

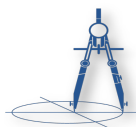
# P 3121

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



RH096406668CN

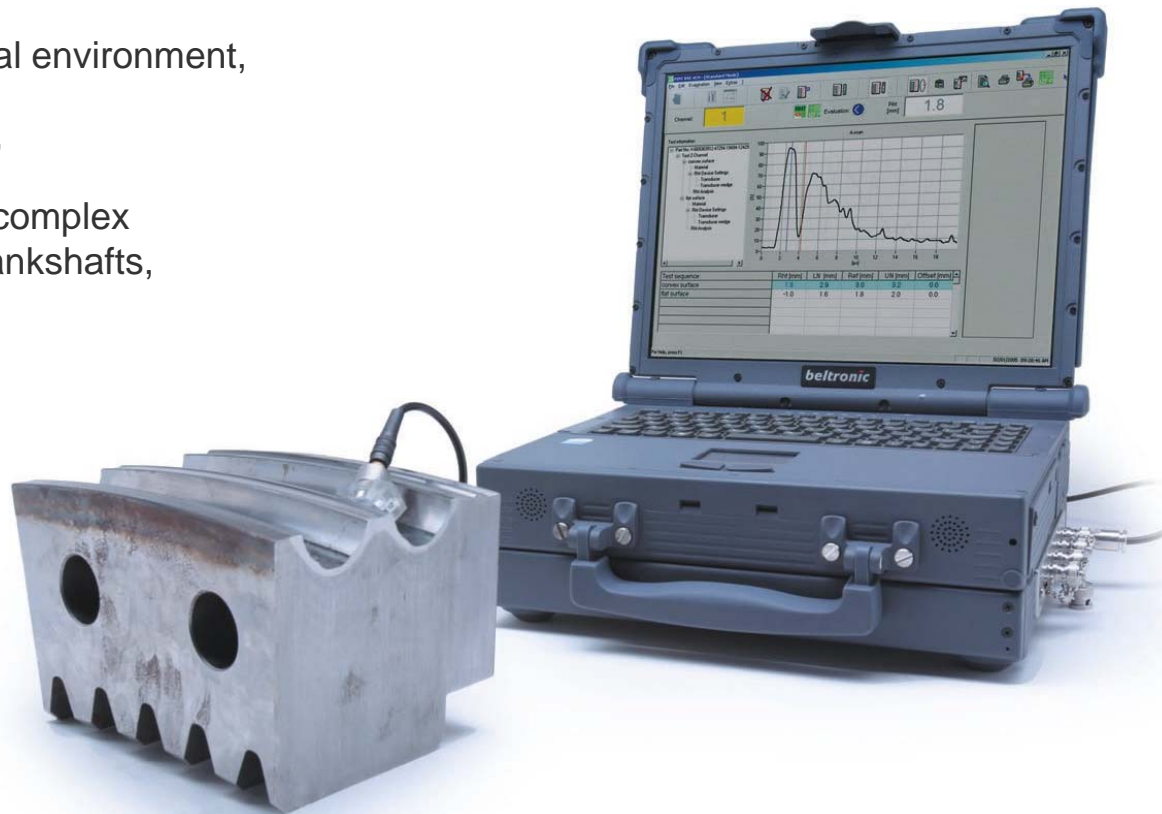
# QNET



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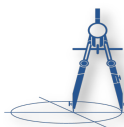
## Hardness Depth Testing of Heat-treated Parts

- 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 for example crankshafts, gears,...
- optional automated testing.



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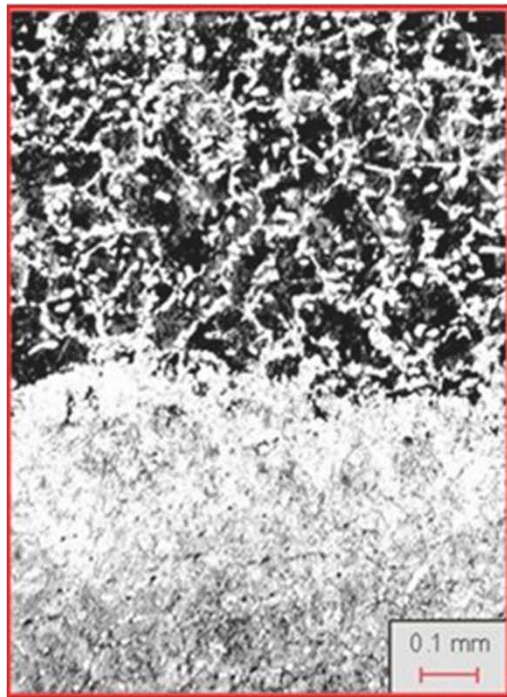


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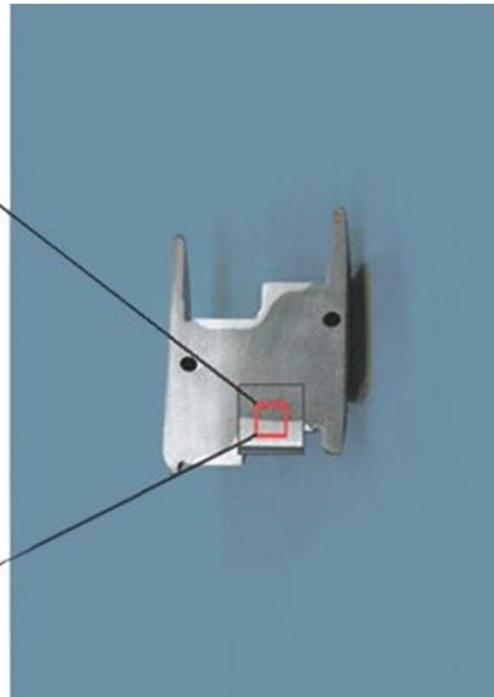
## Microstructure of Hardened Parts

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Microstructure

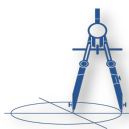


Macrostructure



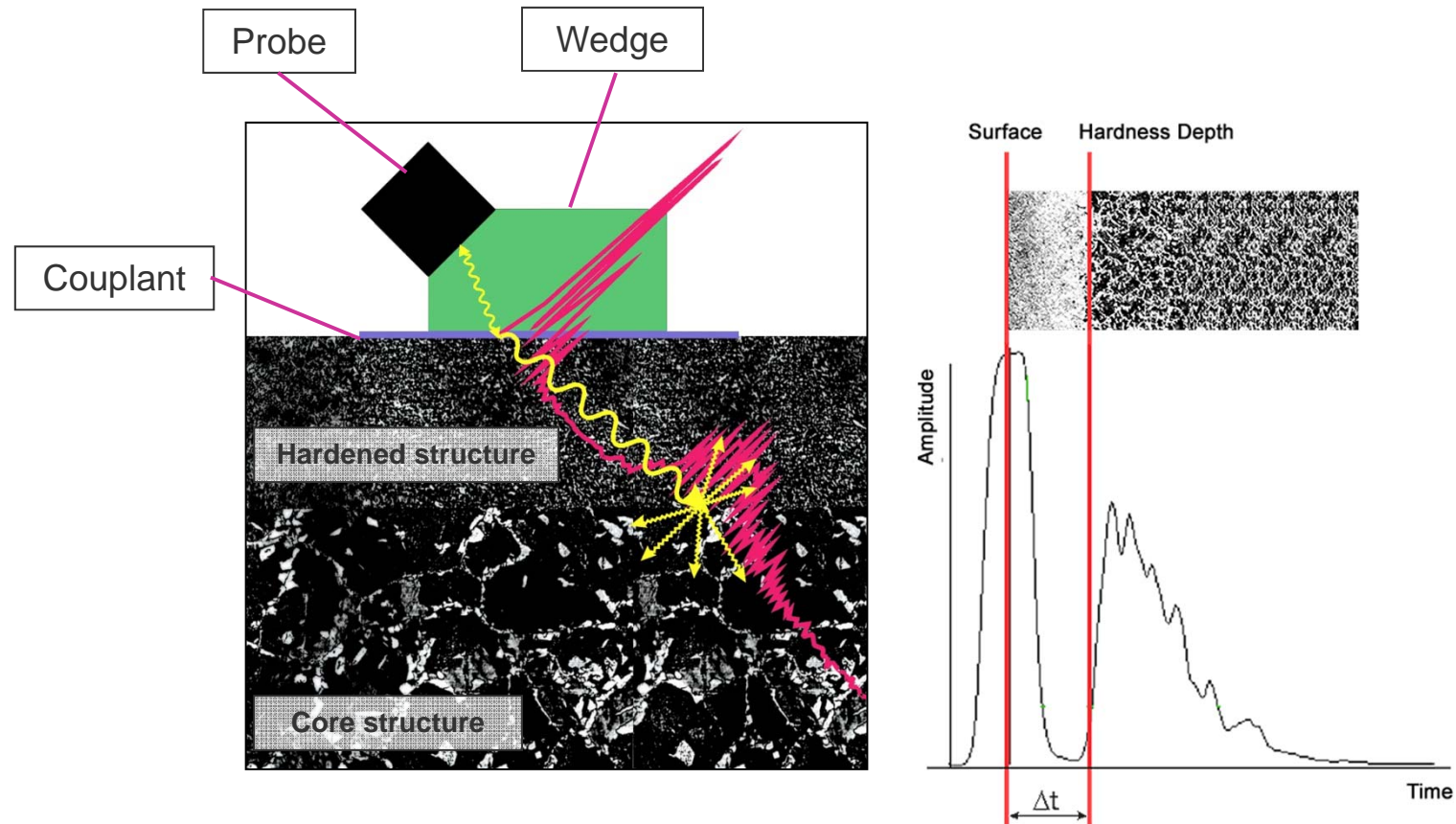
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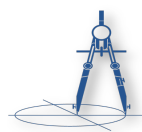
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## Ultrasonic Backscattering Technique



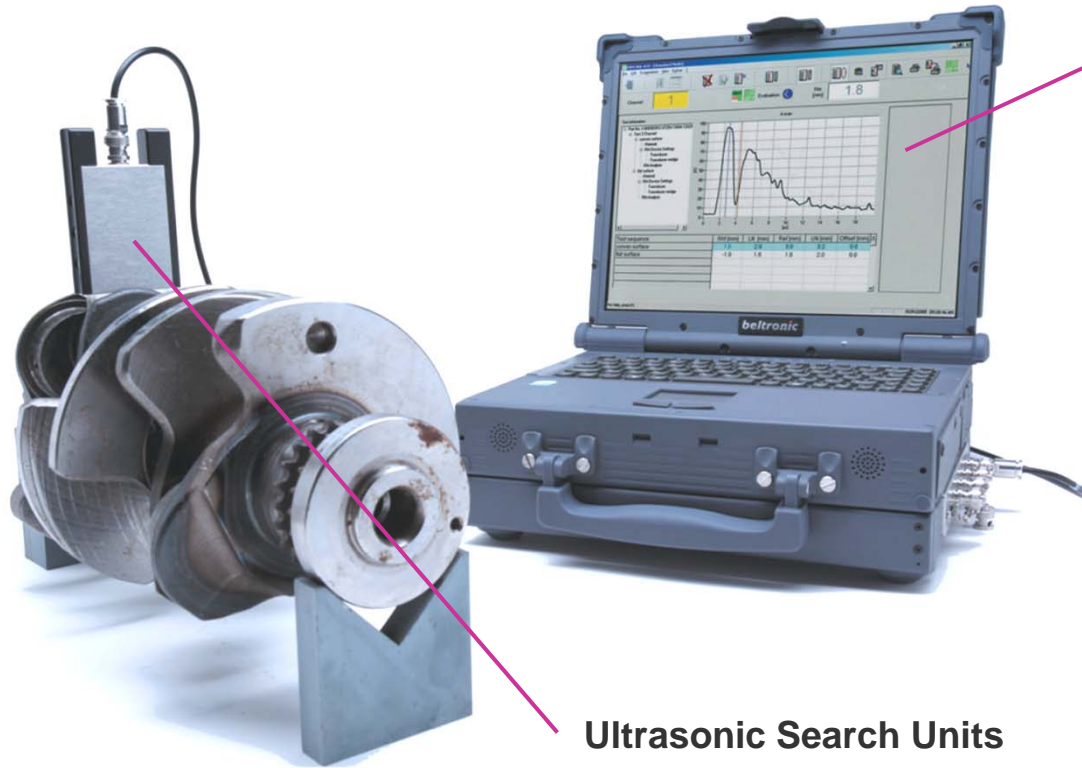
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## System Components



### Industry Laptop including:

- Ultrasonic electronics (analog and digital).
- PINT Rht software.
- Up to 4 probes can be connected.
- Windows 7, XP
- DVD writer.
- Standard connectors like USB, etc.

### Ultrasonic Search Units

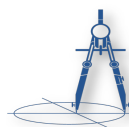
- Coupling wedge.
- Ultrasonic transducer
- RF transducer cable

### Optional

- Touch-screen
- Wireless LAN

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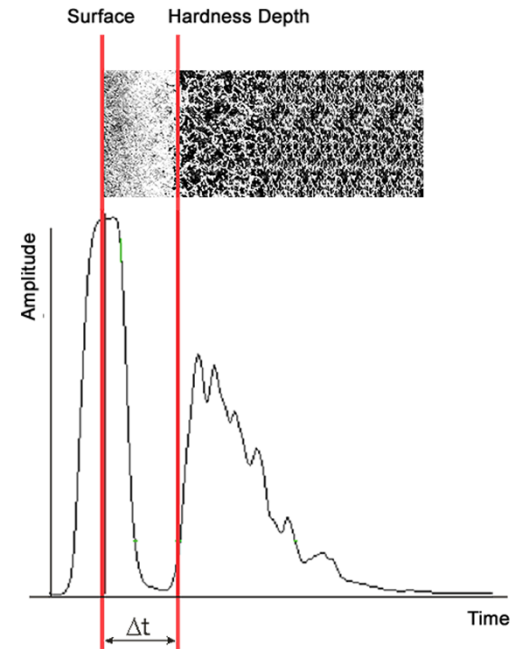
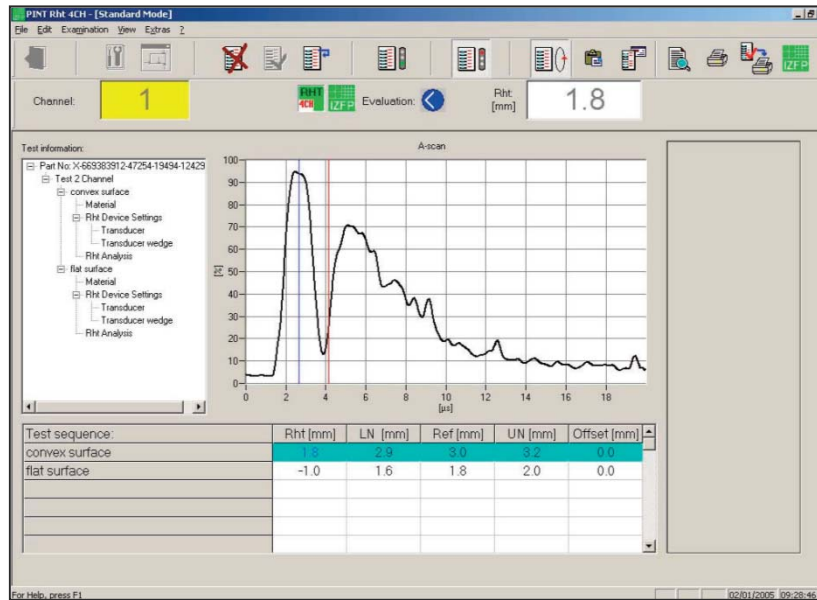
Hardness Depth Tester P3121



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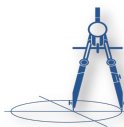
## PINT Rht Software



- Creation of master records and databases for components, probes, wedges, testing staff, testing settings, etc.
- Testing modes for routine-, reference-, individual-, series- and sample-testing.
- Data export.
- Online data visualization (A-Scans)
- Printing and transmitting of testing results

# QNET

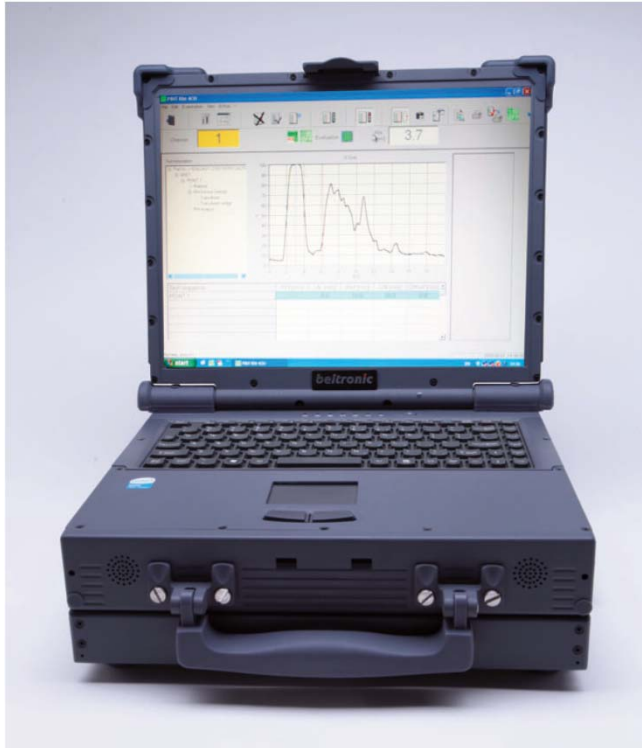
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## Industry Laptop and Hard Case

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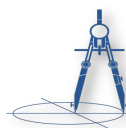
**Industry Laptop**  
(IP54, MIL-STD-810F certified)



**Hard case with foam interior**

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**Hardness Depth Tester P3121**



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## Coupling Wedges

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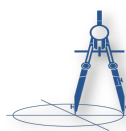
**Standard design:**  
Flat, convex, concave



**Custom design:**  
Double sensors with housing

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## Accessories

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**Probes:** 2 available models

20 MHz, diameters: 6 mm or 11 mm



**USB pedal**

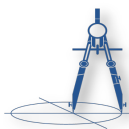


**RF transducer cable**



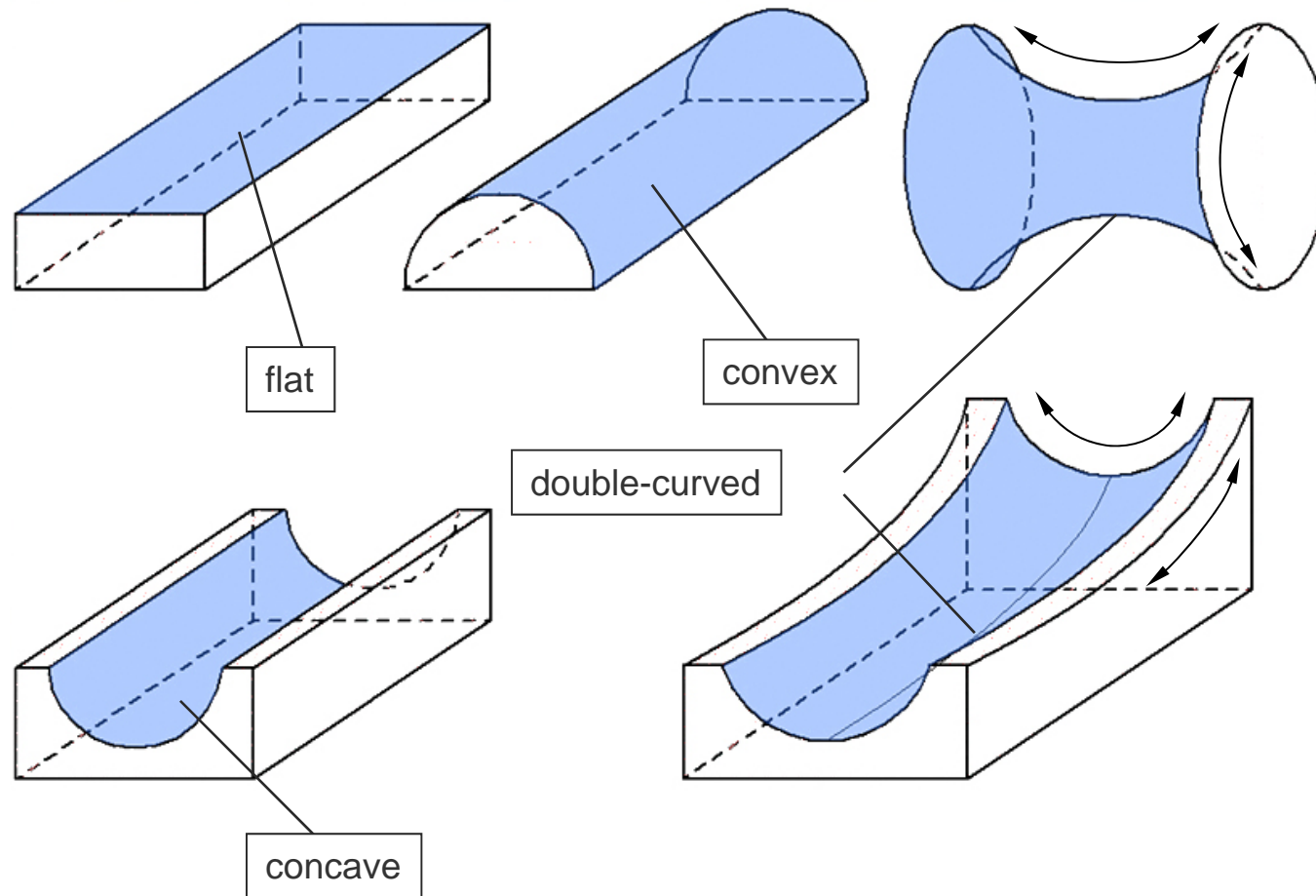
**QNET**

**Hardness Depth Tester P3121**



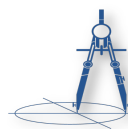
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## Typical Inspection Geometries



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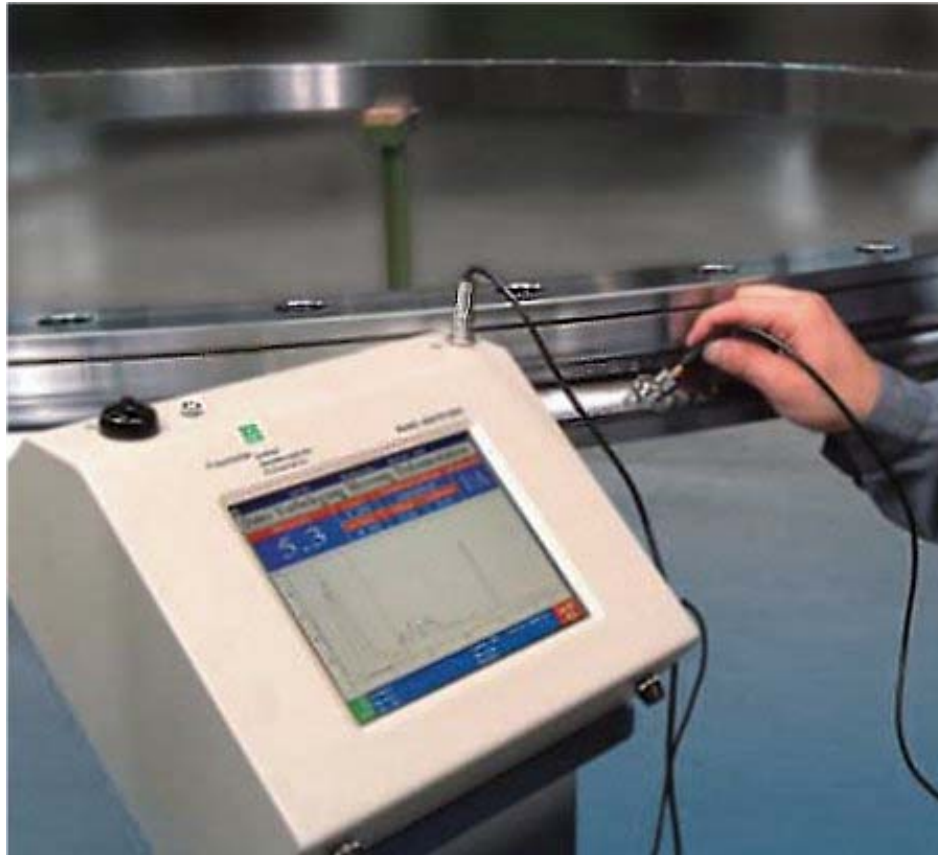
Hardness Depth Tester P3121



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## Usage Examples

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Hardness depth testing of heat-treated parts such as:

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

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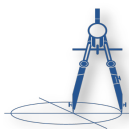
## Usage Example: Large-diameter Slewing Rings



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

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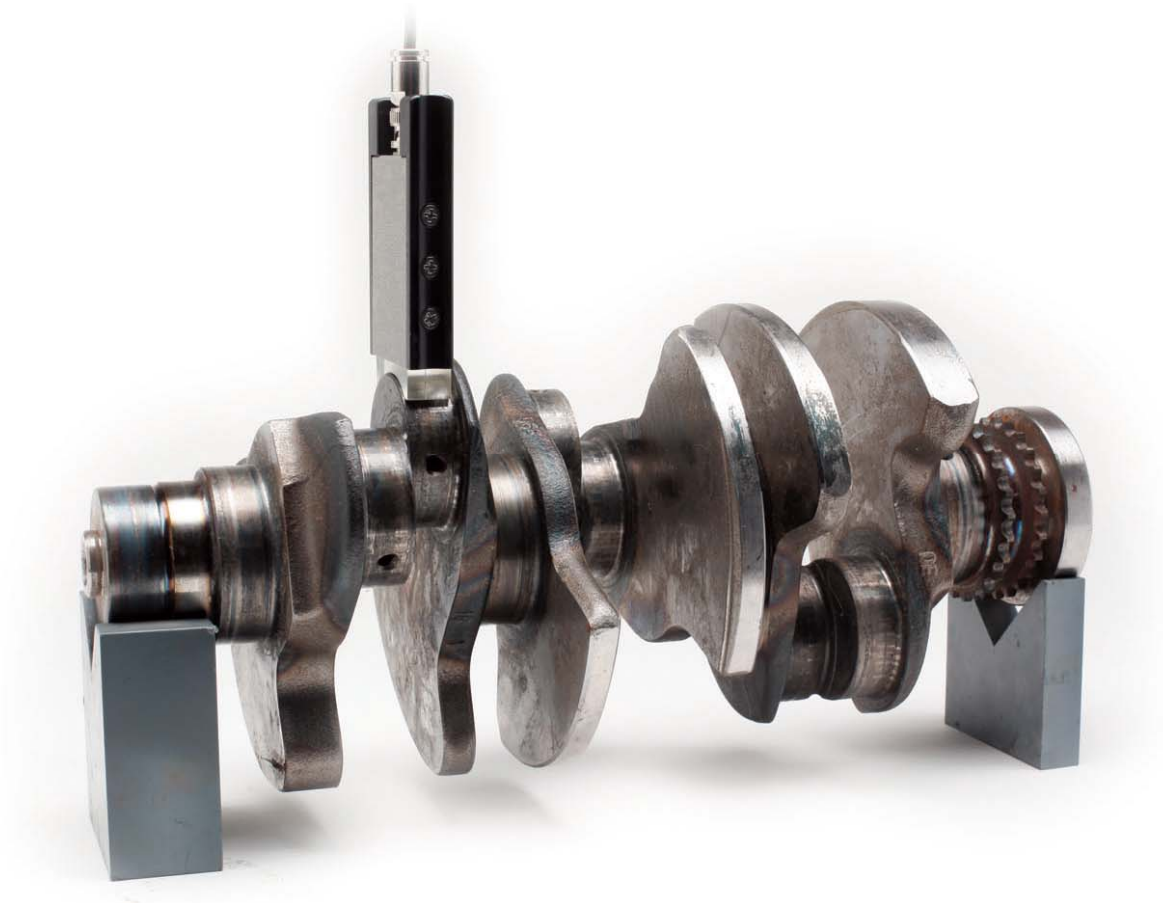
Hardness Depth Tester P3121



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## Testing Examples: Crankshafts

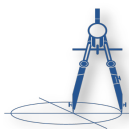
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Testing the **flange / pins, journals** und **fillet radii**.

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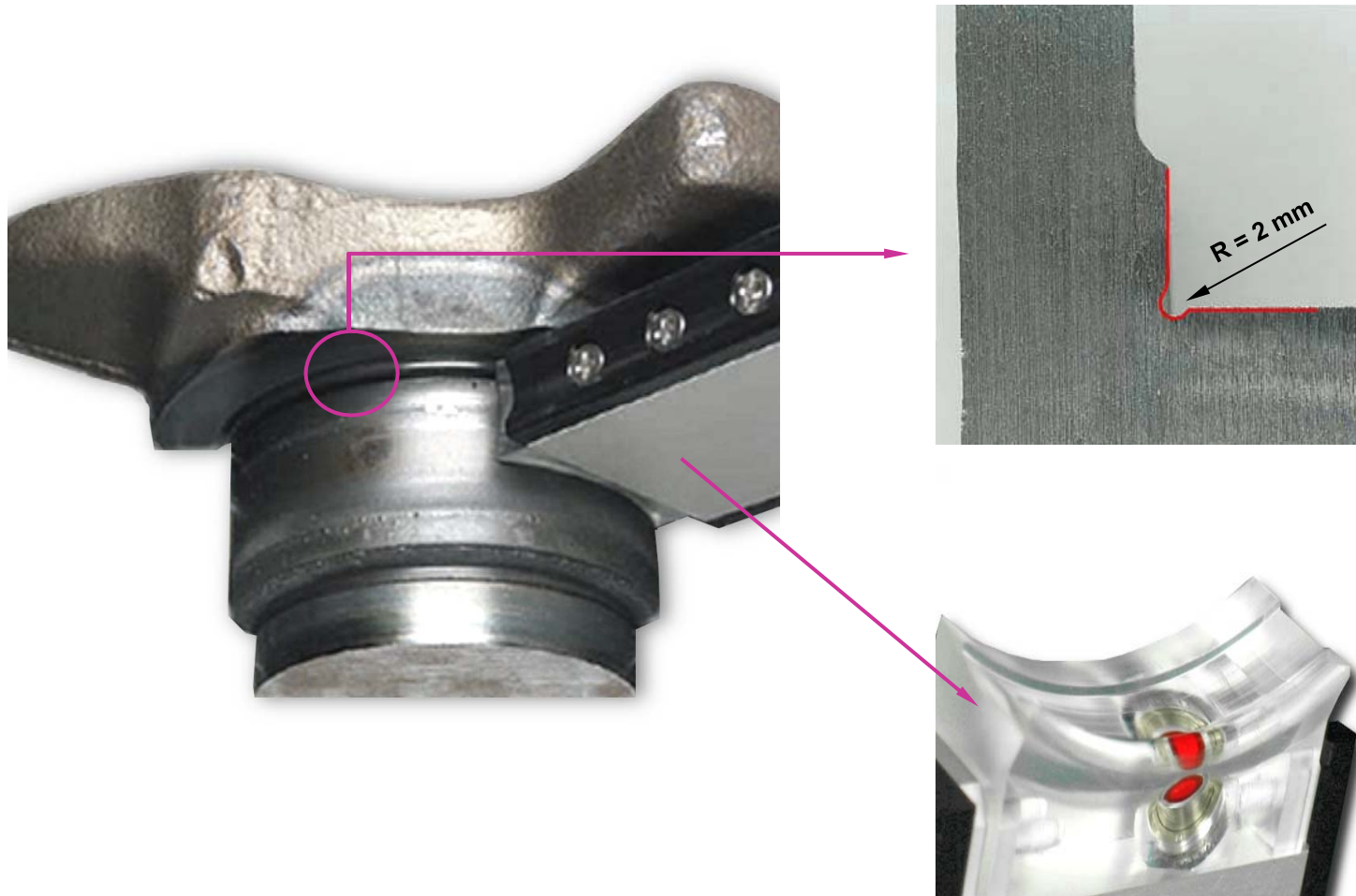
Hardness Depth Tester P3121



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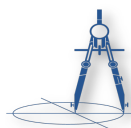


## Usage Examples: Testing of Fillet Radii



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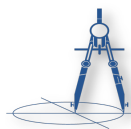
## Usage Examples: Testing of Tooth Systems



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

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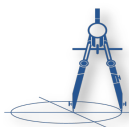
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## Usage Examples: Testing of Spindles and Threads



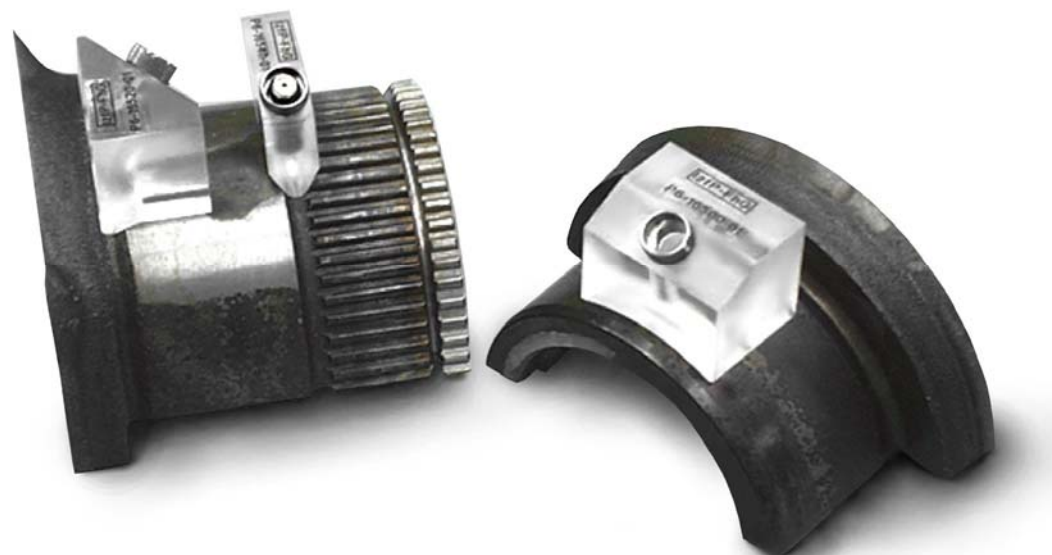
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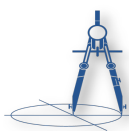
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## Usage Examples: Testing of Fillets and Bearing Surfaces



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## Usage Examples: Testing of Spline Shafts

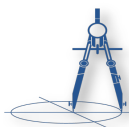


Width = 1.5 mm

Measurement on the top of splines

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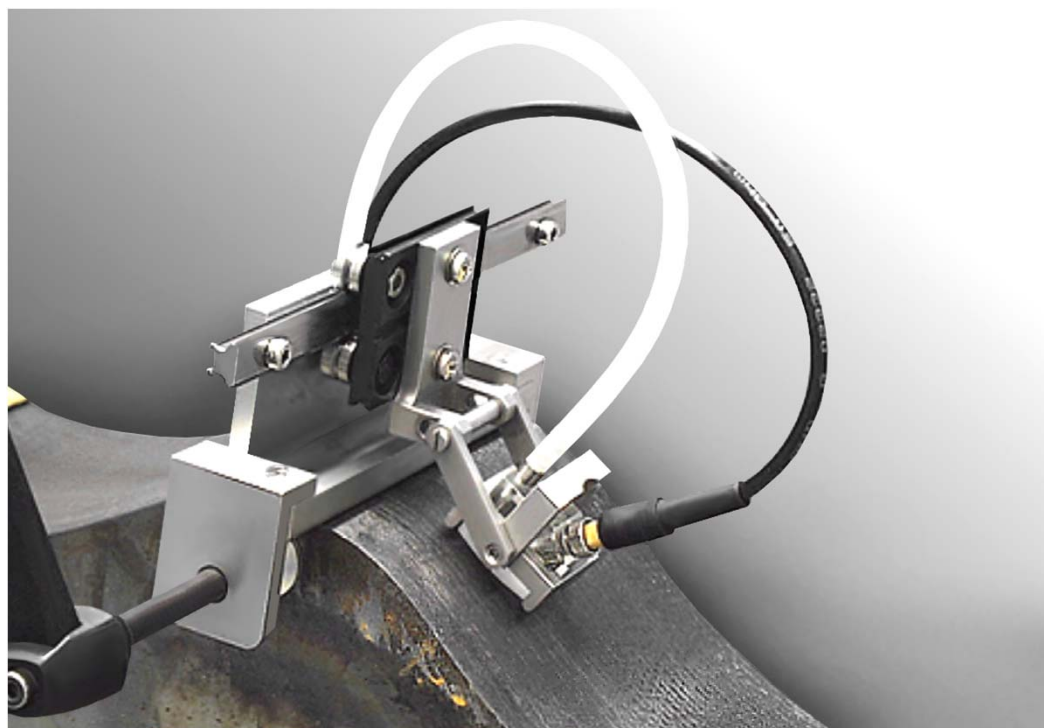
Hardness Depth Tester P3121



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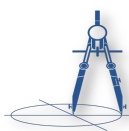
## Usage Examples: Sensor Manipulation



Sensor manipulation in case of testing **curved surfaces**.

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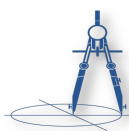
## Usage Examples: Wedge for Several Probes



**Wedge for 2 testing points**

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## Usage Examples: Handling Equipment



**Semi-automated testing of crankshafts**

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## Usage Examples: Handling Equipment



**Sensor units with housing**

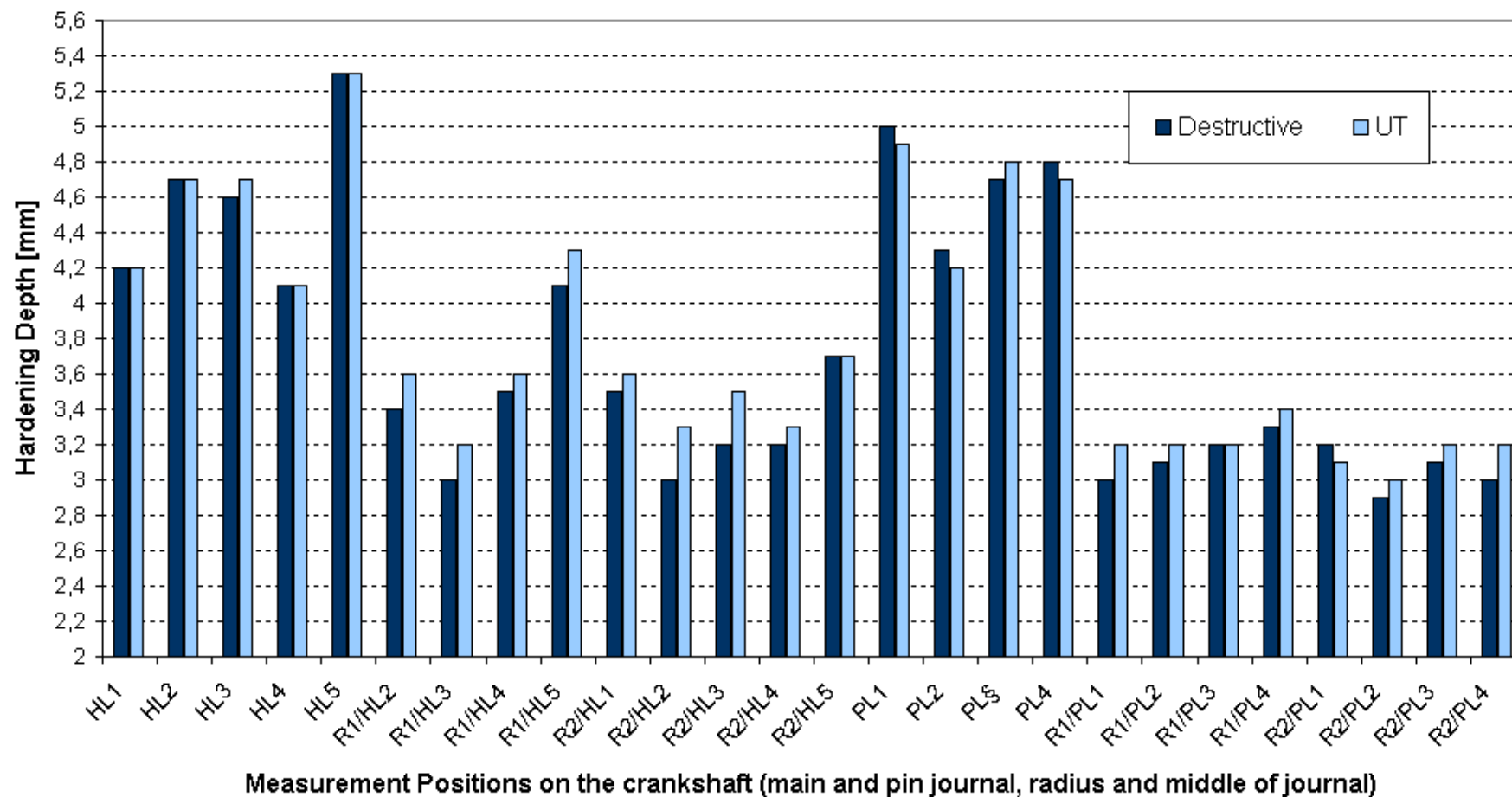
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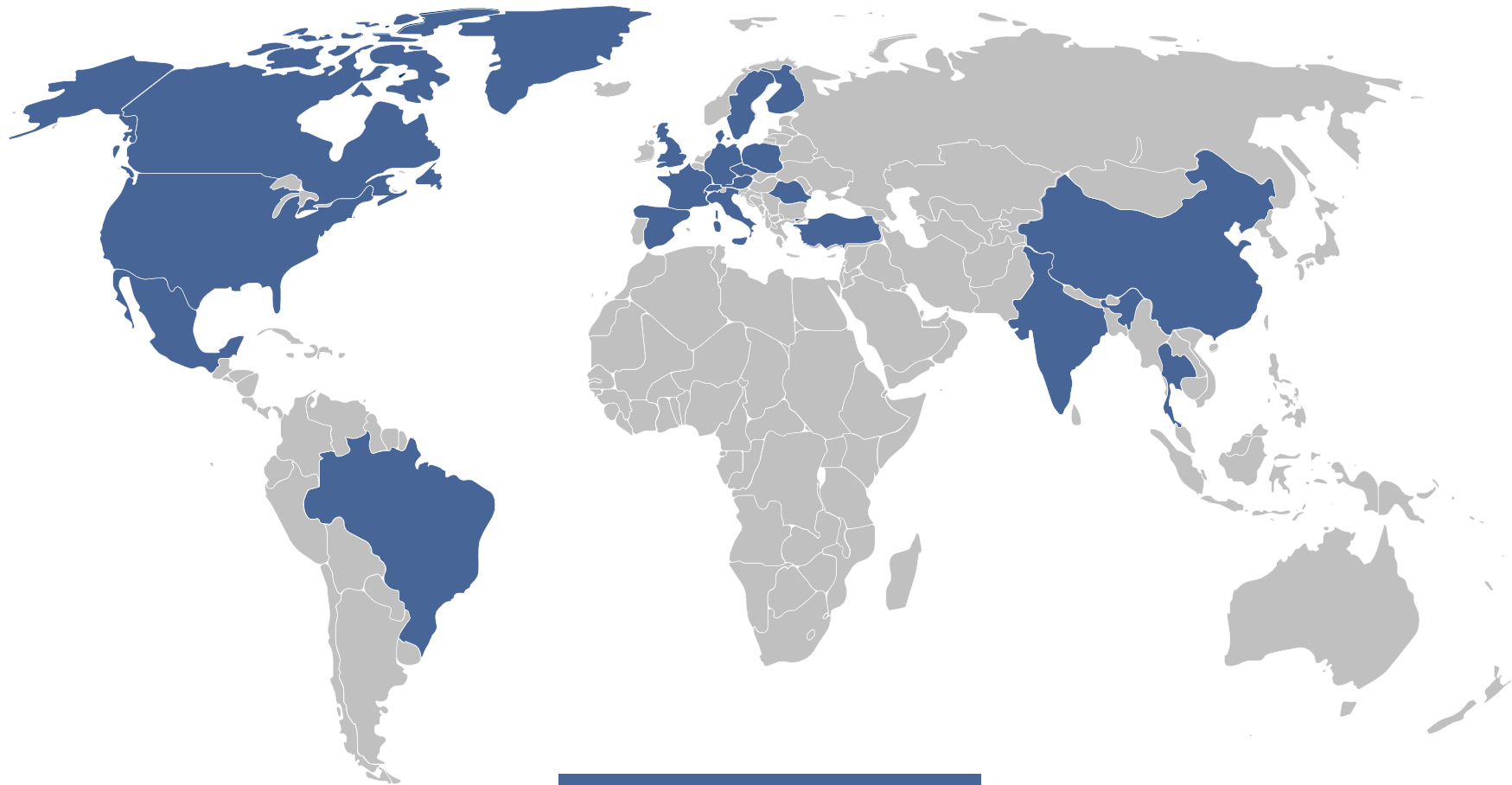
## Validation





## Worldwide Sales and Services

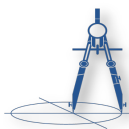
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Sales worldwide: 171

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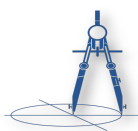
## References (extract)

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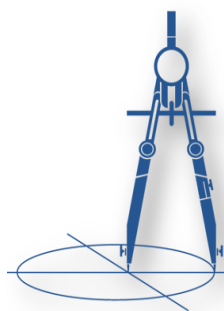
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## Contact

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# Many thanks!