Tubing Probes

DefHi® Probes

High-Definition Multiplexed Eddy Current Array Tubing Probes

Benefits and Features

- One-pass combination bobbin and array probe
- Sizing of circumferential and axial cracks[1]
- Optimum resolution and uniform sensitivity with oval-coil technology[2]
- Uncompromising durability (highly kink-resistant cable, replaceable centering devices)
- Wider frequency range (HW to HF)
- Convenient analysis with strip chart for bobbin and 2D/3D C-scans for array imaging

[1] *Advanced options only*
[2] *Patented — Eddyfi NDT, Inc.*

DefHi probes are high-definition, multiplexed eddy current probes designed to inspect non-ferromagnetic heat exchanger and condenser tubing. The probes use electronic channel multiplexing to leverage, via timeslots, the physical inputs of an ECT test instrument and to accommodate up to 128 ECT channels. It is available in various configurations and sizes.

This probe overcomes many of the downsides associated with conventional tube inspection techniques. It allows detecting and sizing circumferential cracks, a major limitation of bobbin probes. Moreover, the probe's multichannel configuration retains the high acquisition speed of bobbin probes (much higher than rotating probes [RPC]) and allows inspecting entire lengths of tube.

DefHi probes provide a uniform and high-definition sensitivity to identify defects in any orientation. This level of sensitivity cannot be achieved by other types of so-called array probes, categorized as non-multiplexed array probes, or even air conditioning (AC) probes. These probes are generally limited to a combination of bobbins and coils equal to the number of physical channels of the source ECT tester (usually 4 or 8), which results in suboptimal performance, simply because an insufficient number of coils cannot provide adequate definition.

Eddyfi's patented ***DefHi*** probes thus represents the utmost in ECT tubing inspection performance.

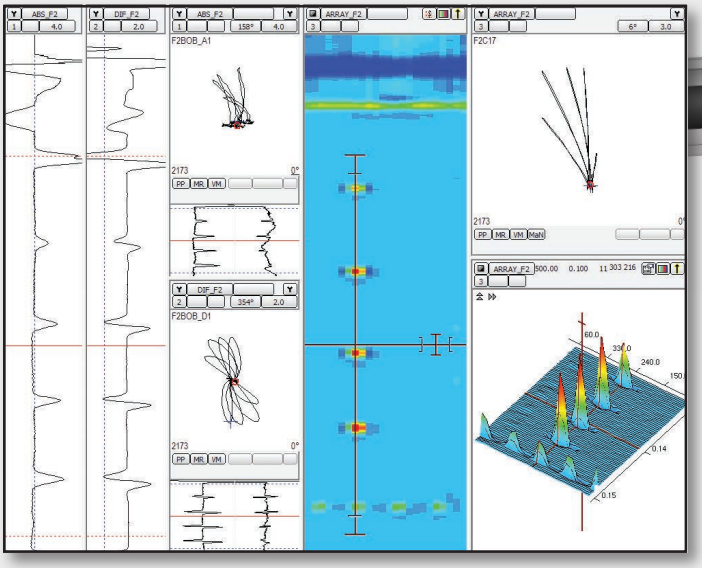
Specifications

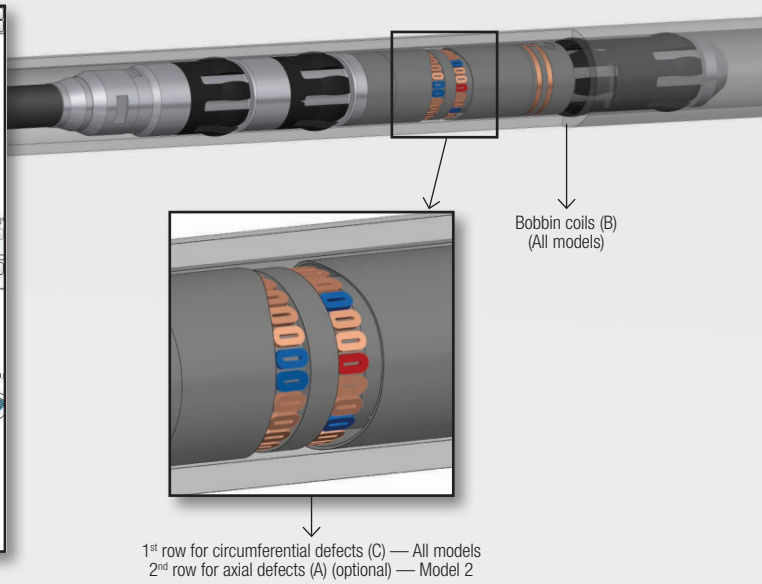
Coil technologies	• Differential and absolute bobbin + transmit/receive array
	• Eddyfi patented oval pancake coils
	  • 1 row for circumferential only
	  • 2 rows for circumferential and axial

Material	Non-ferromagnetic. Experience on 300-series stainless steel, Inconel™, copper/nickel, brass, titanium
Maximum test speed	1 m/s (40 in/s)
Poly material	9 mm (0.375 in) premium, non-kinkable strong nylon
Calibration standard	Modified ASME standard
Connector	160-pin ***Ectane***® family connector

Eddy Current Channels for Available Sizes[1]			
Tube OD	**Bobbin**	**Circ**	**Axial[2]**
12.70 mm (0.500 in)	2	18	36
15.87 mm (0.625 in)	2	18	36
19.05 mm (0.750 in)	2	24	48
22.22 mm (0.875 in)	2	24	48
25.40 mm (1.000 in)	2	30	60
Larger sizes	Custom made — Available on request		

[1] Values for the MF frequency range. Values differ for HW, HF, and LF ranges.
[2] Advanced options only.





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OPTION	MULTIPLEXER ECTANE/PROBE	BODY RIGID/FLEX	CONFIGURATION BOBBIN	CONFIGURATION CIRCUM.	CONFIGURATION AXIAL	DIAMETER	FREQ. (kHz)	POLY LENGTH
1	E	R	B	C	–	Three-digit code represents probe diameter: e.g., 146 = 14.6 mm Contact us to verify availability of required diameters	HW: 4–60 kHz LF: 20–200 kHz MF*: 50–500 kHz HF**: 100–1200 kHz	05: 5 m (16 ft) 15: 15 m (50 ft)
2	E	R	B	C	A			

* The maximum frequency is reduced to 400 kHz with 15 m cable.

** The maximum frequency is reduced to 1 MHz with 15 m cable.

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2016-12-14