

PAUT HIGH TEMPERATURE WEDGES

Conducting ultrasonic phased array inspections on components operating at elevated temperatures presents several challenges. Conventional phased array probes utilize piezoelectric elements and internal connections that are highly sensitive to heat and may suffer damage under such conditions. To address this issue, Ucomax has developed an innovative solution capable of performing manual phased array inspections at temperatures reaching up to 150 °C.

Engineered with advanced heat-resistant materials and optimized internal architecture, Ucomax's high-temperature phased array technology ensures consistent performance and signal integrity even under demanding thermal environments. This advancement enables industries to conduct reliable inspections without extensive cooling periods, thereby reducing operational downtime and supporting the continued safe operation of critical assets.

Challenges with High-Temperature PAUT:

- **Piezoelectric Sensitivity:** Standard phased array probes use piezoelectric crystals that lose efficiency or can be permanently damaged when exposed to high heat.
- **Internal Connections:** Wiring, adhesives, and solder joints inside probes are also vulnerable to thermal degradation.
- **Couplant Issues:** Traditional couplants can evaporate or degrade quickly at high temperatures, affecting signal quality.

Impact:

- Enables safer, more reliable inspections during high-temperature process conditions, minimizing operational downtime.
- Perfectly suited for industries such as power generation, petrochemical, and heavy manufacturing where components frequently operate under high-heat environments.

UCOMAX's Solution:

UCOMAX has developed a high-temperature manual phased array solution capable of withstanding temperatures up to 150 °C (302 °F).

Key Notes:

- Heat-resistant materials for probe housing and internal components.
- Specialized couplants that maintain stability at elevated temperatures.
- Cooling mechanisms (both passive and active designs) to protect the probe during prolonged exposure to heat.

Part Number	Probe Type	Nominal Refracted Beam Angle in Steel	Recommended Sweep (°)	Probe Orientation
UW-A31-0L	A31	0°LW	-30 to 30	Normal
UW-A31N55S	A31	55°SW	40 to 70	Normal
UW-A32-0L	A32	0°LW	-30 to 30	Normal
UW-A32N55S	A32	55°SW	40 to 70	Normal



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