



Bond Scanner

The fastest, easiest, most accurate solution for the inspection of adhesively bonded joints

Innovation starts here.

 **Waygate Technologies**
a Baker Hughes business

In modern car designs, bond lines can total hundreds of meters or yards. As adhesives continue to grow in importance in the automotive and other industries, manufacturers and operators recognize that adhesive applications aren't always reliable and require specific inspection.

Knowing if your parts are adequately bonded increases productivity and ensures that product safety and quality standards are met every time.

Waygate Technologies' innovative Bond Scanner, in combination with the Krautkrämer Mentor UT Phased Array flaw detector, provides a fast, easy-to-interpret, and accurate image of bond conditions. This solution allows the inspector to evaluate the bond seams' overall width and identify misaligned bond lines or areas that lack adhesive. The Bond Scanner can be used in all industry sectors where bond lines must be assessed.

How Bond Scanner Works

The device is simply clamped onto two body panels joined by a bond seam and enables one-handed scanning. Ultrasound is reflected at interfaces between materials of different acoustical impedances, with the magnitude of reflection determined by these differences in the adjoining parts. In this way, the reflection at the back side of the Bond Scanner's top plate will vary, depending on whether adhesive is present.

The difference in the reflected ultrasound is then positionally recorded and evaluated, and the quality of the bond line can be assessed over its complete length.

The spring-loaded encoder wheel is located on the other side of the plate combination, ensuring the array's position remains stable.

This way bond lines of typical width can be viewed, and good spatial resolution is obtained. The amplitude of the reflected ultrasound is then color-coded and mapped, first over the array and then over the scanned area to form a C-scan – which is essentially an easy to interpret color-coded map detailing the presence of adhesive in a fast and accurate way.



Fast Results & Accurate Analysis

Wherever any adhesive is missing on the back side of the top plate being scanned, the ultrasound is reflected almost completely. These high-amplitude areas are shown in red, while areas in which less sound is reflected are shown in green. Because the adhesive is applied in such an amount that it forms a predetermined bond seam, the width of this bond seam is also of interest. Additionally, isolated red areas can be identified in the C-scan, representing meander-shaped areas that lack adhesive.

Bond Scanner Portfolio

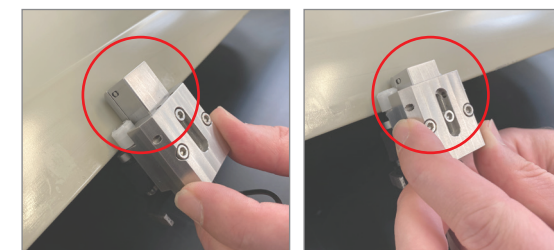
Flex Bond Scanner

This innovative scanner allows for easy inspection of complex geometries that are increasingly found in modern car designs. The convexly pre-bent array design of the LA-10, 32-element flex scanner can be adapted to both concave and convex curvatures, with a bending radius of approximately 80 mm or 3.2" and the ability to inspect the A side-edge bond lines up to 32 mm or 1.3" wide.



Adjustable Bond Scanner

This flexibility examines many different bond seam geometries with just one probe. It can be adapted to inspect adhesive bonds with widths varying from 8 to 20 mm or 0.315" to 0.787" of the A and B side-edges. *Note: Flat coupling surfaces are necessary to ensure proper coupling of the probe to the near-edge surface under inspection.*



Advanced Bond Scanner

When even higher resolution is required, the Advanced Bond Scanner is the perfect solution. With 64 elements and 0.5 mm / 20 mil pitch, it provides the detail that any next-level quality standard might require.

Pair Bond Scanner with Krautkrämer Mentor UT

For consistency across the inspection process, Bond Scanners are ideally paired with the Krautkrämer Mentor UT flaw detector. The user-defined workflows walk the inspector through every step of instrument setup – from probe selection and calibration to reporting. With the Mentor PC Live software, the instrument is connected to a PC through Wifi or ethernet which is especially helpful when the operator is at a different location.

Mentor PC Live performs the instrument's functions from the PC, with the bonus that setup and data files are saved directly on the PC.

Bond Scanner is also available separately.



Technical Details and Accessories

	Part Number	Frequency	Elements	Pitch	Connector Type	Inspected Part
Flex Bond Scanner	0600325	10MHz	32	1 mm / 39 mil	Tyco	A side-edge
Adjustable Bond Scanner	0600567	10MHz	32	0.62mm / 24 mil	Tyco	A/B side-edge
Advanced Bond Scanner	0600181	10MHz	64	0.5 mm / 20 mil	Tyco	A side-edge

Waygate Technologies offers special probes on request for different types of the bond seam inspection.

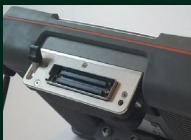
	Bond Scanner	Mentor UT Base Kit	Spare Foil	Calibration Block	PA Connector Adapter	Presentation Module
Package A Flex Bond Scanner	0600325	100N3883	0600199	0600329	Mentor-UT-ADP32-T	118M1844
Package B Adjustable Bond Scanner	0600567	100N3883	0600602	0600329	Mentor-UT-ADP32-T	118M1844
Package C Advanced Bond Scanner	0600181	100N3883	0600199	0600329	Mentor-UT-MUX-T	-

All packages include the Krautkrämer Mentor UT instrument with Bond Scanner probe for the inspection of contoured parts. All related accessories such as a calibration block and spare foil are also included, for a successful inspection straight out of the box.

Accessories



MUX-Module: Mentor-UT-MUX-T
Compatible with up to 128 el. Arrays with Tyco connector. Also includes extra hot swappable battery, HDMI, and ethernet ports.



Mentor-UT-ADP32-T
Compatible with 32 element arrays with standard Tyco connector



Presentation Module: 118M1844
Allows connection of an external monitor via HDMI. In addition it provides encoder-, ethernet- & USB-connection.



The **Splitter Box** allows to connect multiple Bond Scanner probes to the Mentor UT. This flexible solution allows the operation with different probes at the same time without disconnection and connection

of probes during the inspection.

The Splitter Box consists of a "Base Box" that is connected do the Mentor UT device.

To connect the two Bond Scanner probes LA-10 32 Flex and LA-10 32 8-20, two 32 Element Channel Boxes are attached to the Base Box (MUX-Module required).

Part numbers:

UA600638 Base Box

UA600496 32 Channels Box

UA600497 64 Channels Box

For more detailed information, please visit our website or contact us.

waygate-tech.com

