Non-contact Air-coupled Ultrasonic Testing system

**NAUT21 Series**

5 models that is possible for all other purposes! NAUT21 will enable you to realize the inspection, measurement, and analysis of materials

## Model Introduction
1. **NAUT21 (Standard Type)**:
   - For the inspection, measurement, evaluation & analysis by scanning to move air probe horizontally
2. **NAUT21-V (Vertical Type)**:
   - For the inspection, measurement, evaluation & analysis by scanning to move air probe vertically
   - (Display upright LiB, bottles and cans by C-scope)
3. **NAUT21-R (Rotating Type)**:
   - For the inspection, measurement, evaluation & analysis by scanning to rotate pipe, tube or cylinder
   - (We can also customize the robotic cylinder testing system development)
4. **NAUT21-M (Multi-type for product line)**:
   - For the inspection, measurement, evaluation & analysis in real time by scanning to move air probe at high speed
   - (It’s becoming increasingly used in many different fields like the inspection of LiB and brake pads)
5. **NAUT21-I (New Model Coupled with Air and Immersion for the material evaluation and analysis)**
   - For the inspection, measurement, evaluation & analysis by both air-coupled and immersed method
   - (Visualizing the inside of materials by flatbed image by air-coupled ultrasonic system or visualize the depth information including the flatbed image in three dimensions by immersed method)

## Air Probe

There’re 3 types with its intended use.

- High quality & high performance air probe by a result of years of study and manufacturing
NAUT21 enables you to realize the inspection, measurement, evaluation, and analysis. It enables you to detect materials without destroying or wetting them in any couplant. It enables you to detect cracks irrespective of staining or transparency. It also does not affect lighting.

NAUT21 was developed by JAPAN PROBE to enable the inspection, measurement, evaluation, and analysis by air-coupled ultrasonic methods using only one air probe one side of material.

Structure of NAUT
- Non-contact Air-coupled Ultrasonic Testing system [NAUT]

For developing the ultrasonic testing system, realizing the inspection, measurement, evaluation, and analysis by air-coupled methods, JAPAN PROBE developed NAUT21 (Non-contact Air-coupled Ultrasonic Testing system 21) realized the inspection, measurement, evaluation, and analysis by air-coupled through the analysis algorithm based on years of extensive experience, technique, and know-how about the ultrasonic probe and a lot of inspection data.

1. Transmission Method:
Typical method detecting the inside of material by air-coupled
Inspecting and measuring the inside of material by setting two air probes above and below material

2. V Transmission Method:
Typical method inspecting and measuring the inside of material or surface condition by setting two probes on only one side of material

3. Reflection Method:
Typical method inspecting and measuring by using only one air probe one side of material

NAUT21 has been used successfully for the inspection, measurement, evaluation and analysis of materials in many different fields since NAUT21’s sale. Here are just some of the typical examples.

**Inspection/Measurement/Evaluation/Analysis**

1. High-tech Material (CFRP)
   - Impact Peeling
   - Peeling
   - Peeling (Blue)

2. GFRP (Glass Fiber Reinforced Plastic)
   - Hole (Red)
   - Peeling

3. LiB
   - Optical image on the left & image by NAUT21 on the right
   - Optical image on the left & image by NAUT21 on the right
   - X-ray image on the left & image by NAUT21 on the right

4. Friction Material (Brake)
   - Brake pad image of fair quality on the left & fault goods on the lower side by NAUT21

5. Solar Panel
   - Optical image on the left & image by NAUT21 on the right

6. Various Materials (Films, Tires, etc.)
   - Optical image on the left & image by NAUT21 on the right

7. 3D Image for LiB Inspection Result
   - Image after impact test
   - Image after lighting test
   - Image after tensile test
   - LiB (Lamination Type)
   - LiB (Square Type)
   - LiB (Lamination Type)

Use: Material characteristic evaluation, analysis, crack & foreign substance detection, etc.