

INDUSTRIAL



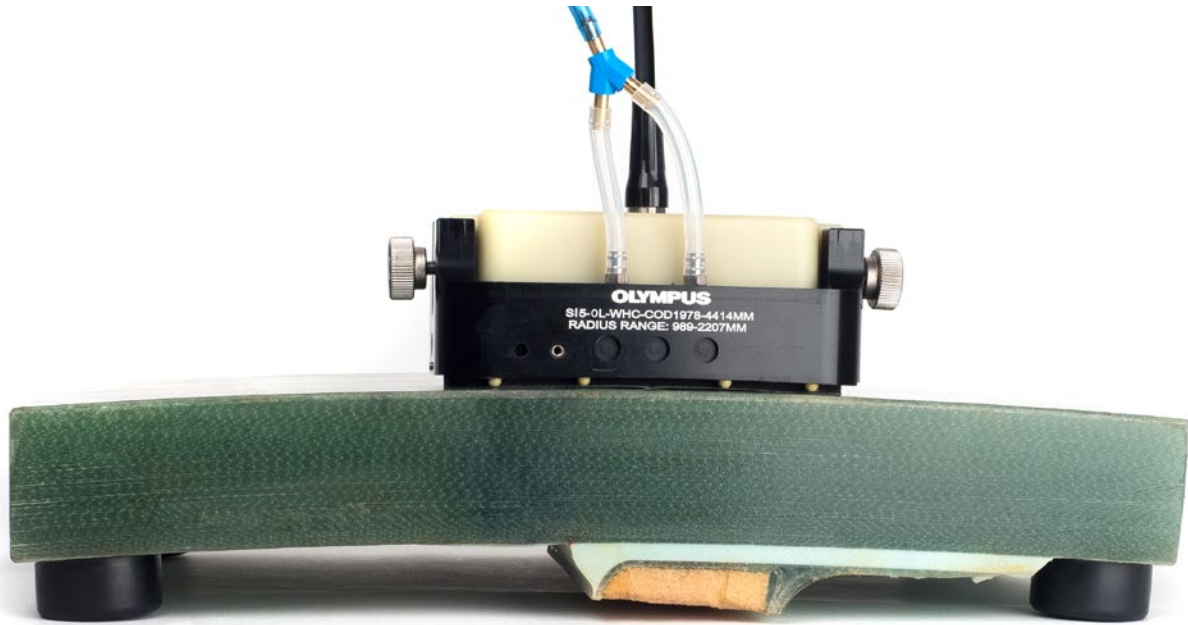
Wind Blade Inspection Solution

Inspect Spar Caps and Shear Web Bonding with
Phased Array Probes

EVIDENT

Solving the Challenges of Wind Blade Inspection

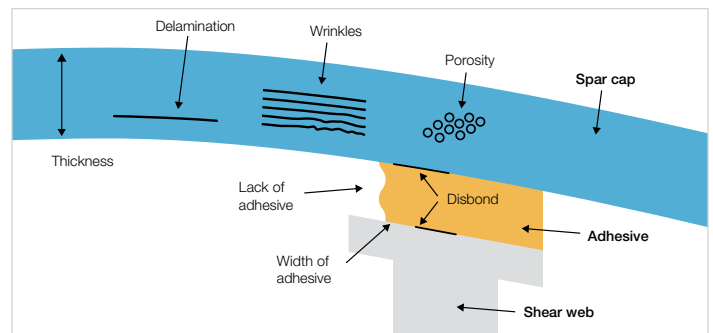
Our wind blade solution enables users to inspect blade spar caps and shear web bonding made with thick, attenuative materials, such as carbon fiber reinforced plastic (CFRP) and glass fiber reinforced plastic (GFRP). With wider coverage than conventional ultrasonic testing (UT), this phased array probe solution makes these challenging inspections easier with improved scan speed, increased data point density, reliability, and comprehensive imaging.



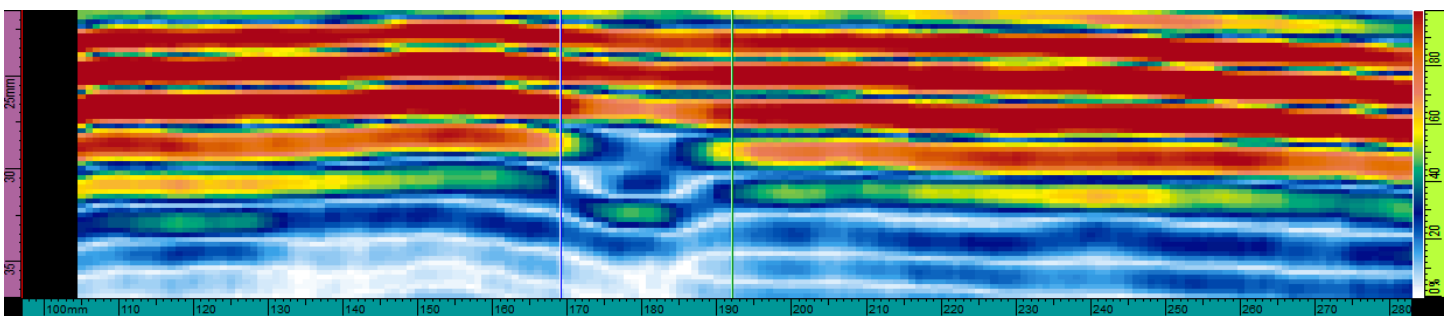
Cross-section view of the phased array wind blade inspection solution over a spar cap bonded to shear web

Spar Cap Inspection

Monitoring the integrity of spar cap material is important for manufacturers. As soon as a flaw is detected, they need to quickly adjust production parameters to help ensure the quality of the glass or carbon fiber materials. Delamination, wrinkles, porosity, and disbonds generate indications that can easily be detected, sized, and displayed using intuitive imaging views on an OmniScan phased array flaw detector.



Typical defect types detected by phased array ultrasound

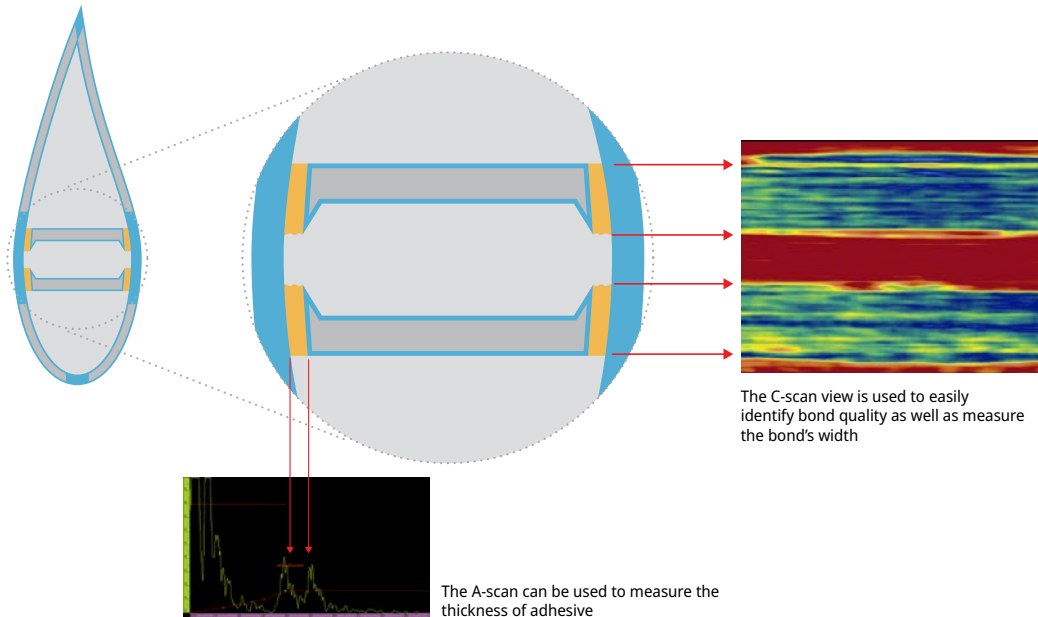


An S-scan showing the presence of wrinkles in a GFRP spar cap

Fast and Reliable

Shear Web Bonding Inspection

Inspection of shear web bonding is critical for the long-term reliability of the blade. This phased array probe solution can travel along or across the blade using the Mini-Wheel™ encoder for manual one-line encoded scans or the GLIDER™ scanner for two-axis, semiautomated encoded scans. The resulting C-scan images show the inspected area mapped with color-coded signal amplitude. At bonded zones, if the bond is good, the ultrasound travels through the adhesive and disperses into the shear web, resulting in no or a weak echo at the bonded interface (represented in blue or yellow on the C-scan). This intuitive imaging is used to easily identify the bond's quality and measure its width. In some applications, the corresponding A-scan can be used to measure the thickness of the adhesive.



High-Performance Acquisition from Manual to Fully Automated

For wind blade inspection in service or on the production line, our manual and semiautomated systems use the advanced and powerful OmniScan™ X3 flaw detector to achieve the data acquisition performance you require. Our fully automated inspection solution leverages the high-resolution phased array (PA) data acquisition capacity of our FOCUS PX unit mounted on an autonomous guided vehicle (AGV) to quickly and reliably validate the bonding along the cord and trailing edge of the entire wind blade.



Phased array probe and water wedge mounted on the cobot arm of an AGV, also equipped with a FOCUS PX data acquisition unit (not showing)



Ordering Information

Item number	Part number	Description	Application recommendation
Probes			
Q3300971	0.5L64-96X22-I5-P-5-OM	0.5 MHz I5 type linear phased array probe, 64 elements, 96 × 22 mm total active aperture, 1.50 mm pitch, 22 mm elevation, 5 m long cable.	Greater penetration in very attenuative and/or thick materials.
Q3300970	1L64-96X22-I5-P-5-OM	1 MHz I5 type linear phased array probe, 64 elements, 96 × 22 mm total active aperture, 1.50 mm pitch, 22 mm elevation, 5 m long cable.	General purpose, better resolution.
U8415001	M2008	Conventional ultrasonic probe. 0.5 MHz, 1 in. diameter element, BNC.	Fast screening inspection.
Probe holders			
Q7201106	SI5-0L-WHC	Flat semicontact probe holder for I5 PA probe.	To scan across the length of the blade. General purpose; required on parts thicker than 40 mm.
Q7201114	SI5-0L-WHC-COD1978-4414MM	Curved semicontact probe holder for I5 PA probe.	To scan along the length of the blade. Required on parts thicker than 40 mm.
Q7201108	SI5-0L-AQ25	Flat Aqualene delay line probe holder for I5 PA probe.	To scan across the length of the blade. For increased near-surface resolution on parts up to 40 mm thick.
Q7201107	SI5-0L-AQ25-COD1978-4414MM	Curved Aqualene delay line probe holder for I5 PA probe.	To scan along the length of the blade. For increased near-surface resolution on parts up to 40 mm thick.
Q7201944	SM2008-0L-SC	Semiconduct holder for the M2008 ultrasonic probe.	Fast screening of parts thicker than 40 mm.
Q7201945	SM2008-0L-AQ25	Holder with an Aqualene delay line for the M2008 ultrasonic probe.	Fast screening of parts up to 40 mm thick.
Encoding systems			
U8775296	ENC1-5-LM	Mini-Wheel encoder, 5 m long cable with LEMO® connector.	Manual encoded inspection.
Q7750157	Y-PA-65x64-5Deg	Yoke to mount an SI5 probe holder to a GLIDER scanner.	Semiautomated encoded inspection with the GLIDER scanner.
Q7500034	Glider-72x24	Two-axis encoded scanner with manually activated vacuum cups. 72-in. stroke on the fixed axis (X) and 24-in. stroke on the mobile axis (Y).	Semiautomated encoded inspection with the GLIDER scanner.
Q7500041	Glider-A-Venturi	A pair of optional venturi-activated suction cups for the GLIDER scanner.	Enables the GLIDER scanner to be used on rough surfaces, upside down position, or other demanding applications.
Couplant feeding units			
U8775001	WTR-Sprayer-8L	Manual water pump; 8 L.	Manual inspection (no electricity needed).
U8780008	CFU03	Electric water pump.	Semiautomated inspection (electricity needed).

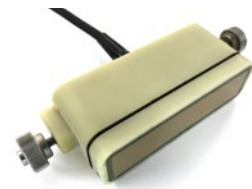
Phased Array Probe and Holders



SI5-0L-AQ25-COD1978-4414MM holder model



SI5-0L-WHC-COD1978-4414MM holder model



I5 phased array probe

UT Probe and Holders



SM2008-0L-AQ25

M2008 0.5 MHz probe

SM2008-0L-SC

For conventional ultrasonic testing (UT) applications, holders are available that enable the M2008 probe to be used with the GLIDER™ scanner or the Mini-Wheel™ encoder.



Evident Scientific, Inc.
48 Woerd Avenue
Waltham, MA 02453, USA
(1) 781-419-3900

Evident Canada Inc.
3415 Rue Pierre-Arduin,
Québec, QC G1P 0B3, Canada
+1-418-872-1155

EVIDENT CORPORATION is certified to ISO 9001, ISO 14001, and OHSAS 18001.

*All specifications are subject to change without notice.
All brands are trademarks or registered trademarks of their respective owners and third party entities.
GLIDER, Mini-Wheel, and OmniScan are trademarks of Evident Corporation or its subsidiaries.
LEMO is a registered trademark of LEMO SA.
Copyright © 2023 by Evident.

