



Tube Inspection Probe Catalog 2006–2007



920-117C

Tube Inspection Probes

- Eddy Current
- Magnetic Flux Leakage
- Remote Field
- IRIS Ultrasound

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The Company

Olympus NDT designs and manufactures eddy current and ultrasound test systems for manual and automated nondestructive testing. These systems are used throughout the world for the analysis of defects caused by processes like welding, extrusion, and casting, as well as wear, corrosion, and fatigue.

Our broad field of activity includes nuclear, fossil and hydroelectric power plants, oil refineries, pipeline construction and maintenance, aerospace and automobile industries, and industrial production.

To serve these markets, Olympus NDT has probe manufacturing facilities in Canada and the United States. We manufacture state-of-the-art ultrasonic probes, ultrasonic phased array probes, eddy current array probes, specialized eddy current probes, as well as and the various tube inspection probes.

Standard probes can be ordered efficiently and delivered quickly; custom probes may be designed, developed, and manufactured. Strict adherence to quality procedures ensures that reliable long-life probes are delivered to the user, and that probe-to-probe repeatability is assured.

Olympus NDT has pushed the evolution of inspection technology in nuclear steam generators and has used its expertise to improve the state of technology in balance-of-plant inspections. Easy ordering, highest quality, and quick turnaround are the goals of the groups making these probes—customer service is an everyday focus.

We invite you to browse this catalog to find out more about R/D Tech probes for tube inspection and their applications.





Warranty

Olympus NDT Inc. warrants that the products shipped to its customers are free of defects in material and workmanship. Olympus NDT will honor claims for defective products if submitted within 45 days from the date of shipment, provided that the product has not been improperly used and is subject to its inspection.

Olympus NDT Inc. will not be held responsible in any way whatsoever for damage resulting from improper installation, accident, misuse, or from service or modification of the product by anyone other than Olympus NDT Inc. or an authorized Olympus NDT service center.

Olympus NDT Inc. will not be held responsible in any way whatsoever for direct, indirect, special, incidental, or consequential damages resulting from possession, use, improper installation, accident, service, modification, or malfunction of the product (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss).

How to Order

Call your local sales representative for pricing or for further information.

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Tube Inspection

No single inspection technique is adequate for all types of materials and a single-technology system may only be used for a narrow range of applications. The eddy current (EC) technique is commonly used to inspect nonferromagnetic materials. Remote field (RFT) and magnetic flux leakage (MFL) techniques are used for the inspection of ferritic materials and carbon steel tubes. The IRIS ultrasound technique is used for tube profilometry and corrosion mapping, and is a reliable backup technique for any material type, for eddy current, remote field, and magnetic flux leakage inspections.

Tube Inspection Test Applications

The following table is a basic guideline for the selection of your probes. Each application is referred to one or more inspection techniques. The code in parentheses indicates the section of this catalog where you will find the information you are looking for.

Applications	EC (TE)	RFT (TR)	MFL (TF)	IRIS (TU)
Condenser	√			
Feedwater heaters				
Nonferrous	√			√
Ferrous		√		√
Air conditioner	√			
Heat exchangers				
Nonferrous	√			√
Ferrous		√	√	√
Aluminum–finned carbon steel tubes			√	√
Boiler		√		√
Buried pipes		√		

Numbering System Used to Order Tube Inspection Probes

TEA-146-050-N15



Glossary Used to Order Tube Inspection Probes

Application

T = tube

Technology

E = eddy current
 R = remote field
 F = magnetic flux leakage
 U = IRIS

Probe model – eddy current

A = Standard bobbin, attached
 B = Standard bobbin, detachable
 C = Air conditioner, attached
 D = Air conditioner, detachable
 E = Titanium, attached
 F = Titanium, detachable
 G = Flexible bullet
 H = Heavy-duty bobbin, attached
 J = Heavy-duty bobbin, detachable
 M = Magnetic bias, attached
 N = Magnetic bias, detachable
 O = CARTER super magnetic bias, attached
 P = CARTER super magnetic bias, detachable

Probe model – remote field

A = Single exciter
 B = Dual exciter
 C = Boiler

Probe model – magnetic flux leakage

B = High-saturation, attached
 C = High-saturation

Probe model – IRIS

A = probe turbine
 B = transducer
 C = probe centering device
 D = probe cable

Diameter

Probe size in millimeters rounded to the nearest 0.2 mm multiple, for example: 126 = 12.6 mm

Frequency range – eddy current

005 = 1 kHz to 10 kHz
 010 = 2 kHz to 20 kHz
 015 = 3 kHz to 30 kHz
 025 = 5 kHz to 50 kHz
 030 = 6 kHz to 60 kHz
 050 = 10 kHz to 100 kHz
 075 = 15 kHz to 150 kHz
 100 = 20 kHz to 200 kHz
 125 = 25 kHz to 250 kHz
 150 = 30 kHz to 300 kHz
 250 = 50 kHz to 500 kHz
 300 = 60 kHz to 600 kHz
 500 = 100 kHz to 1000 kHz
 600 = 120 kHz to 1200 kHz

Frequency range – remote field

085 = 20 Hz to 200 Hz
 300 = 100 Hz to 1000 Hz
 02K = 1 kHz to 10 kHz
 15K = 5 kHz to 30 kHz

Cable material

N = nylon
 H = HDPE

Cable length

15 = 15 m
 20 = 20 m
 30 = 30 m

Probes Summary Table

The following table will help you to select the proper probe for your application. The series category of each probe type is indicated on the top and refers to a section of the catalog.

		Technology	
		Model	
		AB	CD
		Standard bobbin	Air conditioner
		Type	
Nonferritic	Nonferritic tube (condenser, heat exchanger, feedwater heater)	√	
	Air conditioners		√
	Circumferential crack		√
	Small pit detection in thin wall tube (like titanium)		
	Nonferritic tube with light permeability changes		
	U-bends		
Ferritic	Mildly ferritic steel (Monel, 3RE60, SEA-CURE®, and 400-series stainless)		
	Heat exchanger, feedwater heater		
	Boiler		
	Aluminum-finned air cooler		
	Circumferential crack detection		

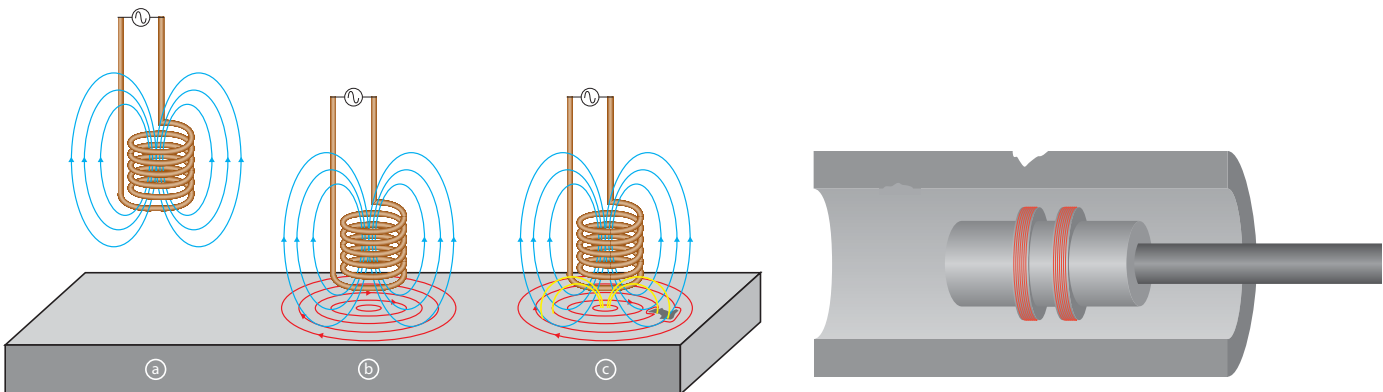
EC							RFT			MFL	IRIS
EF	G	HJ	KL	MN	OP	A	B	C	BC		
Titanium bobbin	Flexible bullet	Heavy duty bobbin	High-resolution bobbin	Mag bias bobbin	CARTER™ super magnetic bias bobbin	Single exciter rigid	Dual exciter rigid	Boiler probe	High-saturation probe	IRIS	
√	√										
			√								
				√							
	√										
					√	√	√		√	√	
						√	√		√	√	
								√		√	
									√	√	
									√		

Eddy Current Applications



Eddy current is a noncontact method for the inspection of nonferromagnetic tubing. In this technique, the probe, which is excited with an alternative current, induces eddy current in the part under inspection. Any discontinuities or material property variations that change the eddy current flow in the part are detected by the probe as a potential defect. This technique is suitable for the detection and sizing of metal discontinuities such as corrosion, erosion, wear, pitting, baffle cuts, wall loss, and cracks for nonferrous materials including austenitic stainless steel such as SS304/SS316, brass, copper-nickel, titanium, copper-finned, Monel[®], and others.

For tube inspections, multifrequency eddy current can locate and size defects under support plates and at the tubesheet. R/D Tech[®] eddy current equipment is perfectly suited for the inspection of condensers, feedwater heaters, air conditioners, and surfaces.

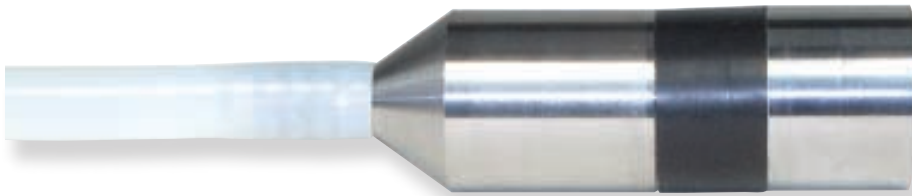
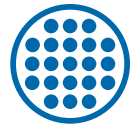


Probes used to perform eddy current inspections are made with a copper wire wound to form a coil. The coil shape can vary to better suit specific applications.

- The alternative current flowing through the coil at a chosen frequency generates a magnetic field around the coil.
- When the coil is placed close to an electrically conductive material, eddy current is induced in the material.
- If a flaw in the conductive material disturbs the eddy current circulation, the magnetic coupling with the probe is changed and a defect signal can be read by measuring the coil impedance variation.

Eddy Current Probes

TEA — Bobbin probe | Attached



Features

- Lightweight, solidly built
- Coil protected with a plastic sleeve
- Economical solution
- Steel wear guides at front and rear ends
- Ideal for heaters, coolers, heat exchangers, and others

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEA – XXX – 005 – NYY	9.6 to 50 (0.380 to 1.970)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 010 – NYY	9.6 to 50 (0.378 to 1.970)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 015 – NYY	9.6 to 50 (0.378 to 1.970)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 025 – NYY	9.6 to 50 (0.380 to 1.970)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 030 – NYY	9.6 to 50 (0.380 to 1.970)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 050 – NYY	9.6 to 50 (0.380 to 1.970)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 075 – NYY	9.6 to 50 (0.380 to 1.970)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 100 – NYY	9.6 to 50 (0.380 to 1.970)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 125 – NYY	9.6 to 50 (0.380 to 1.970)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 150 – NYY	9.6 to 50 (0.380 to 1.970)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 250 – NYY	9.6 to 50 (0.380 to 1.970)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 300 – NYY	9.6 to 50 (0.380 to 1.970)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 500 – NYY	9.6 to 50 (0.380 to 1.970)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEA – XXX – 600 – NYY	9.6 to 50 (0.380 to 1.970)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

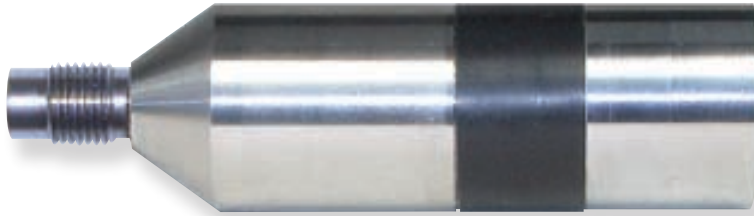
YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEA-200-050-N15.

Eddy Current Probes

TEB — Bobbin probe | Detachable



Features

- Lightweight, solidly built
- Coil protected with a plastic sleeve
- Economical solution
- Steel wear guides at front and rear ends
- Ideal for heaters, coolers, heat exchangers, and others

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TEB – XXX – 005	11 to 50 (0.435 to 1.970)	1 to 10
TEB – XXX – 010	11 to 50 (0.435 to 1.970)	2 to 20
TEB – XXX – 015	11 to 50 (0.435 to 1.970)	3 to 30
TEB – XXX – 025	11 to 50 (0.435 to 1.970)	5 to 50
TEB – XXX – 030	11 to 50 (0.435 to 1.970)	6 to 60
TEB – XXX – 050	11 to 50 (0.435 to 1.970)	10 to 100
TEB – XXX – 075	11 to 50 (0.435 to 1.970)	15 to 150
TEB – XXX – 100	11 to 50 (0.435 to 1.970)	20 to 200
TEB – XXX – 125	11 to 50 (0.435 to 1.970)	25 to 250
TEB – XXX – 150	11 to 50 (0.435 to 1.970)	30 to 300
TEB – XXX – 250	11 to 50 (0.435 to 1.970)	50 to 500
TEB – XXX – 300	11 to 50 (0.435 to 1.970)	60 to 600
TEB – XXX – 500	11 to 50 (0.435 to 1.970)	100 to 1000
TEB – XXX – 600	11 to 50 (0.435 to 1.970)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEB-200-050.

Catalog part number	Description	Cable type	Cable length in m (ft)
TEZ – BBS – NYY	Standard cable for bobbin probe	N	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBK – NYY	Kink resistant cable for bobbin probe	N	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBG – KYY	Soft Kevlar® cable for Airgun pusher-puller	K	20 or 30 (65.6 or 98.5)

YY = Cable length. Standard length is 15 m.

Above cables use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the cable number.

Eddy Current Probes

TEC — Air conditioner | Attached



Features

- Solid construction for durability
- Includes a differential bobbin set and a circumferentially sensitive pancake array
- Detection of circumferentially oriented cracks
- Better detection capability at transition zone
- Ideal for air conditioner tubing

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEC – XXX – 005 – NYY	9.6 to 50 (0.380 to 1.970)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 010 – NYY	9.6 to 50 (0.380 to 1.970)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 015 – NYY	9.6 to 50 (0.380 to 1.970)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 025 – NYY	9.6 to 50 (0.380 to 1.970)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 030 – NYY	9.6 to 50 (0.380 to 1.970)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 050 – NYY	9.6 to 50 (0.380 to 1.970)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 075 – NYY	9.6 to 50 (0.380 to 1.970)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 100 – NYY	9.6 to 50 (0.380 to 1.970)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 125 – NYY	9.6 to 50 (0.380 to 1.970)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 150 – NYY	9.6 to 50 (0.380 to 1.970)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 250 – NYY	9.6 to 50 (0.380 to 1.970)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 300 – NYY	9.6 to 50 (0.380 to 1.970)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 500 – NYY	9.6 to 50 (0.380 to 1.970)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEC – XXX – 600 – NYY	9.6 to 50 (0.380 to 1.970)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 19.05 mm (3/4 in.) OD x 1.65 mm (0.065 in.) WT, and the tube is made out of copper, then the probe should have a 14.6 mm diameter and 5 kHz frequency = TEC-146-005-N15.

Eddy Current Probes

TED — Air conditioner | Detachable



Features

- Solid construction for durability
- Includes a differential bobbin set and a circumferentially sensitive pancake array
- Detection of circumferentially oriented cracks
- Better detection capability at transition zone
- Ideal for air conditioner tubing

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TED – XXX – 005	11 to 50 (0.435 to 1.970)	1 to 10
TED – XXX – 010	11 to 50 (0.435 to 1.970)	2 to 20
TED – XXX – 015	11 to 50 (0.435 to 1.970)	3 to 30
TED – XXX – 025	11 to 50 (0.435 to 1.970)	5 to 50
TED – XXX – 030	11 to 50 (0.435 to 1.970)	6 to 60
TED – XXX – 050	11 to 50 (0.435 to 1.970)	10 to 100
TED – XXX – 075	11 to 50 (0.435 to 1.970)	15 to 150
TED – XXX – 100	11 to 50 (0.435 to 1.970)	20 to 200
TED – XXX – 125	11 to 50 (0.435 to 1.970)	25 to 250
TED – XXX – 150	11 to 50 (0.435 to 1.970)	30 to 300
TED – XXX – 250	11 to 50 (0.435 to 1.970)	50 to 500
TED – XXX – 300	11 to 50 (0.435 to 1.970)	60 to 600
TED – XXX – 500	11 to 50 (0.435 to 1.970)	100 to 1000
TED – XXX – 600	11 to 50 (0.435 to 1.970)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 19.05 mm (3/4 in.) OD x 1.65 mm (0.065 in.) WT, and the tube is made out of copper, then the probe should have a 14.6 mm diameter and 5 kHz frequency = TED-146-005.

Catalog part number	Description	Cable length in m (ft)
TEZ – ACS – NYY	Standard cable for AC probe	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – ACK – NYY	Kink resistant cable for AC probe	15, 20, and 30 (49.2, 65.6, and 98.5)

YY = Cable length. Standard length is 15 m.

Z = Cable type. Cable types are: N = Nylon (standard), and H = HDPE (more flexible).

Eddy Current Probes

TEE — Titanium | Attached



Features

- Ultimate durability
- Titanium protective cover for the coils
- Steel wear guides at front and rear ends
- Ideal for heaters, coolers, and heat exchangers

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEE – XXX – 005 – NYY	9.6 to 50 (0.380 to 1.970)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 010 – NYY	9.6 to 50 (0.380 to 1.970)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 015 – NYY	9.6 to 50 (0.380 to 1.970)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 025 – NYY	9.6 to 50 (0.380 to 1.970)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 030 – NYY	9.6 to 50 (0.380 to 1.970)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 050 – NYY	9.6 to 50 (0.380 to 1.970)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 075 – NYY	9.6 to 50 (0.380 to 1.970)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 100 – NYY	9.6 to 50 (0.380 to 1.970)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 125 – NYY	9.6 to 50 (0.380 to 1.970)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 150 – NYY	9.6 to 50 (0.380 to 1.970)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 250 – NYY	9.6 to 50 (0.380 to 1.970)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 300 – NYY	9.6 to 50 (0.380 to 1.970)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 500 – NYY	9.6 to 50 (0.380 to 1.970)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEE – XXX – 600 – NYY	9.6 to 50 (0.380 to 1.970)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEE-200-050-N15.

Eddy Current Probes

TEF — Titanium | Detachable



Features

- Ultimate durability
- Titanium protective cover for the coils
- Steel wear guides at front and rear ends
- Ideal for heaters, coolers, and heat exchangers

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TEF – XXX – 005	11 to 50 (0.435 to 1.970)	1 to 10
TEF – XXX – 010	11 to 50 (0.435 to 1.970)	2 to 20
TEF – XXX – 015	11 to 50 (0.435 to 1.970)	3 to 30
TEF – XXX – 025	11 to 50 (0.435 to 1.970)	5 to 50
TEF – XXX – 030	11 to 50 (0.435 to 1.970)	6 to 60
TEF – XXX – 050	11 to 50 (0.435 to 1.970)	10 to 100
TEF – XXX – 075	11 to 50 (0.435 to 1.970)	15 to 150
TEF – XXX – 100	11 to 50 (0.435 to 1.970)	20 to 200
TEF – XXX – 125	11 to 50 (0.435 to 1.970)	25 to 250
TEF – XXX – 150	11 to 50 (0.435 to 1.970)	30 to 300
TEF – XXX – 250	11 to 50 (0.435 to 1.970)	50 to 500
TEF – XXX – 300	11 to 50 (0.435 to 1.970)	60 to 600
TEF – XXX – 500	11 to 50 (0.435 to 1.970)	100 to 1000
TEF – XXX – 600	11 to 50 (0.435 to 1.970)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEF-200-050.

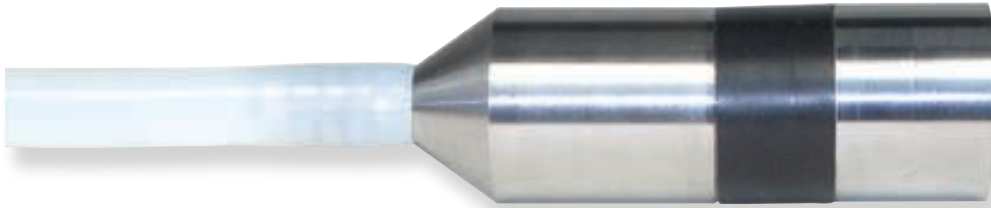
Catalog part number	Description	Cable type	Cable length in m (ft)
TEZ – BBS – NYY	Standard cable for bobbin probe	N	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBK – NYY	Kink resistant cable for bobbin probe	N	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBG – KYY	Soft Kevlar® cable for Airgun pusher-puller	K	20 or 30 (65.6 or 98.5)

YY = Cable length. Standard length is 15 m.

Above cables use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the cable number.

Eddy Current Probes

TEK — High-resolution | Attached



Features

- Lightweight and solid construction
- Coil protected with a plastic sleeve
- Steel wear guides at front and rear ends
- Narrow coil, ideal for thin tubing inspections like titanium tubing

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEK – XXX – 005 – NYY	9.6 to 50 (0.380 to 1.970)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 010 – NYY	9.6 to 50 (0.380 to 1.970)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 015 – NYY	9.6 to 50 (0.380 to 1.970)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 025 – NYY	9.6 to 50 (0.380 to 1.970)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 030 – NYY	9.6 to 50 (0.380 to 1.970)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 050 – NYY	9.6 to 50 (0.380 to 1.970)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 075 – NYY	9.6 to 50 (0.380 to 1.970)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 100 – NYY	9.6 to 50 (0.380 to 1.970)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 125 – NYY	9.6 to 50 (0.380 to 1.970)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 150 – NYY	9.6 to 50 (0.380 to 1.970)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 250 – NYY	9.6 to 50 (0.380 to 1.970)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 300 – NYY	9.6 to 50 (0.380 to 1.970)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 500 – NYY	9.6 to 50 (0.380 to 1.970)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEK – XXX – 600 – NYY	9.6 to 50 (0.380 to 1.970)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

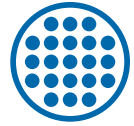
YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 0.71 mm (0.028 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 22.8 mm diameter and 500 kHz frequency = TEK-228-500-N15.

Eddy Current Probes

TEL — High-resolution | Detachable



Features

- Lightweight and solid construction like the STD series
- Coil protected with a plastic sleeve
- Economical solution
- Steel wear guides at front and rear ends
- Narrow coil, ideal for thin tubing inspections like titanium tubing

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TEL – XXX – 005	11 to 50 (0.435 to 1.970)	1 to 10
TEL – XXX – 010	11 to 50 (0.435 to 1.970)	2 to 20
TEL – XXX – 015	11 to 50 (0.435 to 1.970)	3 to 30
TEL – XXX – 025	11 to 50 (0.435 to 1.970)	5 to 50
TEL – XXX – 030	11 to 50 (0.435 to 1.970)	6 to 60
TEL – XXX – 050	11 to 50 (0.435 to 1.970)	10 to 100
TEL – XXX – 075	11 to 50 (0.435 to 1.970)	15 to 150
TEL – XXX – 100	11 to 50 (0.435 to 1.970)	20 to 200
TEL – XXX – 125	11 to 50 (0.435 to 1.970)	25 to 250
TEL – XXX – 150	11 to 50 (0.435 to 1.970)	30 to 300
TEL – XXX – 250	11 to 50 (0.435 to 1.970)	50 to 500
TEL – XXX – 300	11 to 50 (0.435 to 1.970)	60 to 600
TEL – XXX – 500	11 to 50 (0.435 to 1.970)	100 to 1000
TEL – XXX – 600	11 to 50 (0.435 to 1.970)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 0.71 mm (0.028 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 22.8 mm diameter and 500 kHz frequency = TEL-228-500.

Catalog part number	Description	Cable length in m (ft)
TEZ – BBS – NYY	Standard cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBK – NYY	Kink resistant cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBG – NYY	Soft Kevlar® cable for Airgun pusher-puller	20 or 30 (65.6 or 98.5)

YY = Cable length. Standard length is 15 m.

Above cables use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the cable number.

Eddy Current Probes

TEG — Flexible bullet



Features

- Solid stainless steel construction for durability
- Titanium protective cover for the coils
- Tight U-bend capability (down to 50 mm (2 in.) curvature radius)

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable type	Cable length in m (ft)
TEG – XXX – 005 – ZYY	11 to 25 (0.435 to 0.980)	1 to 10	N or H	25 (81.25)
TEG – XXX – 010 – ZYY	11 to 25 (0.435 to 0.980)	2 to 20	N or H	25 (81.25)
TEG – XXX – 015 – ZYY	11 to 25 (0.435 to 0.980)	3 to 30	N or H	25 (81.25)
TEG – XXX – 025 – ZYY	11 to 25 (0.435 to 0.980)	5 to 50	N or H	25 (81.25)
TEG – XXX – 030 – ZYY	11 to 25 (0.435 to 0.980)	6 to 60	N or H	25 (81.25)
TEG – XXX – 050 – ZYY	11 to 25 (0.435 to 0.980)	10 to 100	N or H	25 (81.25)
TEG – XXX – 075 – ZYY	11 to 25 (0.435 to 0.980)	15 to 150	N or H	25 (81.25)
TEG – XXX – 100 – ZYY	11 to 25 (0.435 to 0.980)	20 to 200	N or H	25 (81.25)
TEG – XXX – 125 – ZYY	11 to 25 (0.435 to 0.980)	25 to 250	N or H	25 (81.25)
TEG – XXX – 150 – ZYY	11 to 25 (0.435 to 0.980)	30 to 300	N or H	25 (81.25)
TEG – XXX – 250 – ZYY	11 to 25 (0.435 to 0.980)	50 to 500	N or H	25 (81.25)
TEG – XXX – 300 – ZYY	11 to 25 (0.435 to 0.980)	60 to 600	N or H	25 (81.25)
TEG – XXX – 500 – ZYY	11 to 25 (0.435 to 0.980)	100 to 1000	N or H	25 (81.25)
TEG – XXX – 600 – ZYY	11 to 25 (0.435 to 0.980)	120 to 1200	N or H	25 (81.25)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

YY = Cable length. Standard length is 25 m.

Z = Cable type. Cable types are: N = Nylon (standard), and H = HDPE (more flexible).

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEG-200-050-N25.

Eddy Current Probes

TEH — Heavy duty bobbin probe | Attached



Features

- Ultradurable
- All-steel construction
- Tapered wear surfaces at the front and rear
- Titanium cover over coils

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEH – XXX – 005 – NYY	11 to 25 (0.435 to 0.980)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 010 – NYY	11 to 25 (0.435 to 0.980)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 015 – NYY	11 to 25 (0.435 to 0.980)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 025 – NYY	11 to 25 (0.435 to 0.980)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 030 – NYY	11 to 25 (0.435 to 0.980)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 050 – NYY	11 to 25 (0.435 to 0.980)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 075 – NYY	11 to 25 (0.435 to 0.980)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 100 – NYY	11 to 25 (0.435 to 0.980)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 125 – NYY	11 to 25 (0.435 to 0.980)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 150 – NYY	11 to 25 (0.435 to 0.980)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 250 – NYY	11 to 25 (0.435 to 0.980)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 300 – NYY	11 to 25 (0.435 to 0.980)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 500 – NYY	11 to 25 (0.435 to 0.980)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEH – XXX – 600 – NYY	11 to 25 (0.435 to 0.980)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

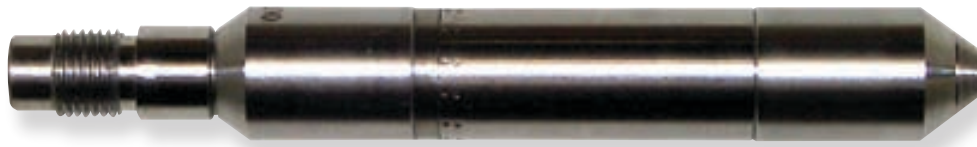
YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEH-200-050-N15.

Eddy Current Probes

TEJ — Heavy duty bobbin probe | Detachable



Features

- Ultradurable
- All-steel construction
- Tapered wear surfaces at the front and rear
- Titanium cover over coils

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TEJ – XXX – 005	11 to 25 (0.435 to 0.980)	1 to 10
TEJ – XXX – 010	11 to 25 (0.435 to 0.980)	2 to 20
TEJ – XXX – 015	11 to 25 (0.435 to 0.980)	3 to 30
TEJ – XXX – 025	11 to 25 (0.435 to 0.980)	5 to 50
TEJ – XXX – 030	11 to 25 (0.435 to 0.980)	6 to 60
TEJ – XXX – 050	11 to 25 (0.435 to 0.980)	10 to 100
TEJ – XXX – 075	11 to 25 (0.435 to 0.980)	15 to 150
TEJ – XXX – 100	11 to 25 (0.435 to 0.980)	20 to 200
TEJ – XXX – 125	11 to 25 (0.435 to 0.980)	25 to 250
TEJ – XXX – 150	11 to 25 (0.435 to 0.980)	30 to 300
TEJ – XXX – 250	11 to 25 (0.435 to 0.980)	50 to 500
TEJ – XXX – 300	11 to 25 (0.435 to 0.980)	60 to 600
TEJ – XXX – 500	11 to 25 (0.435 to 0.980)	100 to 1000
TEJ – XXX – 600	11 to 25 (0.435 to 0.980)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 25.4 mm (1 in.) OD x 2.11 mm (0.083 in.) WT, and the tube is made out of stainless steel 316, then the probe should have a 20.0 mm diameter and 50 kHz frequency = TEJ-200-050.

Catalog part number	Description	Cable length in m (ft)
TEZ – BBS – NYY	Standard cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBK – NYY	Kink resistant cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)

YY = Cable length. Standard length is 15 m.

Above cables use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the cable number.

Eddy Current Probes

TEM — Magnetic bias probe | Attached



Features

- Incorporated magnetic bias
- Ultradurable construction
- Hardened steel wear surface for long life in harsh environments
- Ideal to suppress noise associated with permeability changes in nonferritic steels

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEM – XXX – 005 – NYY	11 to 25 (0.435 to 0.980)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 010 – NYY	11 to 25 (0.435 to 0.980)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 015 – NYY	11 to 25 (0.435 to 0.980)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 025 – NYY	11 to 25 (0.435 to 0.980)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 030 – NYY	11 to 25 (0.435 to 0.980)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 050 – NYY	11 to 25 (0.435 to 0.980)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 075 – NYY	11 to 25 (0.435 to 0.980)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 100 – NYY	11 to 25 (0.435 to 0.980)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 125 – NYY	11 to 25 (0.435 to 0.980)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 150 – NYY	11 to 25 (0.435 to 0.980)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 250 – NYY	11 to 25 (0.435 to 0.980)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 300 – NYY	11 to 25 (0.435 to 0.980)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 500 – NYY	11 to 25 (0.435 to 0.980)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEM – XXX – 600 – NYY	11 to 25 (0.435 to 0.980)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

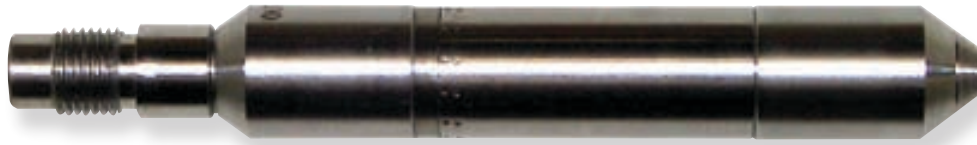
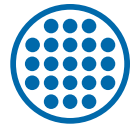
YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 19.05 mm (3/4 in.) OD x 1.65 mm (0.065 in.) WT, and the tube is made out of stainless steel 321, then the probe should have a 14.6 mm diameter and 75 kHz frequency = TEM-146-075-N15.

Eddy Current Probes

TEN — Magnetic bias probe | Detachable



Features

- Detachable design
- Incorporated magnetic bias
- Ultradurable construction
- Hardened steel wear surface for long life in harsh environments
- Ideal to suppress noise associated with permeability changes in nonferritic steels

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TEN – XXX – 005	11 to 25 (0.435 to 0.980)	1 to 10
TEN – XXX – 010	11 to 25 (0.435 to 0.980)	2 to 20
TEN – XXX – 015	11 to 25 (0.435 to 0.980)	3 to 30
TEN – XXX – 025	11 to 25 (0.435 to 0.980)	5 to 50
TEN – XXX – 030	11 to 25 (0.435 to 0.980)	6 to 60
TEN – XXX – 050	11 to 25 (0.435 to 0.980)	10 to 100
TEN – XXX – 075	11 to 25 (0.435 to 0.980)	15 to 150
TEN – XXX – 100	11 to 25 (0.435 to 0.980)	20 to 200
TEN – XXX – 125	11 to 25 (0.435 to 0.980)	25 to 250
TEN – XXX – 150	11 to 25 (0.435 to 0.980)	30 to 300
TEN – XXX – 250	11 to 25 (0.435 to 0.980)	50 to 500
TEN – XXX – 300	11 to 25 (0.435 to 0.980)	60 to 600
TEN – XXX – 500	11 to 25 (0.435 to 0.980)	100 to 1000
TEN – XXX – 600	11 to 25 (0.435 to 0.980)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 19.05 mm (3/4 in.) OD x 1.65 mm (0.065 in.) WT, and the tube is made out of stainless steel 321, then the probe should have a 14.6 mm diameter and 75 kHz frequency = TEN-146-075.

Catalog part number	Description	Cable length in m (ft)
TEZ – BBS – ZYY	Standard cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBK – ZYY	Kink resistant cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)

YY = Cable length. Standard length is 15 m.

Above cables use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the cable number.

Eddy Current Probes

TEO — CARTER™ super magnetic bias probe | Attached



Features

- Super magnetic bias
- Ultradurable construction
- Hardened steel wear surface for long life in harsh environments
- Ideal to suppress permeability noise in mildly ferritic material such as Monel®, 3RE60, SEA-CURE®, and 400-series stainless

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)	Cable length in m (ft)
TEO – XXX – 005 – NYY	11 to 25 (0.435 to 0.980)	1 to 10	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 010 – NYY	11 to 25 (0.435 to 0.980)	2 to 20	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 015 – NYY	11 to 25 (0.435 to 0.980)	3 to 30	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 025 – NYY	11 to 25 (0.435 to 0.980)	5 to 50	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 030 – NYY	11 to 25 (0.435 to 0.980)	6 to 60	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 050 – NYY	11 to 25 (0.435 to 0.980)	10 to 100	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 075 – NYY	11 to 25 (0.435 to 0.980)	15 to 150	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 100 – NYY	11 to 25 (0.435 to 0.980)	20 to 200	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 125 – NYY	11 to 25 (0.435 to 0.980)	25 to 250	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 150 – NYY	11 to 25 (0.435 to 0.980)	30 to 300	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 250 – NYY	11 to 25 (0.435 to 0.980)	50 to 500	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 300 – NYY	11 to 25 (0.435 to 0.980)	60 to 600	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 500 – NYY	11 to 25 (0.435 to 0.980)	100 to 1000	15, 20, and 30 (49.2, 65.6, and 98.5)
TEO – XXX – 600 – NYY	11 to 25 (0.435 to 0.980)	120 to 1200	15, 20, and 30 (49.2, 65.6, and 98.5)

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

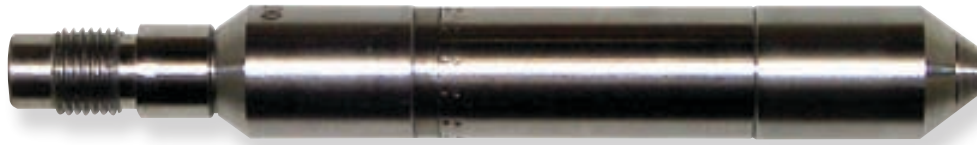
YY = Cable length. Standard length is 15 m.

Above probes use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the probe number.

Example: If the tube dimensions are 19.05 mm (3/4 in.) OD x 1.65 mm (0.065 in.) WT, and the tube is made out of Monel 400, then the probe should have a 14.6 mm diameter and 50 kHz frequency = TEO-146-050-N15.

Eddy Current Probes

TEP — CARTER™ super magnetic bias probe | Detachable



Features

- Detachable design
- Super magnetic bias
- Ultradurable construction
- Hardened steel wear surface for long life in harsh environments
- Ideal to suppress permeability noise in mildly ferritic material such as Monel®, 3RE60, SEA-CURE®, and 400-series stainless

Catalog part number	Probe outside diameter in mm (in.)	Frequency range (kHz)
TEP – XXX – 005	11 to 25 (0.435 to 0.980)	1 to 10
TEP – XXX – 010	11 to 25 (0.435 to 0.980)	2 to 20
TEP – XXX – 015	11 to 25 (0.435 to 0.980)	3 to 30
TEP – XXX – 025	11 to 25 (0.435 to 0.980)	5 to 50
TEP – XXX – 030	11 to 25 (0.435 to 0.980)	6 to 60
TEP – XXX – 050	11 to 25 (0.435 to 0.980)	10 to 100
TEP – XXX – 075	11 to 25 (0.435 to 0.980)	15 to 150
TEP – XXX – 100	11 to 25 (0.435 to 0.980)	20 to 200
TEP – XXX – 125	11 to 25 (0.435 to 0.980)	25 to 250
TEP – XXX – 150	11 to 25 (0.435 to 0.980)	30 to 300
TEP – XXX – 250	11 to 25 (0.435 to 0.980)	50 to 500
TEP – XXX – 300	11 to 25 (0.435 to 0.980)	60 to 600
TEP – XXX – 500	11 to 25 (0.435 to 0.980)	100 to 1000
TEP – XXX – 600	11 to 25 (0.435 to 0.980)	120 to 1200

XXX = Probe size in millimeters rounded to the nearest 0.2 mm multiple. For example, 12.6 mm corresponds to 126. See Table 1 on page 24 for size recommendations. See Table 2 on page 25 to select the probe frequency.

Example: If the tube dimensions are 19.05 mm (3/4 in.) OD x 1.65 mm (0.065 in.) WT, and the tube is made out of Monel 400, then the probe should have a 14.6 mm diameter and 50 kHz frequency = TEP-146-050.

Catalog part number	Description	Cable length in m (ft)
TEZ – BBS – NYY	Standard cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)
TEZ – BBK – NYY	Kink resistant cable for bobbin probe	15, 20, and 30 (49.2, 65.6, and 98.5)

YY = Cable length. Standard length is 15 m.

Above cables use a 4-pin Amphenol™ connector. For a 6-pin Jaeger connector, add the letter J at the end of the cable number.

Probe selection based on the tube material and size

Table 1—ECT probe diameter selection for common tube size

(Be careful; if your tube is dirty, it may require a smaller probe. Olympus NDT is not responsible for the selection of a probe that is not compatible with your application. If you need assistance, do not hesitate to contact us.)

			Tube outside diameter					
			12.7 mm (1/2 in.)	15.87 mm (5/8 in.)	19.05 mm (3/4 in.)	22.22 mm (7/8 in.)	25.4 mm (1 in.)	31.75 mm (1.25 in.)
Tube wall thickness	BWG							
	24	0.56 mm (0.022 in.)	108	140	170	200	232	292
	23	0.635 mm (0.025 in.)	106	138	168	200	230	290
	22	0.71 mm (0.028 in.)	106	136	168	198	228	290
	21	0.81 mm (0.032 in.)	104	134	166	196	226	288
	20	0.89 mm (0.035 in.)	102	132	164	194	224	286
	19	1.07 mm (0.042 in.)	098	130	160	190	222	282
	18	1.24 mm (0.049 in.)	094	126	156	188	218	280
	17	1.47 mm (0.058 in.)	090	122	152	182	214	276
	16	1.65 mm (0.065 in.)	086	118	148	180	210	272
	15	1.83 mm (0.072 in.)	082	114	146	176	208	268
	14	2.11 mm (0.083 in.)	078	108	140	170	202	262
	13	2.41 mm (0.095 in.)	072	102	134	164	196	256
12	2.77 mm (0.109 in.)	064	096	126	158	188	250	

Test frequency selection based on the tube material and size

Table 2—ECT probe frequency selection for different tube materials and thicknesses

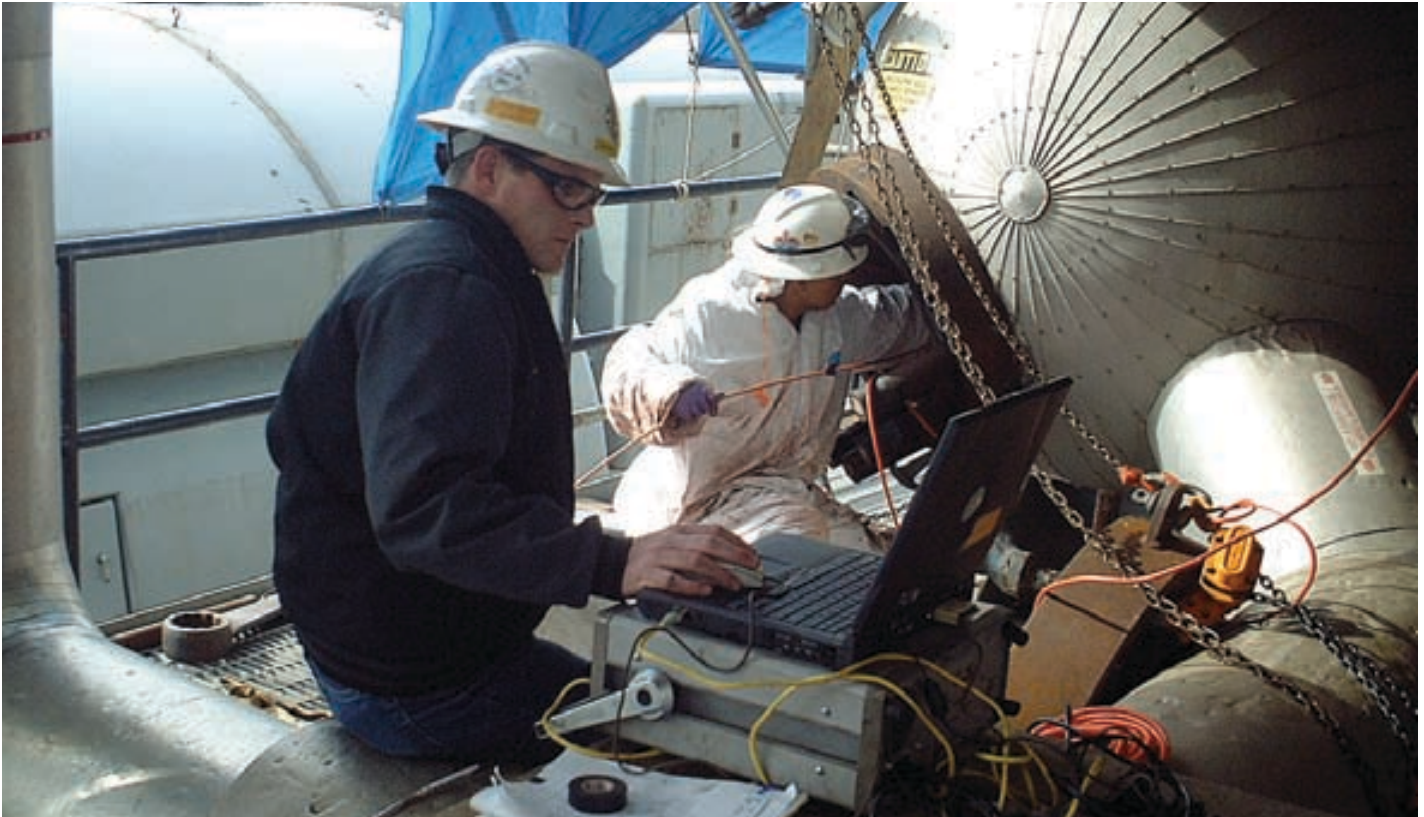
The value (in kHz) is calculated for F90 with the equation below.

BWG			Aluminum	Aluminum (6061-T-6)	Aluminum bronze	Admiralty brass	Brass (70/30 Cu-Zn)	Brass (85/15)	Brass (95/5)	Copper	Copper nickel 70-30	Copper nickel 90-10	Hastelloy® C	Inconel® 600	Monel®	Stainless steel 304	Stainless steel 316	Titanium 99%	Zirconium
Tube wall thickness (t)	24	0.56 mm (0.022 in.)	050	050	125	075	050	050	025	015	300	150	600	600	500	600	600	500	300
	23	0.635 mm (0.025 in.)	025	025	100	050	050	050	025	015	250	150	600	600	300	500	600	300	300
	22	0.71 mm (0.028 in.)	015	025	075	050	050	025	025	010	250	100	600	600	300	500	500	300	250
	21	0.81 mm (0.032 in.)	015	015	050	025	025	025	015	010	150	100	600	500	250	300	300	250	150
	20	0.89 mm (0.035 in.)	010	015	050	025	025	025	010	010	150	075	500	300	150	250	280	150	150
	19	1.07 mm (0.042 in.)	010	010	025	015	015	010	010	005	100	050	300	250	125	150	150	125	100
	18	1.24 mm (0.049 in.)	005	010	025	015	010	010	005	005	075	050	250	150	100	150	150	100	075
	17	1.47 mm (0.058 in.)	005	005	015	010	010	005	005	005	050	025	150	150	075	100	100	075	050
	16	1.65 mm (0.065 in.)	005	005	015	010	010	005	005	005	050	025	150	100	050	075	075	050	050
	15	1.83 mm (0.072 in.)	005	005	010	005	005	005	005	005	025	015	100	100	050	075	075	050	050
	14	2.11 mm (0.083 in.)	005	005	010	005	005	005	005	005	025	015	100	075	025	050	050	025	025
	13	2.41 mm (0.095 in.)	005	005	005	005	005	005	005	005	025	010	075	050	025	050	050	025	025
12	2.77 mm (0.109 in.)	005	005	005	005	005	005	005	005	015	010	050	050	025	025	025	025	015	

F90 calculation

$$f_{90} \text{ (kHz)} = \frac{3\rho}{t^2 \text{ (mm)}}$$

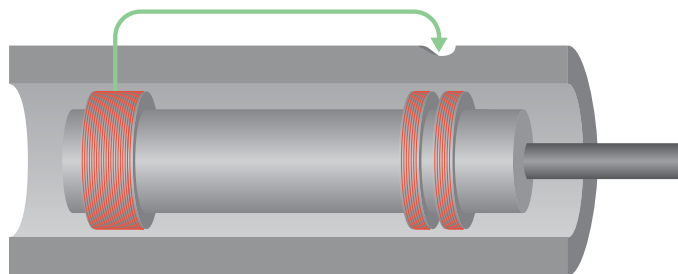
Remote Field Applications



The remote field technique (RFT) is a variation of the eddy current send-receive probe technique. The exciter coil is separated from the receiver coils by a distance equivalent to two or three times the tube OD. The receiver coils sense the flux lines that cross the tube wall twice. Remote field has an equal sensitivity to ID and OD indications, while the phase shift is directly proportional to wall loss.

The remote field technique is used for the inspection of ferromagnetic tubing such as carbon steel and ferritic stainless, as well as for the detection and sizing of wall thinning resulting from corrosion, erosion, wear, pitting, and baffle cuts.

R/D Tech® remote field equipment can be used successfully in several applications: heat exchangers, feedwater heaters, boiler tubes, and buried pipes.



Remote Field Probes

TRA — Single exciter



Features

- Absolute and differential signal
- Includes a 30-dB preamplifier
- Detects irregularities such as pitting, corrosion, and erosion in ferromagnetic tubing
- Improved wear resistance

Catalog part number	Probe outside diameter in mm (in.)	Frequency range codes	Cable length in m (ft)
TRA – 090 – XXX – NYY	9 (0.350)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 100 – XXX – NYY	10 (0.390)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 110 – XXX – NYY	11 (0.430)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 120 – XXX – NYY *	12 (0.470)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 130 – XXX – NYY *	13 (0.510)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 140 – XXX – NYY	14 (0.550)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 160 – XXX – NYY	16 (0.630)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 170 – XXX – NYY *	17 (0.670)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 180 – XXX – NYY *	18 (0.710)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 190 – XXX – NYY	19 (0.750)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 200 – XXX – NYY	20 (0.790)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 220 – XXX – NYY	22 (0.865)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 240 – XXX – NYY	24 (0.945)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 260 – XXX – NYY	26 (1.020)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 280 – XXX – NYY **	28 (1.102)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRA – 320 – XXX – NYY **	32 (1.260)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)

XXX = 300 = 100 Hz to 1000 Hz. It is the recommended frequency range for most carbon steel tubes.

02K = 1 kHz to 10 kHz. This frequency range is not common. It can be used for thin and lower permeability carbon steel (like A-556).

15K = 5 kHz to 30 kHz. It is used for ferromagnetic stainless steel like SS439 (A-268) or SEA-CURE®.

YY = Cable length. Standard length is 20 m.

* Available for faster shipping. These probes have a low frequency range (100 Hz to 1000 Hz) and come with a 20 m cable. See Table 3 on page 30 for probe size recommendations.

** For bigger size probes the stainless steel jacket is eliminated in favor of a fiber-reinforced polymer protecting the coils.

Above probes use a 19-pin Amphenol™ connector compatible with TC4700, TC5700™ and MultiScan MS5800™.

Example: For carbon steel material and tube dimensions of 19.01 mm (3/4 in.) OD x 2.11 mm (0.083 in.) WT, the recommended probe diameter is 13.0 mm with 300 Hz frequency = TRA-130-300-N20.

Remote Field Probes

TRB — Dual exciter



Features

- Absolute and differential signal
- Single or dual driver operation selectable from the software interface
- Includes a 30-dB preamplifier
- Better detection of signal at tube support plate
- Improved wear resistance

Catalog part number	Probe outside diameter in mm (in.)	Frequency range codes	Cable length in m (ft)
TRB – 100 – XXX – NYY	10 (0.390)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 110 – XXX – NYY	11 (0.435)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 120 – XXX – NYY *	12 (0.470)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 130 – XXX – NYY *	13 (0.510)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 140 – XXX – NYY	14 (0.550)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 160 – XXX – NYY	16 (0.630)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 170 – XXX – NYY	17 (0.670)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 180 – XXX – NYY *	18 (0.710)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 190 – XXX – NYY	19 (0.750)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 200 – XXX – NYY	20 (0.785)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 220 – XXX – NYY	22 (0.865)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 240 – XXX – NYY	24 (0.945)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)
TRB – 260 – XXX – NYY	26 (1.025)	300, 02K, and 15K	20 or 30 (65.6 or 98.5)

XXX = 300 = 100 Hz to 1000 Hz. It is the recommended frequency range for most carbon steel tubes.

02K = 1 kHz to 10 kHz. This frequency range is not common. It can be used for thin and lower permeability carbon steel (like A-556).

15K = 5 kHz to 30 kHz. It is used for ferromagnetic stainless steel like SS439 (A-268) or SEA-CURE®.

YY = Cable length. Standard length is 20 m.

* Available for faster shipping. These probes have a low frequency range (100 Hz to 1000 Hz) and come with a 20 m cable. See Table 3 on page 30 for probe size recommendations.

Above probes use a 19-pin Amphenol™ connector compatible with TC4700, TC5700™, and MultiScan MS5800™.

Example: For carbon steel material and tube dimensions of 19.01 mm (3/4 in.) OD x 2.11 mm (0.083 in.) WT, the recommended probe diameter is 13.0 mm with 300 Hz frequency = TRB-130-300-N20.

Remote Field Probes

TRC — Boiler probe



Features

- Absolute and differential signal
- Flexible and waterproof design
- Includes a 30-dB preamplifier
- Replaceable centering brushes

Catalog part number	Probe outside diameter in mm (in.)	Frequency range codes	Cable length in m (ft)
TRC – 280 – 300 – NYY	28 (1.100)	300	20 or 30 (65.6 or 98.5)
TRC – 340 – 300 – NYY	34 (1.340)	300	20 or 30 (65.6 or 98.5)
TRC – 370 – 300 – NYY *	37 (1.460)	300	20 or 30 (65.6 or 98.5)
TRC – 450 – 300 – NYY *	45 (1.770)	300	20 or 30 (65.6 or 98.5)
TRC – 550 – XXX – NYY	55 (2.165)	085 and 300	20 or 30 (65.6 or 98.5)
TRC – 650 – XXX – NYY	65 (2.560)	085 and 300	20 or 30 (65.6 or 98.5)

XXX = 300 = 100 Hz to 1000 Hz. It is the recommended frequency range for most carbon steel tubes.

085 = 20 Hz to 200 Hz. It is used for carbon steel tube thicker than 6 mm.

YY = Cable length. Standard length is 20 m.

* Available for faster shipping. These probes have a low frequency range (100 Hz to 1000 Hz) and come with a 20 m cable. See Table 4 on page 31 for probe size recommendations.

Above probes use a 19-pin Amphenol™ connector compatible with TC4700, TC5700™, and MultiScan MS5800™.

Example: For carbon steel material and tube dimensions of 63.5 mm (2.5 in.) OD x 4.2 mm (0.165 in.) WT, the recommended probe diameter is 45.0 mm with 300 Hz frequency = TRC-450-300-N20.

Rigid RFT probe selection based on tube size

Table 3—Rigid RFT probe selection (models TRA or TRB) for common carbon steel tube sizes

OD	WT	Recommended probe diameter													
		090	100	110	120*	130*	140	160	170	180*	190	200	220	240	260
12.7 mm (0.5 in.)	1.06 mm (0.042 in.)	●													
	1.25 mm (0.049 in.)	●													
15.875 mm (0.625 in.)	1.25 mm (0.049 in.)			●	○										
	1.65 mm (0.065 in.)		○	●											
	2.11 mm (0.083 in.)		●	○											
19.05 mm (0.75 in.)	1.65 mm (0.065 in.)					○	●								
	2.11 mm (0.083 in.)				○	●									
	2.41 mm (0.095 in.)				●	○									
	2.77 mm (0.109 in.)			○	●										
25.4 mm (1.0 in.)	2.11 mm (0.083 in.)									○	●	○			
	2.41 mm (0.095 in.)									●	○				
	2.77 mm (0.109 in.)								○	●					
	3.05 mm (0.120 in.)								●	○					
	3.41 mm (0.134 in.)							●	●						
31.75 mm (1.25 in.)	2.11 mm (0.083 in.)														○
	2.41 mm (0.095 in.)													○	●
	2.77 mm (0.109 in.)													●	●
	3.05 mm (0.120 in.)												○	●	
	3.41 mm (0.134 in.)												●		

- This is the recommended probe size.
- This size can be used if you do not have the recommended size.
- * Available for faster shipping.

Flexible RFT probe selection based on tube size

Table 4—Flexible RFT probe selection (model TRC) for common boiler tube sizes

OD	WT	Recommended probe diameter					
		280	340	370*	450*	550	650
38.1 mm (1.5 in.)	2.77 mm (0.109 in.)	●					
	3.41 mm (0.134 in.)	○					
	4.19 mm (0.165 in.)						
50.8 mm (2.0 in.)	2.77 mm (0.109 in.)			●			
	3.41 mm (0.134 in.)			●			
	4.19 mm (0.165 in.)		●	○			
63.5 mm (2.5 in.)	3.41 mm (0.134 in.)				●		
	4.19 mm (0.165 in.)				●		
	5.16 mm (0.206 in.)				●		
76.2 mm (3.0 in.)	4.19 mm (0.165 in.)					●	
	5.16 mm (0.206 in.)					●	
	6.05 mm (0.238 in.)					●	
88.9 mm (3.5 in.)	5.16 mm (0.206 in.)						●
	6.05 mm (0.238 in.)						●
	7.21 mm (0.284 in.)						●

- This is the recommended probe size.
- This size can be used if you do not have the recommended size.

* Available for faster shipping.

(For boiler probes, it is always important to verify if the tube to be inspected has a swage. In that case, the internal diameter will be reduced, and the requirement for probe size will change.)

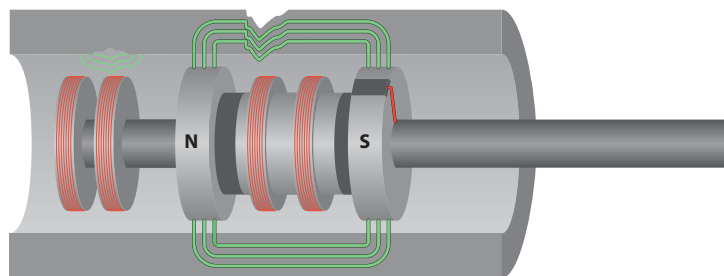
Magnetic Flux Leakage Applications



Magnetic flux leakage (MFL) is based on the magnetization of the material to inspect using a strong magnet located inside the probe. As the probe encounters a wall reduction or a sharp discontinuity, the flux distribution varies around that area and is detected either with a Hall effect transducer or with an inductive pickup coil.

Magnetic flux leakage measures the magnetization of the tube to detect irregularities such as corrosion and steam erosion. Magnetic flux leakage is recommended for the inspection of aluminum-finned carbon steel tubes because the magnetic flux is not affected by the presence of the fins.

The MFL technique is also suitable for the detection of circumferential cracks, a type of flaw that is not detected by RFT and IRIS inspections.



Magnetic Flux Leakage Probes

TFB — High-saturation | Attached



Features

- Superior high-saturation optimized magnetic design
- Three-channel design for excellent detection of localized defect, ID indication, and any kind of wall loss measurement (with TF-ADP-001 adapter described on page 40)
- Superior wheel design for easy probe pushing and wear resistance for longer life
- Ideal for air-cooler tubings (with aluminum fins) and for circumferential crack detection

Catalog part number	Probe casing diameter in mm (in.)	Probe diameter including wheels in mm (in.)	Cable length in m (ft)
TFB – 120 – NYY	12.0 (0.472)	No wheels**	20 or 30 (65.6 or 98.5)
TFB – 132 – NYY	13.2 (0.520)	No wheels**	20 or 30 (65.6 or 98.5)
TFB – 161 – NYY	16.1 (0.634)	16.4 (0.646)	20 or 30 (65.6 or 98.5)
TFB – 170 – NYY	17.0 (0.669)	17.3 (0.681)	20 or 30 (65.6 or 98.5)
TFB – 179 – NYY*	17.9 (0.705)	18.2 (0.717)	20 or 30 (65.6 or 98.5)
TFB – 187 – NYY	18.7 (0.736)	19.0 (0.748)	20 or 30 (65.6 or 98.5)
TFB – 198 – NYY	19.8 (0.780)	20.1 (0.791)	20 or 30 (65.6 or 98.5)
TFB – 229 – NYY	22.9 (0.902)	23.2 (0.913)	20 or 30 (65.6 or 98.5)
TFB – 242 – NYY	24.2 (0.953)	24.5 (0.965)	20 or 30 (65.6 or 98.5)
TFB – 283 – NYY	28.3 (1.114)	28.8 (1.134)	20 or 30 (65.6 or 98.5)
TFB – 296 – NYY	29.6 (1.165)	30.1 (1.185)	20 or 30 (65.6 or 98.5)

YY = Cable length. Standard length is 20 m.

*Available for faster shipping. These probes have a 20-m cable length. See Table 5 on page 35 for probe size recommendations.

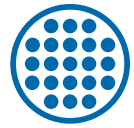
**Instead of wheels, these smaller diameter probes feature flush-mounted carbide wear pins that do not protrude from the casing.

Above probes use an 8-pin Amphenol™ connector compatible with TC4700, TC5700™, and MultiScan MS5800™.

Example: For carbon steel material and tube dimensions of 25.4 mm (1.0 in.) OD x 2.77 mm (0.109 in.) WT, the recommended probe diameter is 17.9 mm (18.2 mm including the wheels) = TFB-179-N20.

Magnetic Flux Leakage Probes

TFC — High-saturation | Detachable



Features

- Superior high-saturation optimized magnetic design
- Three-channel design for excellent detection of localized defect, ID indication, and any kind of wall loss measurement (with TF-ADP-001 adapter described on page 40)
- Superior wheel design for easy probe pushing and wear resistance for longer life
- Ideal for air-cooler tubing (with aluminum fins) and for circumferential crack detection

Catalog part number	Probe casing diameter in mm (in.)	Probe diameter including wheels in mm (in.)
TFC – 161	16.1 (0.634)	16.4 (0.646)
TFC – 170	17.0 (0.669)	17.3 (0.681)
TFC – 179	17.9 (0.705)	18.2 (0.717)
TFC – 187	18.7 (0.736)	19.0 (0.748)
TFC – 198	19.8 (0.780)	20.1 (0.791)
TFC – 229	22.9 (0.902)	23.2 (0.913)
TFC – 242	24.2 (0.953)	24.5 (0.965)
TFC – 283	28.3 (1.114)	28.8 (1.134)
TFC – 296	29.6 (1.165)	30.1 (1.185)

Example: For carbon steel material and tube dimensions of 25.4 mm (1.0 in.) OD x 2.77 mm (0.109 in.) WT, the recommended probe diameter is 17.9 mm (18.2 mm including the wheels) = TFC-179.

Catalog part number	Description	Cable length in m (ft)
TFZ – BLS – NYY	Standard cable for bobbin LEAD MFL probe	20 (65.6)

YY = Cable length. Standard length is 20 m.

Cable type is: N = Nylon (standard).

See Table 5 on page 35 for probe size recommendations.

Above cable uses an 8-pin Amphenol™ connector compatible with TC4700, TC5700™, and MultiScan MS5800™.

MFL probe selection based on tube size

Table 5—High-saturation MFL probe selection for common tube sizes

OD	WT	Recommended probe diameter										
		120	132	161	170	179*	187	198	229	242	283	296
19 mm (0.75 in.)	1.65 mm (0.065 in.)		○									
	2.11 mm (0.083 in.)		●									
	2.41 mm (0.095 in.)	○	●									
	2.77 mm (0.109 in.)	●										
	3.05 mm (0.120 in.)	●										
25.4 mm (1.0 in.)	1.65 mm (0.065 in.)							●				
	1.83 mm (0.072 in.)							●				
	2.11 mm (0.083 in.)						●					
	2.41 mm (0.095 in.)					○	●					
	2.77 mm (0.109 in.)					●						
	3.05 mm (0.120 in.)				●	○						
	3.41 mm (0.134 in.)			●	●							
	3.76 mm (0.148 in.)			●								
31.75 mm (1.25 in.)	2.41 mm (0.095 in.)									●		
	2.77 mm (0.109 in.)									●		
	3.05 mm (0.120 in.)								●			
	3.41 mm (0.134 in.)								●			
38.1 mm (1.5 in.)	2.77 mm (0.109 in.)											●
	3.05 mm (0.120 in.)											●
	3.41 mm (0.134 in.)										●	
	3.76 mm (0.148 in.)										●	

- This is the recommended probe size.
- This size can be used if you do not have the recommended size.

* Available for faster shipping.

(Be careful; if your tube is dirty, it may require a smaller probe. Olympus NDT is not responsible for the selection of a probe that is not compatible with your application. If you need assistance, do not hesitate to contact us.)

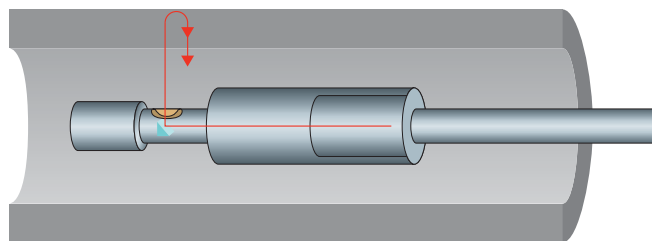
IRIS Applications



The internal rotary inspection system (IRIS) is an ultrasonic technique well suited for petrochemical and balance-of-plant (BOP) tube inspections. The technique uses an ultrasonic beam to scan the internal surface of the tube in helicoidal patterns, ensuring that the full length of the tube is tested. R/D Tech® tube inspection systems monitor the front-wall and the back-wall echoes in order to measure the tube wall thickness.


The internal rotary inspection system probe operates in pulse-echo mode to measure wall thickness, material loss, and defect orientation within the range of 0.5 in. to 3 in. ID. The IRIS probe consists of an ultrasonic transducer firing in the axial direction of the tube. A mirror mounted on a water-propelled turbine deflects the ultrasonic beam in order to obtain a normal incidence wave on the internal wall of the tube. Because the mirror revolves about the axis, the entire circumference of the tube is examined. A complete IRIS probe includes the cable, a centering unit, a turbine, and a transducer.


The equipment was designed for optimum results on various applications: tube and shell heat exchangers, air coolers, boiler tubes, near drum inspections, and crack detection. When equipped with a four-channel pulser-receiver, the system can perform corrosion mapping as well.




IRIS Probes and Accessories



Catalog part number	Description	Size in mm (in.)	Frequency (MHz)
			
TUA – 120	Turbine	12 (0.472)	n/a
MCTA464	Iris retaining spring for TUA-120		n/a
MQSY235	Target pin for TUA-120		
TUA – 170	Turbine	17 (0.669)	n/a
MCTA465	Iris retaining spring for TUA-170)		n/a
MQSY640	Target pin for TUA-170		n/a

			
TUB – 254 – 10M	Transducer	25.4 (1.000) focal length	10
TUB – 381 – 10M	Transducer	38.1 (1.500) focal length	10
TUB – 254 – 15M	Transducer	25.4 (1.000) focal length	15
TUB – 381 – 15M	Transducer	38.1 (1.500) focal length	15
TUB – 254 – 20M	Transducer	25.4 (1.000) focal length	20

			
TUC – XS	Centering device	11.4 to 17.8 (0.450 to 0.700)	n/a
TUC – SM	Centering device	17.3 to 25.4 (0.680 to 1.000)	n/a
TUC – MD	Centering device	23.4 to 41.9 (0.920 to 1.650)	n/a
TUC – LG	Centering device	35.6 to 76.2 (1.400 to 3.000)	n/a
IRIS-FLEXROD	Separate flexible shaft for boiler inspection		
MQSY223	Rigid central rod		
MQSY225	Spare nylon centering part for 3/4 inch centering device. (Sold in packs of 4)		

Catalog part number	Description	Cable length in m (ft)
TUD – N15	Cable	15 (49.2)
TUD – N20	Cable	20 (65.6)
TUD – N30	Cable	30 (98.5)
TUD – BNC	BNC to BNC UT cable	3 (9.85)
TUD – LEM	BNC to LEMO UT cable	3 (9.85)

Catalog part number	Description
IRIS-Filter	Water filter and regulator
IRIS-Flood	Flood tube adapter for 19.05 mm (0.75 in.) and 25.4 mm (1 in.) tube
IRIS-WP110	Water pump, submersible, 110 V
IRIS-WP110-EXT	Water pump, external with filter assembly, 110 V
IRIS-WP220	Water pump, submersible, 220 V
IRIS-WP220-EXT	Water pump, external with filter assembly, 220 V
IRIS-REP-GEN	General repair kit (for turbine, cable, centering and pump)
IRIS-REP-T12	Repair kit for 12-mm turbines
IRIS-REP-T17	Repair kit for 17-mm turbines
IRIS-REP-XS	Repair kit for extra-small centering device
IRIS-REP-S	Repair kit for small centering device
IRIS-REP-M	Repair kit for medium centering device
IRIS-REP-L	Repair kit for large centering device
IRIS-REP-CBL	Repair kit for IRIS acquisition cable

See Table 6 on page 38 to select accessories for your tube inspection.

IRIS accessories selection





Table 6—IRIS accessory selection for common tube sizes



OD	WT	Turbine (TUA)		Transducer (TUB)					Centering device (TUC)			
		120	170	10 MHz		15 MHz		20 MHz	XS	SM	MD	LG
				25.4 mm (1.0 in.)	38.1 mm (1.5 in.)	25.4 mm (1.0 in.)	38.1 mm (1.5 in.)	25.4 mm (1.0 in.)				
19.05 mm (0.75 in.)	1.65 mm (0.065 in.)	●				○		●	●			
	2.11 mm (0.083 in.)	●				●		●	●			
	2.77 mm (0.109 in.)	●				●			●			
25.4 mm (1.0 in.)	2.11 mm (0.083 in.)	●	●			●				●		
	2.77 mm (0.109 in.)	●	●			●				●		
	3.41 mm (0.134 in.)	●		●		●				●		
31.75 mm (1.25 in.)	2.11 mm (0.083 in.)	○	●			●					●	
	2.77 mm (0.109 in.)	○	●			●					●	
	3.41 mm (0.134 in.)	○	●	●		●					●	
38.1 mm (1.5 in.)	2.77 mm (0.109 in.)		●				●				●	
	3.41 mm (0.134 in.)		●		●		●				●	
	4.19 mm (0.165 in.)		●		●						●	
50.8 mm (2.0 in.)	3.41 mm (0.134 in.)		●		●		●					●
	4.19 mm (0.165 in.)		●		●		○					●
	5.16 mm (0.206 in.)		●		●							●
63.5 mm (2.5 in.)	3.41 mm (0.134 in.)		●		●		●					●
	4.19 mm (0.165 in.)		●		●		○					●
	5.16 mm (0.206 in.)		●		●							●
76.2 mm (3.0 in.)	4.19 mm (0.165 in.)		●		●		○					●
	5.16 mm (0.206 in.)		●		●							●
	6.05 mm (0.238 in.)		●		●							●





- This is the recommended probe size.
- This size can be used if you do not have the recommended size.
- * Available for faster shipping.

Probe Adapters and Pusher-Pullers



Probe adapters

	Catalog part number	Description
	TE – ADP – 001	EC bobbin probe adapter (4-pin to 41-pin Amphenol™ for internal reference)
	TE – ADP – 002	EC bobbin probe adapter (2 x 4-pin to 41-pin Amphenol for external reference)
	TE – ADP – 003	EC bobbin probe adapter (6-pin Jaeger to 41-pin Amphenol for internal and external reference)
	TE – ADP – 004	Air conditioning (AC) probe adapter (2 x 4-pin to 41-pin Amphenol)
	TE-ADP-005	Absolute EC probe adaptor for BNC to 41-pin Amphenol
	TE-ADP-006	EC probe adaptor for Fisher 4-pin connector to 41-pin Amphenol
	TE-ADP-007	Reflection EC probe adaptor from Triax Fisher connector to 41-pin Amphenol
Adapters compatible with TC4700, TC5700™, and MultiScan MS 5800™ systems.		

	Catalog part number	Description
	TR – ADP – 001	RFT Zetec® probe adapter (3-pin and 6-pin to 19-pin Amphenol)
	TR – ADP – 002	RFT Zetec probe adapter for selectable dual exciter (5-pin and 6-pin to 19-pin Amphenol)


	Catalog part number	Description
	TR – ADP – 003	RFT Russell probe adapter
	TR – ADP – 004	RFT TesTex probe adapter
	TR – ADP – 005	Universal adapter for Zetec RFT probe
	TR – ADP – 008	RFT Zetec probe adapter for dual pickup

Adapters compatible with TC4700, TC5700, and MultiScan MS5800 systems.

	Catalog part number	Description
	TF – ADP – 001	R/D Tech® integrator for wall loss measurement
	TF – ADP – 002	MFL Scientific Technology probe adapter

Adapters compatible with TC4700, TC5700, and MultiScan MS5800 systems.

Pusher-Pullers

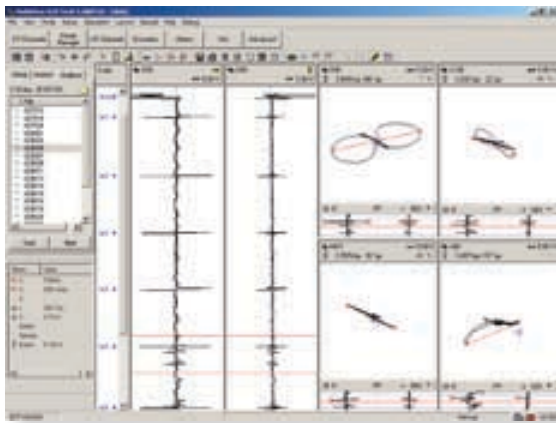
	Catalog part number	Description
	TF – ADP – 002	MPP-04 AirGun

ECT Data Acquisition Systems and Software



MultiScan MS5800™ multitechnology unit

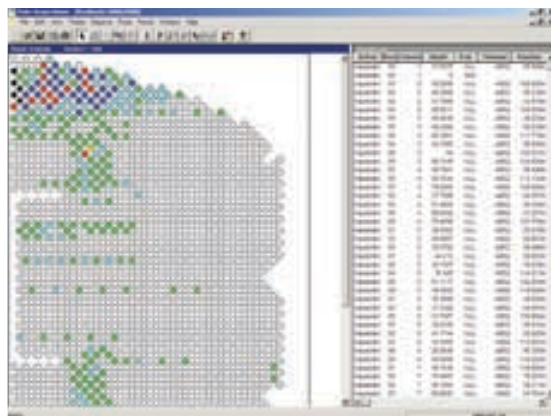
- ECT, RFT, MFL, and ECT array
- Multichannel UT for corrosion maps
- Data acquisition and analysis with MultiView™ software
- Suitable for automated inspections: petrochemical, HX, corrosion mapping, etc.



MultiView™

Data acquisition and analysis software

- Setup wizard
- Automatic calibration of all channels
- Storage of unlimited number of inspection setups
- Creation and management of inspection list (tube lists)
- Impedance plane and strip chart presentations of ECT and RFT data
- Amplitude and phase measurement of ET and RFT data
- Phase and voltage to depth curve
- Automatic data recording synchronized with tube list
- Screen printouts, tabular reports



Inspection result map

CARTO

Tubesheet Mapping and Reporting

CARTO™ is a software program designed to manage and report heat exchanger inspections. This Microsoft® Windows®-based data management software transforms inspection data (ET, RFT, IRIS, and MFL) into accurate and concise color-coded reports.

When combined with R/D Tech® MultiView™ analysis software, CARTO provides a completely integrated heat exchanger inspection system with sophisticated planning and reporting capabilities.



Plug map

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