

Eddyfi Technologies
Beyond current

Technical
Specifications

PRINTED FLEXIBLE PROBES (P-FLEX)

Ultra-Flexible ECA for Complex Surface Geometries

Eddyfi Technologies' family of printed flexible probes (P-Flex) offers unparalleled customization capabilities for inspecting complex geometries, with superior coil performance and easy replaceability.

Unrivaled adaptability meets precision inspection as P-Flex revolutionizes accuracy in complex geometries through its innovative approach.

FLEXIBLE DESIGN AND USE

With a minimum bending radius of 2mm (0.08in), the P-Flex probes show exceptional flexibility for the inspection of complex and irregular surfaces. Their ultra-thin profile allows mounting easily onto a custom holder, facilitating access to tight or difficult-to-reach spaces. The same flexible probe can be reused with different holders and is detachable from its cable adapter to facilitate replacement. Gone are the days of time-consuming probe repairs when a single failing coil could delay an entire inspection.

Features and benefits:

- Thin and flexible design with a minimum bending radius of 2mm (0.08in)
- Three probe sizes (small, medium, large) and expanded customization capabilities
- Detachable probe for easy replacement and reusability on various surfaces
- Superior coil uniformity and signal-to-noise ratio for high-quality inspection results

P-FLEX TECHNOLOGY EXPOSED

These are the key components of the P-Flex, as indicated by the numbers in Figure 2:

1. Thin ultra-flexible array of coil

2. Detachable cable adapter for easy probe replacement

3. Three-meter (10-feet) cable with array connector for Reddy and Ectane

4. Three attachment positions for standard encoder or probe manipulator



Figure 2: The P-Flex probe connected to its cable adapter.

HIGHEST SIGNAL-TO-NOISE RATIO

With printed coil density at the forefront of current probe technology, the P-Flex offers a higher signal-to-noise ratio (SNR) and coil uniformity compared to other printed probes on the market. Powered by Eddyfi Technologies' SmartMUX and advanced multiplexing topologies, this probe family delivers an unrivaled probability of detection of small flaws.

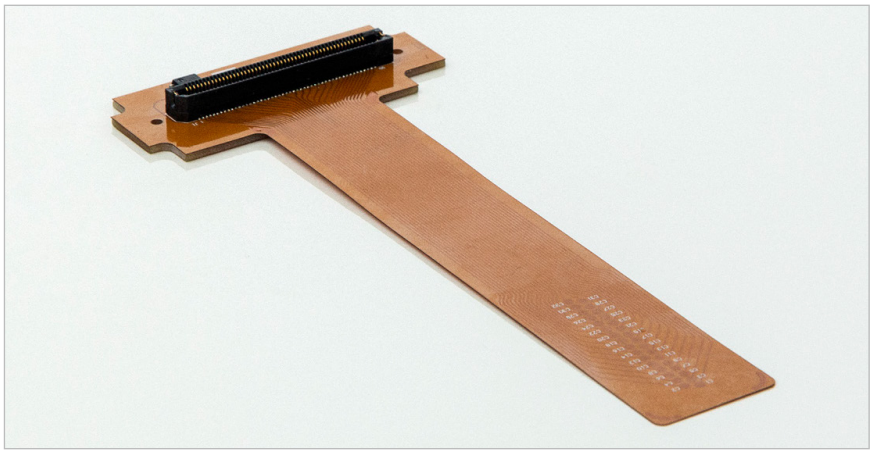


Figure 3: P-Flex probe highlighting the coil sensors printed directly on its flexible board.



Figure 1: Thin ultra-flexible array of coil wrapped around a pipe.

ECA PROBE CUSTOMIZATION

The printed flexible ECA technology expands the capabilities for custom probe development. The engineering services offered by Eddyfi Technologies for the design and manufacturing of custom probes can now deliver inspection solutions for geometries that were previously inaccessible. Custom probes with an extended array coverage can be built into holders of any shape and size. This allows confidently tackling the most demanding application with equipment perfectly tailored to its task.

THREE COIL SIZES

To cover maximum inspection scenarios and offer the ideal compromise between coverage and detection performance, the P-Flex probes are available in three formats with different coil sizes: small, medium, and large. Selecting the right probe should be based on the smallest defect to detect, the required coverage of the array, and the nature of the material being inspected (ferromagnetic or not).

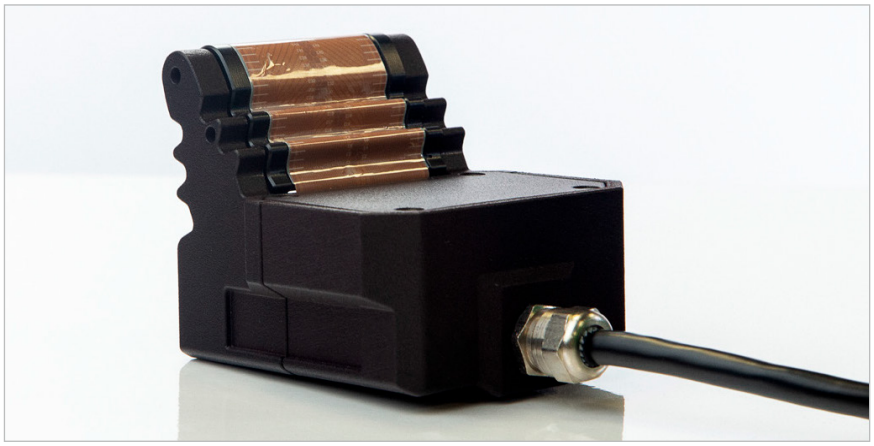


Figure 4: A customized P-Flex probe with 128 channels designed for inspecting rotor slots in gas turbines

SPECIFICATIONS

GENERAL	SMALL	MEDIUM	LARGE
ECA-PFLEX-...	**D-034-HF-032**	**D-056-HF-032**	**C-079-HF-032**
Probe thickness	0.2mm (0.008in)	0.2mm (0.008in)	0.2mm (0.008in)
Minimum bending radius	2mm (0.08in)	2mm (0.08in)	2mm (0.08in)
Minimum channel requirement	64	64	64
Coil diameter	2.0mm (0.08in)	3.5mm (0.14in)	5.0mm (0.20in)
Number of coils	32	32	32
Coverage	34mm (1.34in)	56mm (2.20in)	79mm (3.11in)
Minimum detectable crack length	0.5mm (0.02in)	1.0mm (0.04in)	1.5mm (0.06in)
Topology	Short double driver	Short double driver	Long single driver
Suitable materials	Non-ferromagnetic	Non-ferromagnetic	Ferromagnetic
Central frequency	1500kHz	1000kHz	500kHz
Frequency range	1000 – 4000kHz	500 – 2000kHz	250 – 1500kHz
Cable adapter required	ECA-PFLEX-CBL-D-032	ECA-PFLEX-CBL-D-032	ECA-PFLEX-CBL-C-032
Detachable cable adapter	Yes	Yes	Yes

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