RESONIKS

REVOLUTIONISING QUALITY CONTROL

Elevating metal NDT with sound & machine learning

Empowering factory managers to lead with confidence

With RESONIKS, you can expect to achieve up to 80% in cost-saving.

With training programs for NDT technicians typically ranging from one week to several months, RESONIKS experts have developed a patent-pending technology that empowers metalworking companies to increase efficiency and reduce the costs of manual quality inspections.

Our solution combines sound technology, artificial intelligence and statistics to analyse metal objects and detect anomalies such as cracks, inclusions, and pores with unmatched efficiency.
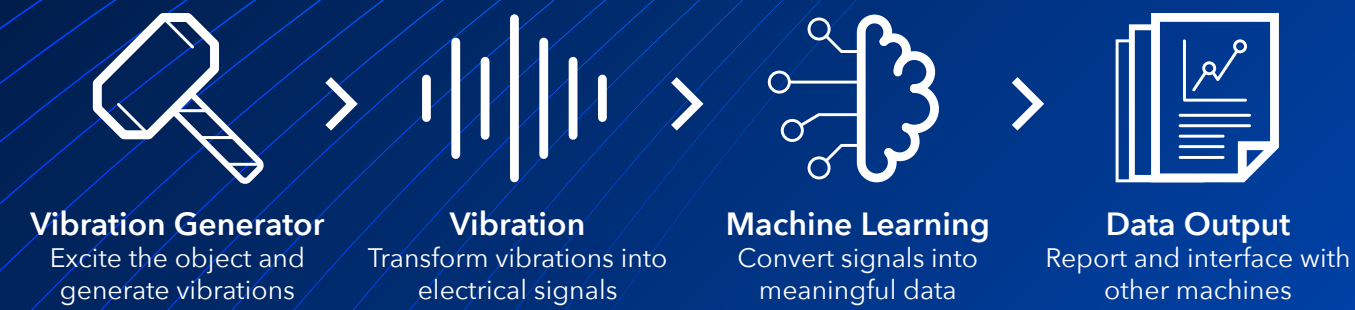
From our German origins to our dynamic expansion into Finland and the Netherlands, our growth is fuelled by a commitment to innovation, precision, and excellence.

Shaking up NDT: RESONIKS' fresh take on acoustic testing

RESONIKS uses an active acoustic method, where vibrations are induced into an object, and acoustic sensors capture the response.

Our integration of AI brings a ground-breaking twist to a traditional testing method. With our advanced technology, we can now gather and analyse distinct acoustic signatures, eliminating the need for highly skilled operators and complex testing equipment.

Our 4 step process

Vibration Generator
Excite the object and generate vibrations

Vibration
Transform vibrations into electrical signals

Machine Learning
Convert signals into meaningful data

Data Output
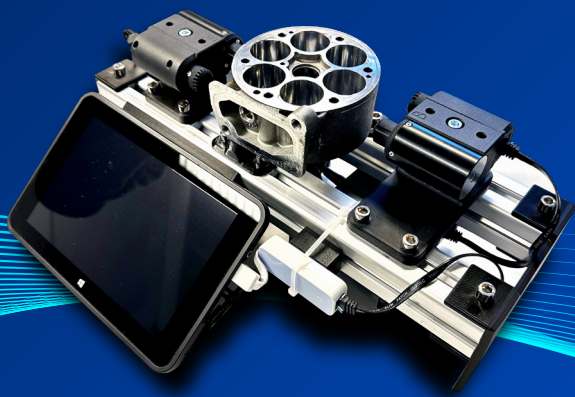Report and interface with other machines

From standalone to fully in-line integrated

RESONIKS offers a plug-and-play stand-alone system or a fully integrated in-line solution depending on the factory set-up, testing frequency and volume.

Plug & play
Standalone system

A stand-alone system is available for small to medium-volume production. Here, the operator manually places parts and uses an intuitive touchscreen for training and analysis. This setup serves as an excellent pilot within the factory environment before full in-line integration.

In-Line
Integrated system

RESONIKS provides a fully integrated and automated in-line system for high-volume production in fast-paced factory environments. With quick cycle times and maximum uptime, this system is designed to meet the demands of rigorous production schedules.
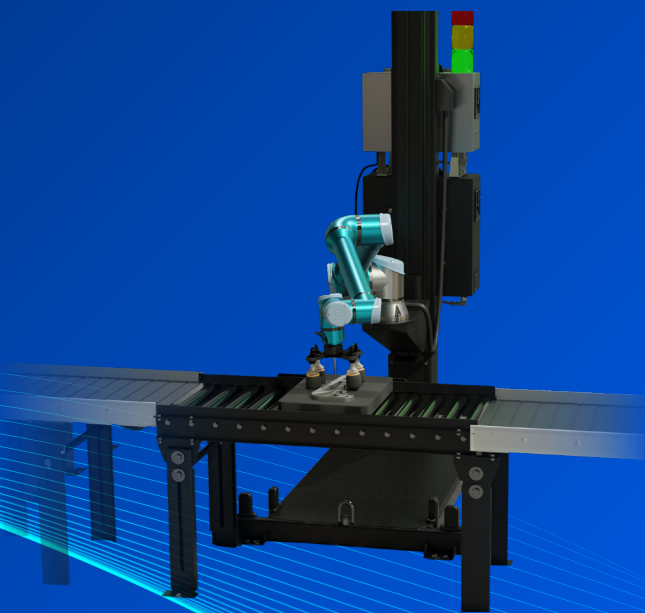
Benefits

- No integration is needed—plug in and power up
- Modular sensors can test parts of any size
- Operator does not require acoustic expertise
- Safety and privacy by design, both in hardware and software
- Mobile and ergonomic
- System can run fully offline and on-premises

Benefits

- Fully integrated and automated
- Modular sensors can test parts of any size
- No operator required
- Can communicate with companies' MES and ERP
- Standardised OPC UA and PLC protocols
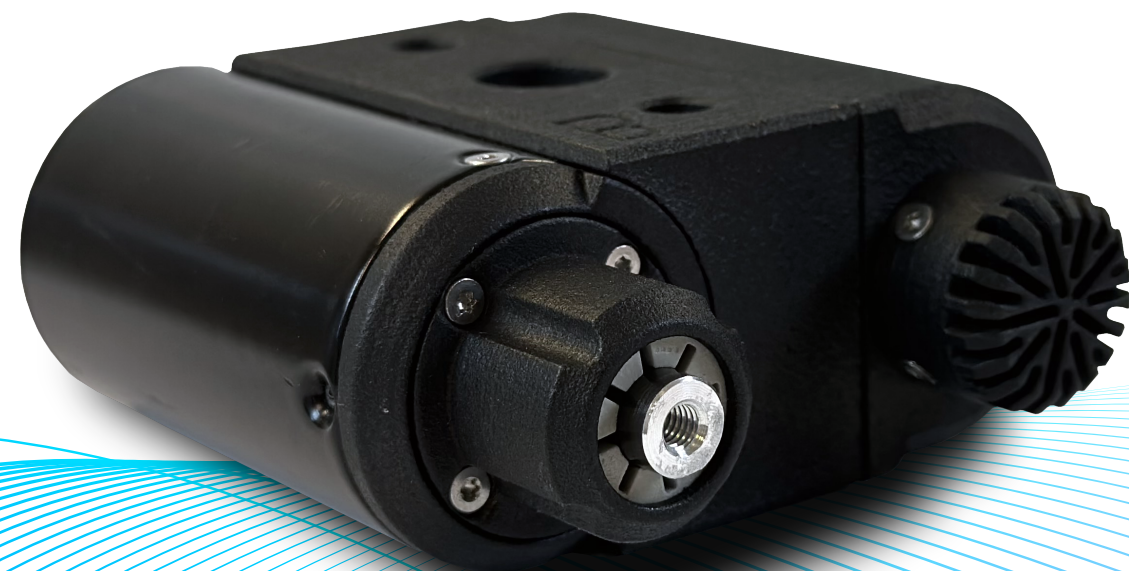- System can run fully offline and on-premises

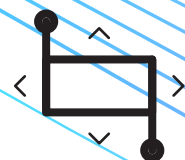# Precision Sensor
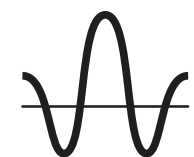
Frequency range:
100Hz-80kHz
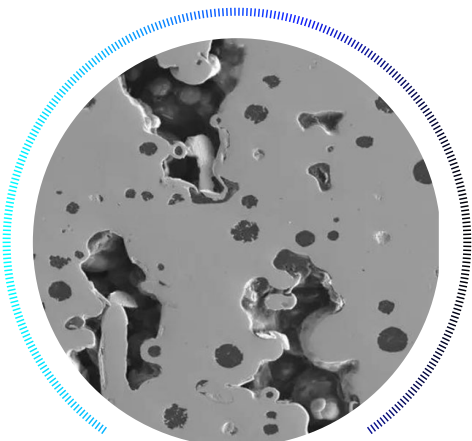
Weight:
364grams

Size:
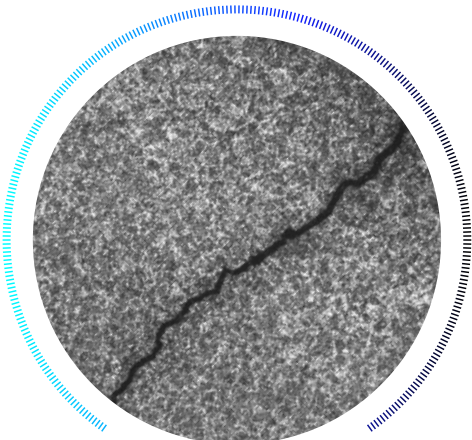78mm x 76mm
x 35mm

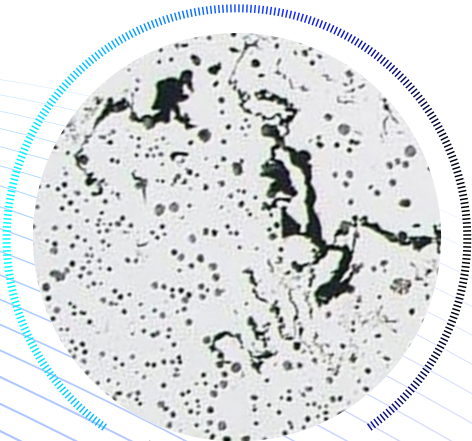**Power supply:**
PoE+

Connectivity:
Ethernet

Required part distance from actuator:
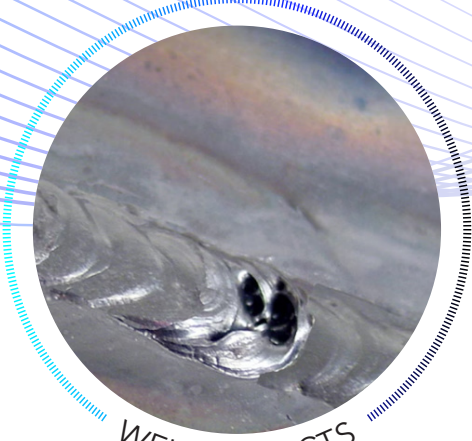11 – 19 mm
(Tolerance +/-4 mm)

POROSITY

CRACKS

INCLUSIONS

WELD DEFECTS

Intuitive software with an algorithm that keeps learning

Every part has a unique signature; even the smallest defects will change acoustic response.

The RESONIKS system is trained on a small number of reference parts considered good for understanding acceptable variations.

Based on this training, each tested part will be compared to the reference component. If the system detects an undesired change, the operator will be alerted, or the component will be rejected.

With RESONIKS' AI Algorithm at its core, quality testing becomes both efficient and effective. The software continually learns and adapts from each testing process, progressively improving quality outcomes with every interaction.

Enter your Serial Number ...

Start Recording
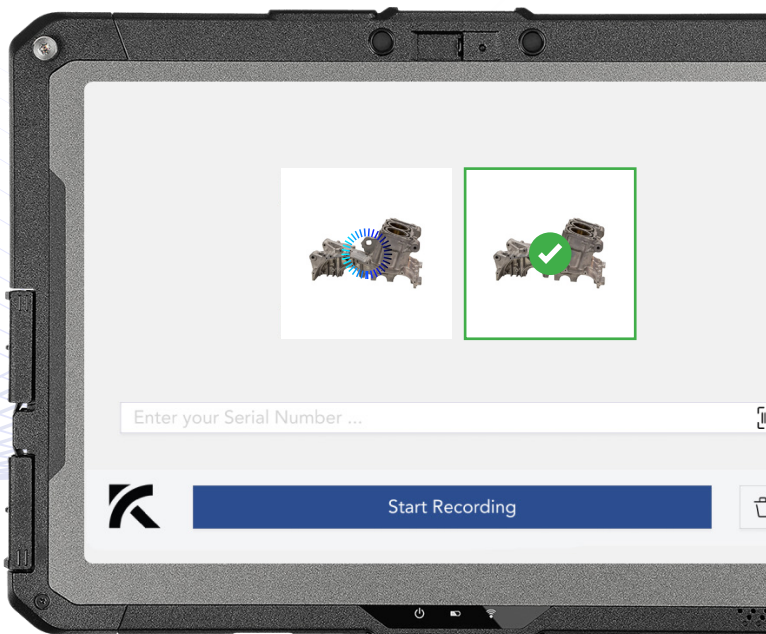
Real-world applications & results

RESONIKS offers comprehensive quality control solutions tailored to each industry's unique requirements. Whether it's en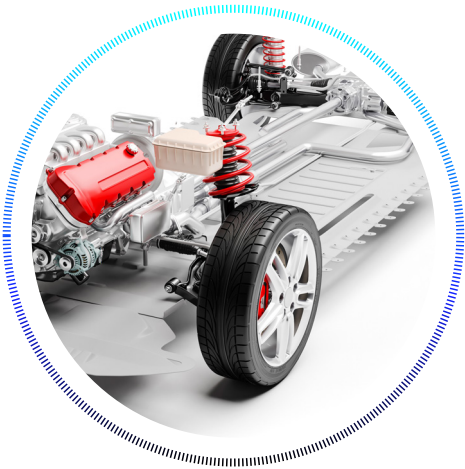suring the structural integrity of aircraft components, enhancing the safety of automotive parts, or optimizing manufacturing processes, we guarantee excellence and reliability.

Here are some of the many applications and results.

Automotive

Proven success in identifying critical voids and process mistakes within powertrain, chassis and suspension.

Aerospace

Ability to test components such as turbine blades, where 100% quality is required to reduce the risk of catastrophic failures.

Machine Build

Demonstrated effectiveness in testing laser welded parts to detect tiny pores and prevent air leakages.

Maritime

RESONIKS' technology is used to test the integrity of forged maritime engine parts.

A superior solution to subjective human visual or non-destructive testing

RESONIKS offers an easy to use solution that provides a quick 'pass or fail' response, removing the need for highly skilled labour or AI expertise. Our system can be customised to work with a variety of parts, complex geometries and even thick components where methods such as X-ray fail.

Our software can also be quickly recalibrated if a part design changes, ensuring your production becomes more agile.

	RESONIKS (Resonant Acoustic Testing)	Radiography (X-ray & CT Scan)	Ultrasonic testing	Chemical processing (Magnetic Particle & Dye Penetrant)	Machine & visual inspection
Below the surface testing	Yes	Yes	Yes	No	No
Skilled Operator Required	No	Yes	Yes	Yes	No
Fast testing	Yes	Yes	No	No	Yes
Integration effort & cost	Low	Very high	High	High	High

We can detect <u>any</u> structural defect

Our technology can detect defects such as cracks, voids, bonding issues, inclusions, corrosion, welding problems, stress/fatigue-related issues and more. Unlike other technologies, RESONIKS can identify all anomalies below the surface, providing more information and a comprehensive assessment of a materials' integrity.

Process	Typical defects
Forging	Cracks | Hardness | Heat treatment | Raw material contaminants | Missed processes/Operations | Inclusions | Quenching problems | Laps
Casting	Cracks | Density | Wall thickness | Heat treatment | Missed processes and operations | Nodularity | Inclusions | Misalignment | Wrinkles/laps | Gross dimensions | Raw material Contaminants | Residual stress
Welding/ Brazing	Weld/braze quality | Cold weld | Non-uniform weld | Voids | Missed processes/operations | Double brazed | Incorrect braze quality | Inclusions | Misalignment | Gross dimensions | Raw material | Contaminants
Other	Cracks | Missed processes/operations | Missing material | Heat tread | Voids | Density | Contaminants

Be part of the future
Adopt RESONIKS & lead the industry

As the manufacturing landscape evolves, staying ahead means embracing innovative solutions that enhance quality control and redefine it.

RESONIKS invites you to be part of this acoustic revolution - a journey towards zero-defect manufacturing powered by the precision of acoustic analysis and the intelligence of AI.

Start with a feasibility study

At RESONIKS, we're dedicated to empowering your success. That's why we offer a comprehensive feasibility study to kickstart your journey with us.

To begin, we'll need a number of parts from you. Our team will then meticulously test these parts to distinguish between the good and the bad, showcasing the anomalies we can detect using our advanced technology.

At the end of the study, you'll receive a detailed report outlining a tailored roadmap for integrating RESONIKS into your production lines. This personalized roadmap will ensure a seamless transition and immediate improvements in quality and efficiency.

Enquire now at:
contact@resoniks.com

Extremely fast, objective & 100% testing of the parts produced.

Join the revolution & lead the way in your industry.

OUR PARTNERS

YES! DELFT

eit Manufacturing

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RESONIKS

NETHERLANDS	FINLAND
The Hague	Tampere
+31 85 064 4433	+358 75 3255884

www.resoniks.com