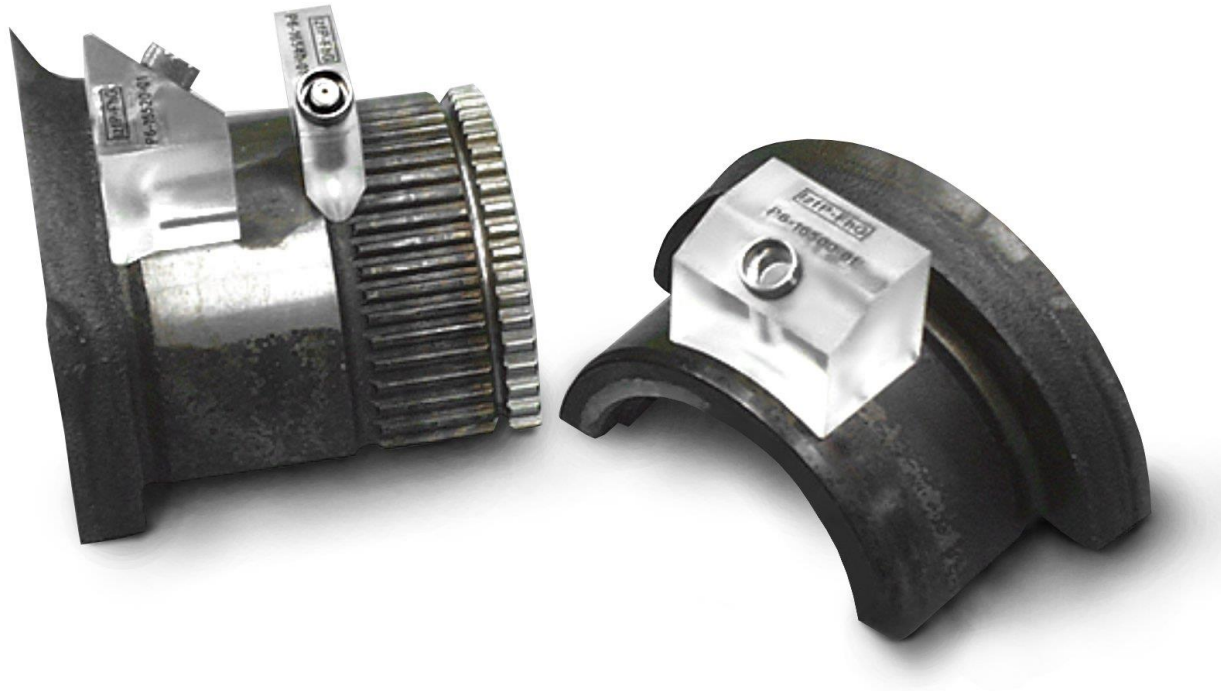
## Usage Example: Testing of Spindles and Threads

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## Usage Example: Testing of Fillets and Bearing Surfaces



## Usage Example: Testing of tulips and shafts



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## Usage Example: Testing of Spline Shafts



Measurement on the top of splines

## Usage Example: Wedge for Several Transducers

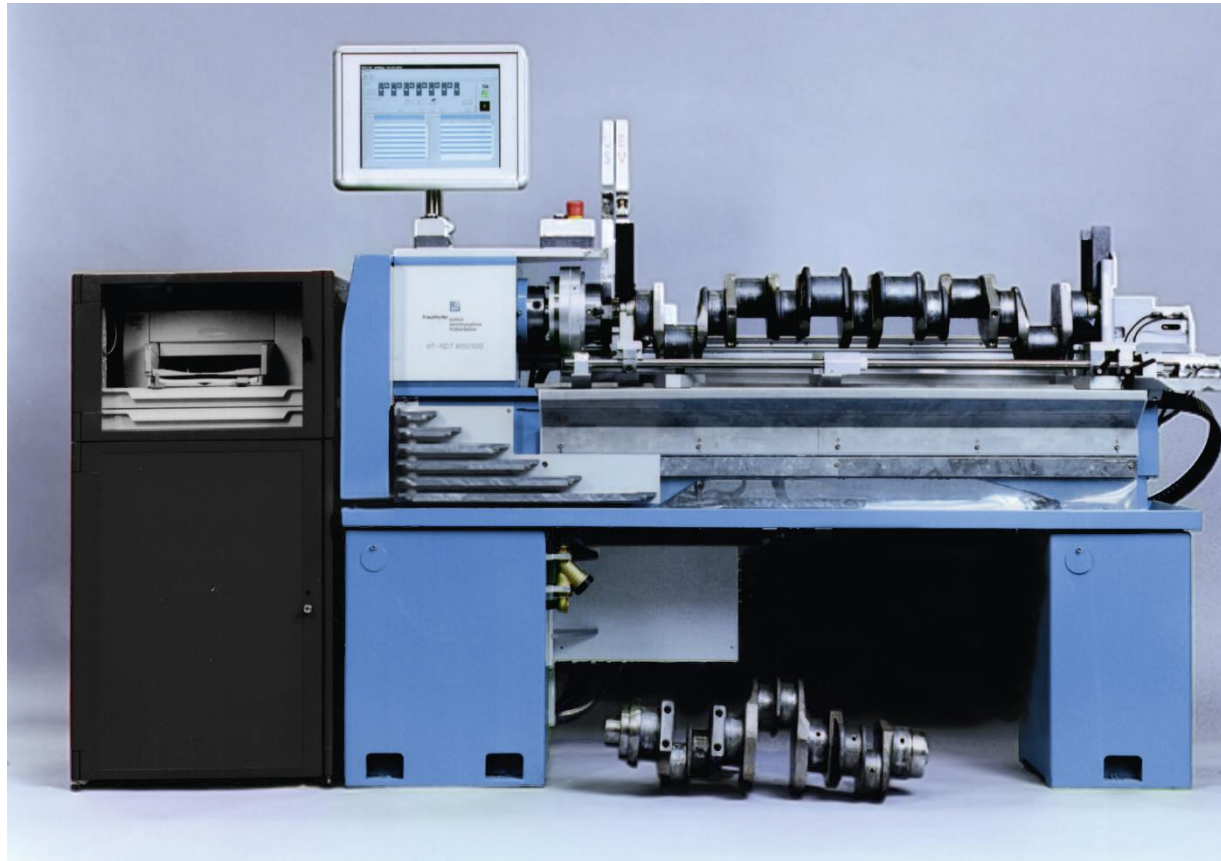
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**Wedge for 2 testing points**

## Usage Example: Handling Equipment

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**Semi-automated testing of crankshafts**

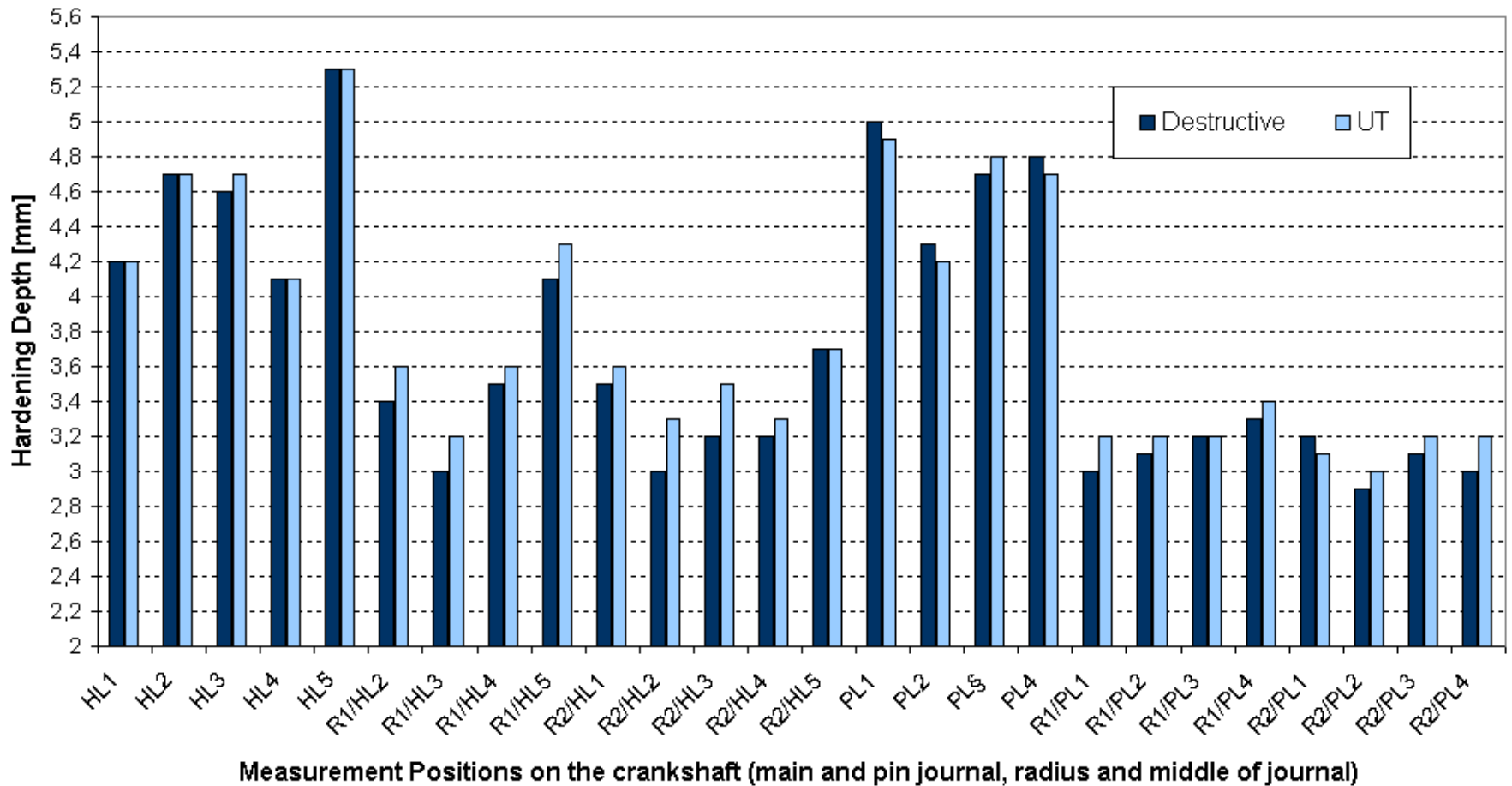
# Usage Example: Handling Equipment



Sensor units with housing

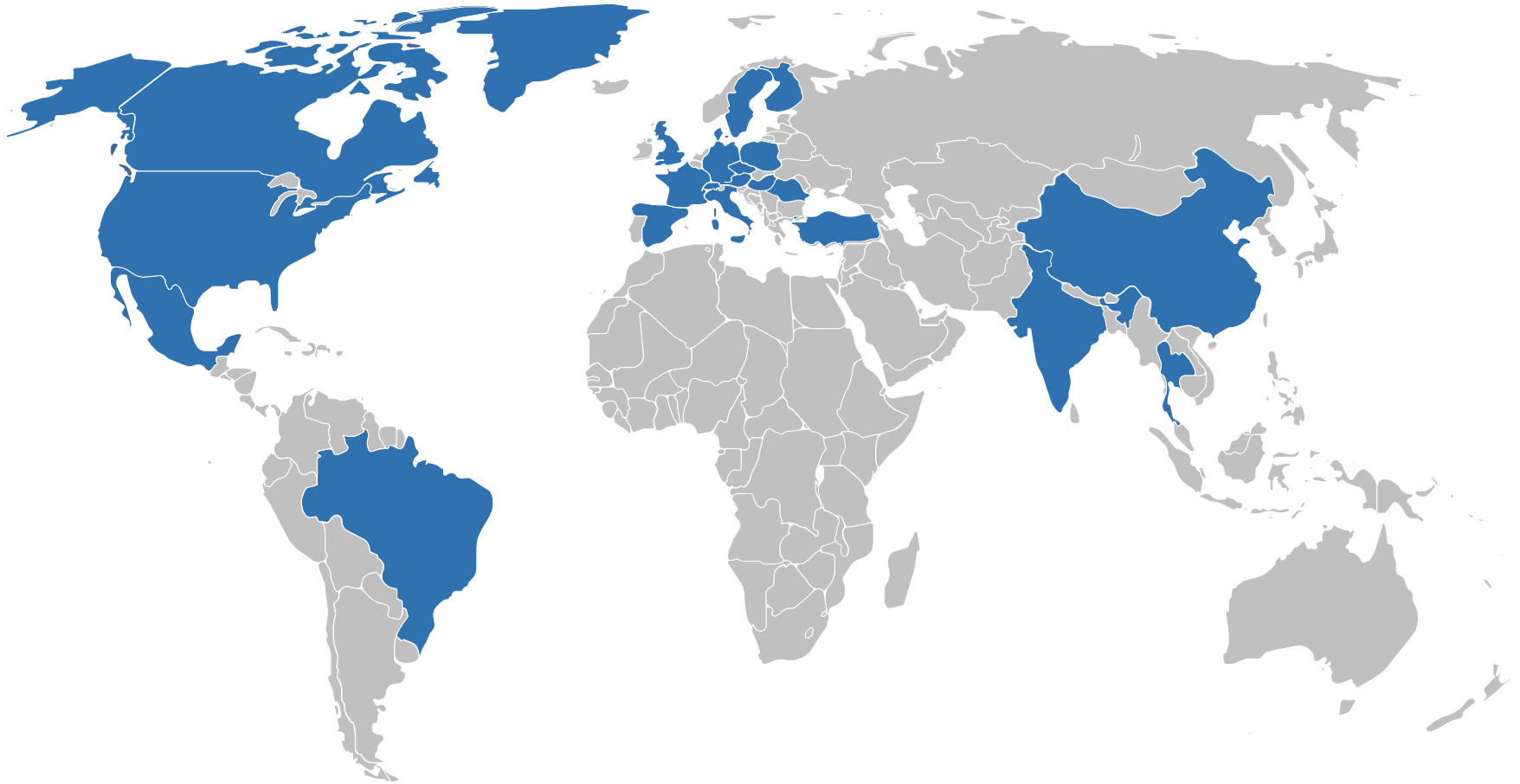


# Validation



## Worldwide Sales and Service

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Sales word-wide: ~ 200





# Clients (selected)

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