ABP Series Eddy Current Bobbin Probes

We specialize in the development and manufacturing of high-performance Eddy Current Testing (ECT) products for non-destructive testing (NDT) of heat exchanger and boiler tubes. With a deep understanding of inspection requirements across power, petrochemical, and industrial sectors, our probes and calibration standards are trusted for their reliability, precision, and field performance.

Bobbin Probes (ABP Series)

Engineered for Accuracy and Durability

Our Differential ECT bobbin probes are designed for efficient inspection of non-ferrous heat exchanger tubes. Optimized for sensitivity and phase clarity, each probe is manufactured using precision winding and robust housing materials.

Key Features

- Non-contact, high-sensitivity testing
- Excellent detection of wall loss, pitting, cracking, erosion, and baffle cuts
- Optimized for durability and ease of use

ABP-XXX-YY-NZZ

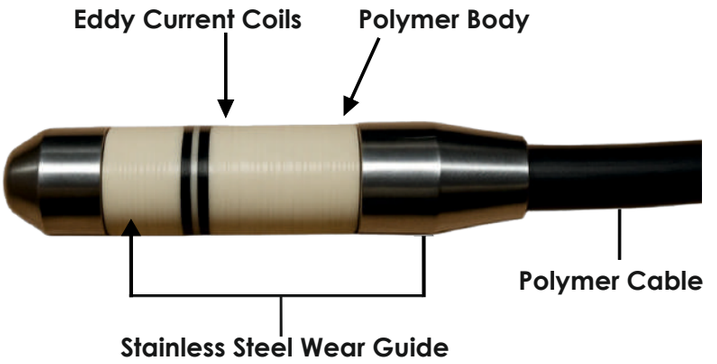
CODE	Dia. (mm)
096	9.6
098	9.8
102	10.2
...	...
251	25.1
269	26.9
...	...
463	46.3

Freq. (Khz)	Min.	Max.	Central
UF	1	10	5
LF	10	100	50
MF	50	500	250
HF	100	1000	500

CODE	Length
15	15 m
20	20 m

Salient Features

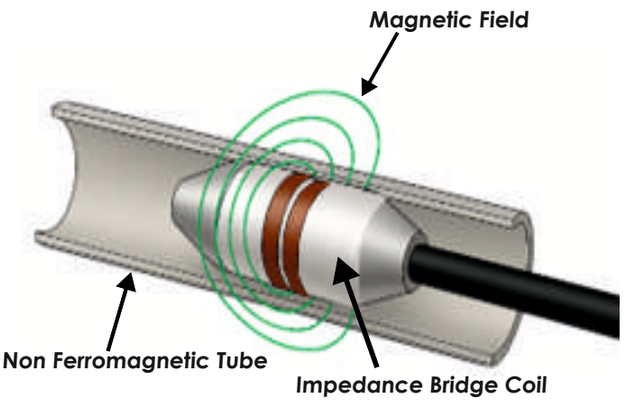
- Available in multiple frequency ranges: UF (Ultra Low), LF (Low Frequency),MF (Medium Frequency) & HF (High Frequency)
- Coils embedded in durable, wear-resistant material
- Stainless steel wear guides at the front & rear
- Light-weight advanced polymer body
- High flexibility and kink-resistant polymer cable
- Available with 15m or 20m cables
- Standard 4-pin Amphenol connectors



Application

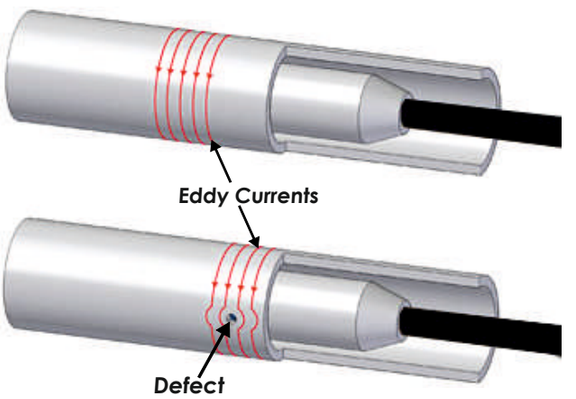
When two coils are energized with an electrical current, they create surrounding magnetic fields. These fields extend into the tube material, inducing alternating eddy currents that flow in opposite directions.

- Any disruption in the flow of these eddy currents—such as a flaw or defect in the tube—alters the impedance of the probe's coils.
- By detecting these impedance variations, the system can accurately identify the presence and characteristics of defects within the tubing.



Typical Applications Include:

- Condensers
- Feedwater Heaters
- Heat Exchangers
- Air Conditioner Tubing
- Other Non-Ferromagnetic Tubing Applications



Probe-Diameter Selection Guide – Important Note

For optimal eddy current performance, selecting the correct probe diameter is essential. While we recommend maintaining a fill factor close to 85–90%, in practical conditions (e.g., dirty or scaled tubes), a slightly smaller diameter probe may be necessary to ensure smooth movement and proper signal acquisition.

Tolerance Tip: A deviation of ±0.2 mm from the recommended diameter typically does not affect inspection quality and is widely accepted in field conditions.

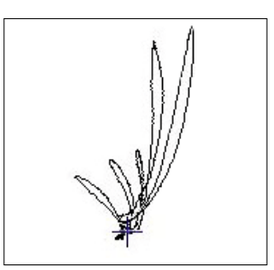
Tube Wall Thickness																	
Tube OD	BWG		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	mm		3.40	3.05	2.77	2.41	2.11	1.83	1.65	1.47	1.24	1.07	0.89	0.81	0.71	0.65	0.56
		inch	0.135	0.120	0.109	0.095	0.083	0.072	0.065	0.058	0.049	0.042	0.035	0.032	0.028	0.025	0.022
	12.70	0.500	-	-	-	-	-	-	-	-	096	098	102	103	105	106	108
	15.87	0.625	-	-	096	103	108	114	117	121	125	128	131	133	135	136	138
	19.05	0.750	114	121	126	133	138	144	147	150	155	158	161	163	164	166	167
	22.22	0.875	144	150	156	162	168	173	176	180	184	187	191	192	194	195	197
	25.40	1.000	173	180	185	192	198	203	206	209	214	217	220	222	224	225	226
	31.75	1.250	233	239	244	251	257	262	265	269	273	276	279	281	283	284	286
	38.10	1.500	292	298	304	310	316	321	355	328	332	335	339	340	342	343	345
	50.80	2.000	410	417	422	429	434	440	443	446	451	454	457	461	461	461	463

Central Probe Frequency Selection Based on Tube Material

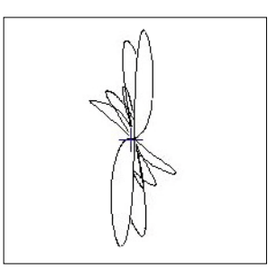
Probes are tuned for specific F90 frequencies to deliver optimal sensitivity and resolution. However, due to the broad response characteristics of the design, the same probe can operate effectively across a wider frequency band. For example, a probe tuned at 50 kHz F90 can be operated within a range of 25 kHz to 100 kHz, depending on inspection requirements. Minor gain adjustments compensate for any signal variation when operating outside the nominal frequency.

Probe Response

ABP Series Bobbin Probes deliver clear, high-resolution impedance signals, enabling accurate detection and characterization of defects



Absolute response



Differential response

Tube Wall Thickness (WT)			Material										
BWG	mm	inch	Aluminum	Aluminum-Bronze	Brass	Brass (70/30)	Brass (85/15)	Brass (95/15)	Copper	Copper – Nickel (70/30)	Copper – Nickel (90/10)	Inconel 600	SS 304/316	Titanium
24	0.56	0.022	LF	MF	LF	LF	LF	LF	LF	HF	MF	HF	HF	HF
23	065	0.025	LF	MF	LF	LF	LF	LF	LF	MF	MF	HF	HF	HF
22	0.71	0.028	LF	LF	LF	LF	LF	LF	LF	MF	MF	HF	HF	MF
21	0.81	0.032	LF	LF	LF	LF	LF	LF	UF	MF	MF	HF	HF	MF
20	0.89	0.035	LF	LF	LF	LF	LF	LF	UF	MF	LF	HF	MF	MF
19	1.07	0.042	UF	LF	LF	LF	LF	UF	UF	MF	LF	MF	MF	MF
18	1.24	0.049	UF	LF	LF	LF	UF	UF	UF	UF	LF	MF	MF	MF
17	1.47	0.058	UF	LF	UF	UF	UF	UF	UF	UF	LF	MF	MF	LF
16	1.65	0.065	UF	LF	UF	UF	UF	UF	UF	UF	LF	MF	MF	LF
15	1.83	0.072	UF	LF	UF	UF	UF	UF	UF	UF	LF	MF	LF	LF
14	2.11	0.083	UF	UF	UF	UF	UF	UF	UF	UF	LF	LF	LF	LF
13	2.41	0.095	UF	UF	UF	UF	UF	UF	UF	UF	UF	LF	LF	LF
12	2.77	0.109	UF	UF	UF	UF	UF	UF	UF	UF	UF	LF	LF	LF
11	3.05	0.120	UF	UF	UF	UF	UF	UF	UF	UF	UF	LF	LF	LF
10	3.40	0.135	UF	UF	UF	UF	UF	UF	UF	UF	UF	LF	LF	LF

Calibration Tubes

In addition to Eddy Current Probes, we offer calibration tubes in various materials and dimensions, manufactured in compliance with ASME Section V, Article 8 standards. These calibration tubes are essential for system setup, verification, and operator training.

Available Materials

- Stainless Steel 304/316
- Aluminium
- Inconel 600
- Copper-Nickel Alloys
- Brass (Admiralty, 70/30, 85/15, 95/5)
- Titanium

Custom defect simulations (grooves, drilled holes, wall loss) are available upon request.

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