

# Dolphicam 2- UT Camera



DOLPHICAM2 is a revolutionary platform for ultrasound NDT. The system supports a wide range of high-resolution imaging transducers for multi-material inspections.

The unique transducer technology and high-performance design creates high-resolution ultrasound images of suspected damage areas. It helps manufacturing- and service personnel to perform effective and reliable NDT to verify the status of the material.

The impressive performance of the system produces real-time live images. This gives an improved user experience and high Probability of Detection. Live streaming of full matrix datasets opens for advanced post-processing and Total Focusing, reducing minimum defect detectability to 1/10 mm.

Through our FTD (Flexible Transducer Development) process, we customize transducers based on specific customer materials and other requirements.

New transducers, in combination with optimized signal processing, ultrasound techniques and modified user interfaces can be delivered in weeks.

The DOLPHICAM2 can be ordered as a turnkey system with a Panasonic Toughpad Windows tablet. The system supports 1 or 2 simultaneous transducers, 1-2 encoders, Ethernet, GPIO, Wi-Fi and Bluetooth. An open and well documented API together with open file formats enable 3rd parties to control the Dolphicam2 and access live images and datasets for further analysis.

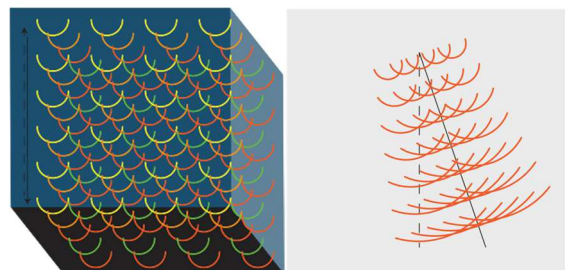
## Theory

Dolphitech Matrix transducers have transducer elements in a 2-dimensional array. Since the transducer directly covers the area of inspection, no encoder

system is needed to calculate the position of each element. Minimising the risk of positional errors due to faults or imprecision in the encoder system.

Phased array transducers contain a number of individual transducers that can be pulsed individually to steer and focus the sound beam in a specific direction. Linear arrays are usually used in combination with an encoder system matching the signal with positional information to build a 2-dimensional image.

Substantial improvements in resolution are to be expected from a Dolphicam Ultrasound camera system compared to an Olympus MX phased array system.



## Couplings

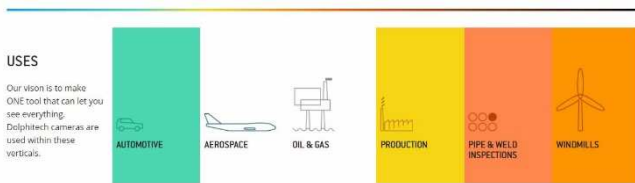
Dry polymer couplings allow the Dolphicam2 to become multi-material, matching frequencies and acoustic properties giving the user a myriad of options when approaching an application.



Coupling Name	Acoustic Velocity (m/s)	Attenuation @5MHz (dB/mm)	Hardness (Shore A)	Material	Acoustic Impedance (Mrayl)
DT Silicone1	1009	0.91	10	Silicon Base	1.14
Rexolite	2304	0.33	Hard/Solid	Plastic Base	2.5
ACE 400	1600	0.5	40	Thermoplastic	1.49
Aqualene 300	1578	0.35	58	Thermoset	1.57
Aqualene 320	1569	0.15	35	Thermoset	1.55
AquaSilo x100	1001	0.8	23	Silicon based	0.91
Aqualink 100	1484	0.4	5	Thermoplastic	1.63

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## Applications



The Dolphicam can be used to detect flaws in:

- Metals
- GFRP (Glass fibre reinforced polymer)
- CFRP (Carbon fibre reinforced polymer)
- GLARE (Glass laminate aluminium reinforced epoxy)
- Multimaterials – Inspection depth up to 60mm

## Configurable

The Dolphicam2 Software has a user-friendly dashboard with highly customizable and configurable settings

- Unit, material depth, number of Amp Gates, number of ToF
- Gates, Material Sound Speed, Transmitting Elements, Analog
- Gain, Number of Averages, Transmitting Pulse Shape, Time
- Corrected Gain, Time of Flight Palette, Amplitude/B-scan
- Custom Palette



## Specifications

<b>Image Quality</b>	<ul style="list-style-type: none"> <li>• High resolution images</li> <li>• 20-100 frames per sec</li> </ul>
<b>Image Types</b>	<ul style="list-style-type: none"> <li>• A-, B-, and C-scans</li> <li>• Amplitude &amp; Time of flight</li> </ul>
<b>Transducer Electrodes</b>	<ul style="list-style-type: none"> <li>• 16,384 transducer elements</li> <li>• 128 x 128 arrangement</li> </ul>
<b>Transducers Frequencies</b>	<ul style="list-style-type: none"> <li>• 0.5 – 15 MHz transducers (2.5, 3.5, 7.0, 9.0, 11.5 MHz readily available)</li> <li>• Supports up to transducers connection at one time</li> </ul>
<b>Large area scanning</b>	<ul style="list-style-type: none"> <li>• Large area stitching</li> <li>• 2 encoder ports</li> </ul>
<b>Environmental Rating</b>	<ul style="list-style-type: none"> <li>• IP 66 protection</li> </ul>
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• GPIO ports</li> <li>• Ethernet</li> <li>• Optional Wi-Fi, Bluetooth</li> <li>• Real-time dataset streaming</li> <li>• Open API for integrators</li> </ul>
<b>Transducer Dims</b>	40 x 40x 84mm
<b>Transducer Weight</b>	280g

## About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.