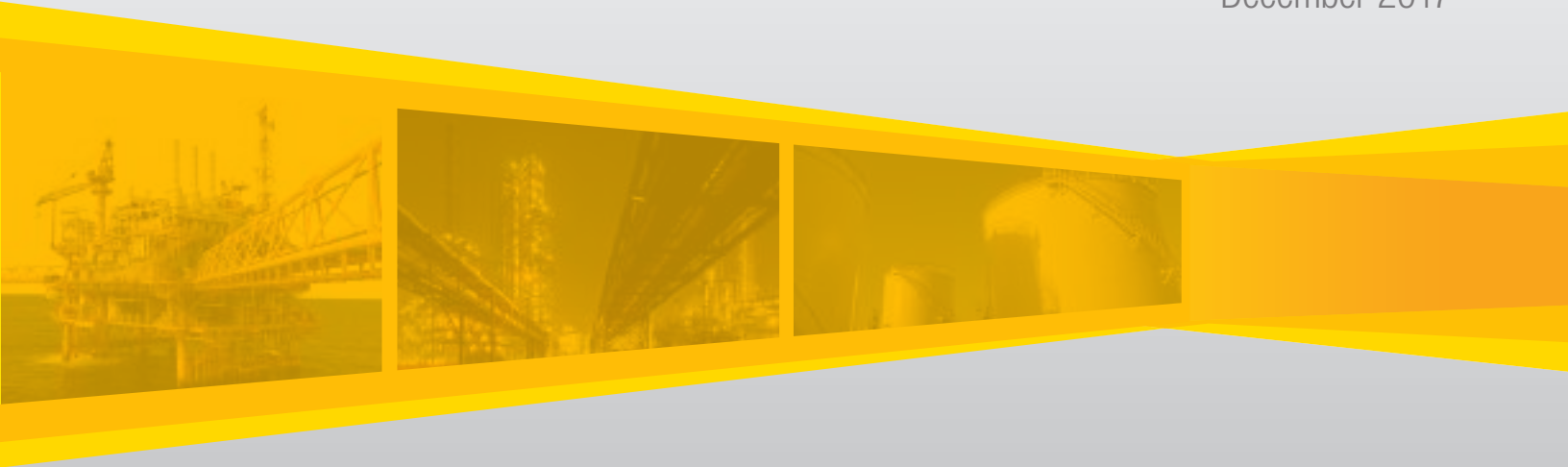




Pulsed Eddy Current (PEC) Probe Catalog

December 2017



We Are Eddyfi

Non-destructive testing (NDT) of critical components is a vital part of asset integrity management and safety in many industries such as the oil and gas and power generation industries. Corrosion under insulation (CUI) is one of the (petro)chemical processing industry's worst problems, the cost associated to mitigating it astronomical. Current methods for measuring wall thickness over insulation, coatings, and claddings without stripping all have severe limitations.

To offer a truly powerful and modern solution to address the CUI challenge, Eddyfi has spared no effort to develop Lyft®, which completely reinvents pulsed eddy current (PEC) technology. The patent-pending solution features a portable, state-of-the-art instrument with real-time C-scan imaging, fast data acquisition, as well as grid-mapping and dynamic scanning modes. The solution is designed to scan metals up to 100 mm (4 in) thick, non-conductive insulation up to 300 mm (12 in) thick, and through aluminum, stainless steel and galvanized steel weather jackets. It is possible to scan through thicker pipe walls and insulation — inquire for details.

The Lyft software is packed with automation and advanced algorithms that remove operator-specific dependence, thanks to the power of the SmartPULSE™ technology. It automatically optimizes pulser and receiver parameters (gain, duration, time gates, filters, etc.). SmartPULSE also optimizes wall thickness (WT) measurements, which ensures optimum performance and repeatability, while limiting the need for advanced knowledge of pulsed eddy current.

Eddyfi is dedicated to PEC technology. This is why we wanted to offer the best selection of pulsed eddy current probes to match all application needs.



Eddyfi is headquartered in beautiful Québec, Canada, at the heart of the city's advanced NDT cluster. We are the most dynamic company in the field of advanced NDT equipment — we've made it our mission to push the limits of electromagnetic testing to new heights, which we're proving again with Lyft.

If, for some reason, the probes herein do not fit your specific needs, Eddyfi has all the necessary capabilities to develop custom solutions to tackle the most challenging applications.

For more information, visit www.eddyfi.com or contact us at probes@eddyfi.com.

Numbering Nomenclatures

Probe Numbering Nomenclature

Probe numbers are located on the probe cable, near its Fischer connector.

PEC - 152 - ENC - G2 - H05S
Technology Model size Encoder Generation Cable type Cable exit position Cable length

PEC - SZ - 089 - G2 - H20S
Technology Model Model size Generation Cable type Cable exit position Cable length

PEC - TF - 400 - H05S
Technology Model Blade length Cable type Cable exit position Cable length

Model (application specific)

- GS: Galvanized steel
- SZ: Splash zone
- TF: Tank floor
- UW: Underwater

Model size

- 025: Small
- 089: Medium
- 152: Large

Blade length (application specific)

- 400: 400 mm (15.75 in)

Generation

- G2: Second-generation PEC probes

Cable type

- H: Heavy-duty poly
- HT: High-temperature poly
- U: Underwater cable

Cable length

Indicates the length of the cable in metres.

Cable exit position

- S: Side exit



Standard PEC Probes

Standard PEC probes are specifically designed to detect corrosion under insulation (CUI), corrosion under fireproofing (CUF), and flow-accelerated corrosion (FAC) in pipes, vessels, sphere legs, and more. They are available in three different sizes for the right balance between wall thickness and liftoff. They offer enough flexibility to support metal thicknesses up to 100 mm (4 in), insulation up to 300 mm (12 in) (fiber glass, plastic wrap, concrete, and any non-ferrous material), as well as stainless steel, aluminum, or galvanized steel weather jackets. The probes can also inspect hard-to-reach areas of various geometries.

Selecting the Right Standard PEC Probes (Lyft 1.3)

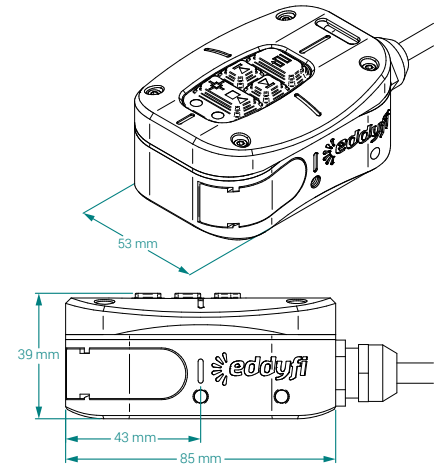
		Insulation / Coating Thickness (Liftoff)																
		0	6	13	19	25	38	51	64	76	89	102	127	152	178	203	254	305
mm		0.00	0.25	0.50	0.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00	10.00	12.00
	Wall Thickness	3	PEC-025-G2															
6		PEC-089-G2																
10		PEC-152-G2																
13		PEC-152-G2																
16		PEC-152-G2																
19		PEC-152-G2																
25		PEC-152-G2																
32		PEC-152-G2																
38		PEC-152-G2																
51		PEC-152-G2																
64	Custom development Inquire for details																	
76	Custom development Inquire for details																	
102	Custom development Inquire for details																	



Available Models

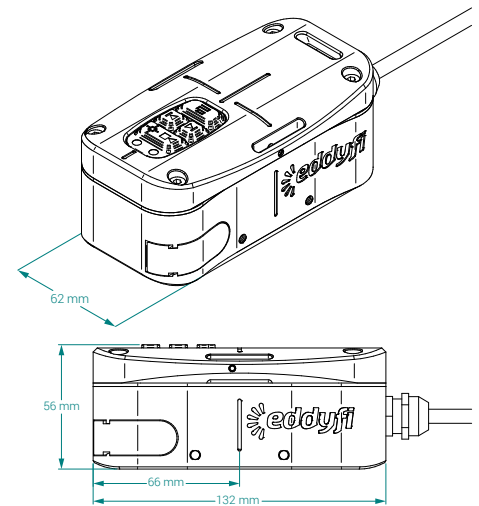
PEC-025-G2-H05S

Body	Standard
Casing	Small
Wall thickness	Up to 19 mm (0.75 in)
Insulation/Coating thickness (liftoff)	0–76 mm (0–3 in)
Footprint at zero liftoff	35 mm (1.38 in)
Encoder	Clip-on (see page 10 for details)
Cable	5 m (16.4 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F) Direct contact with probe shoe: 120 °C (248 °F)



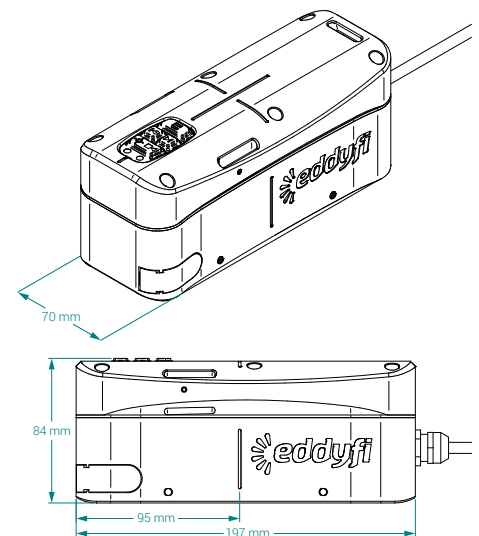
PEC-089-G2-H05S

Body	Standard
Casing	Medium
Wall thickness	Up to 76 mm (3 in)
Insulation/Coating thickness (liftoff)	0–203 mm (0–8 in)
Footprint at zero liftoff	62 mm (2.44 in)
Encoder	Clip-on (see page 10 for details)
Cable	5 m (16.4 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F) Direct contact with probe shoe: 120 °C (248 °F)



PEC-152-G2-H05S

Body	Standard
Casing	Large
Wall thickness	Up to 102 mm (4 in)
Insulation/Coating thickness (liftoff)	0–305 mm (0–12 in)
Footprint at zero liftoff	100 mm (3.94 in)
Encoder	Clip-on (see page 10 for details)
Cable	5 m (16.4 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F) Direct contact with probe shoe: 120 °C (248 °F)



Splash Zone PEC Probe

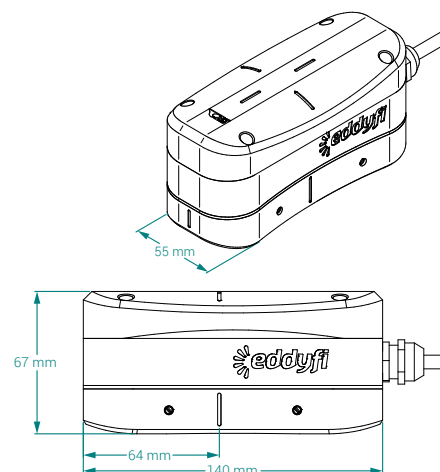
The splash zone PEC probe is specifically designed to detect corrosion under insulation (CUI) in the area immediately above and below the mean water level in such carbon steel structures as offshore oil and gas platform legs and risers. The probe can tackle offshore applications thanks to its rugged design, watertightness to 15 m (49 ft) in grid-mapping mode, and 25 m (82 ft) heavy-duty cable. The probe is also flexible enough to support metal thicknesses up to 76 mm (3 in) and insulation or marine growth up to 203 mm (8 in).

		Insulation / Coating Thickness (Liftoff)																	
		0	6	13	19	25	38	51	64	76	89	102	127	152	178	203	254	305	
Wall Thickness	mm																		
	in	0.00	0.25	0.50	0.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00	10.00	12.00	
3	0.13	PEC-SZ-089-G2															PEC-UW-089-G2		
6	0.25	PEC-SZ-089-G2															PEC-UW-089-G2		
10	0.38	PEC-SZ-089-G2															PEC-UW-089-G2		
13	0.50	PEC-SZ-089-G2															PEC-UW-089-G2		
16	0.63	PEC-SZ-089-G2															PEC-UW-089-G2		
19	0.75	PEC-SZ-089-G2															PEC-UW-089-G2		
25	1.00	PEC-SZ-089-G2															PEC-UW-089-G2		
32	1.25	PEC-SZ-089-G2															PEC-UW-152-G2		
38	1.50	PEC-SZ-089-G2															PEC-UW-152-G2		
51	2.00	PEC-SZ-089-G2															Custom development Inquire for details		
64	2.50	PEC-SZ-089-G2															Custom development Inquire for details		
76	3.00	PEC-SZ-089-G2															Custom development Inquire for details		
102	4.00	PEC-SZ-089-G2															Custom development Inquire for details		

Available Models

PEC-SZ-089-G2-H25S

Body	Splash zone
Casing	Medium
Wall thickness	Up to 76 mm (3 in)
Insulation/Coating thickness (liftoff)	0–203 mm (0–8 in)
Footprint at zero liftoff	62 mm (2.44 in)
Encoder	None (add-on only)
Watertightness	15 m (49.2 ft)
Cable	25 m (82.0 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F)

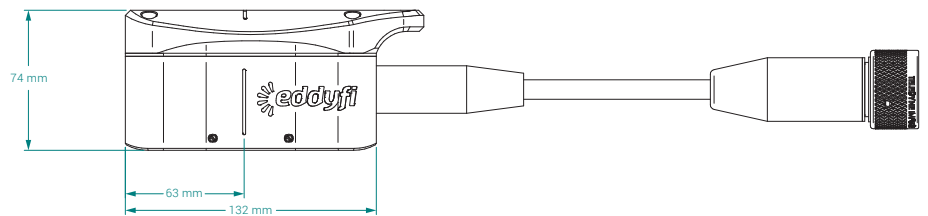
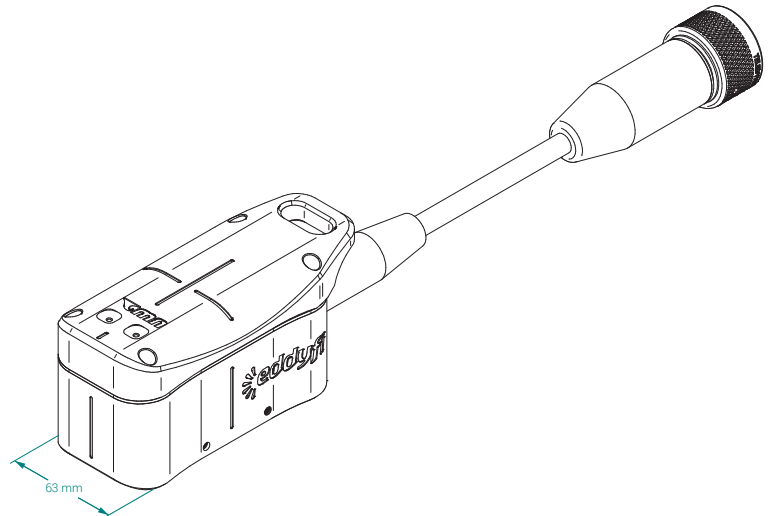


Underwater PEC Probes

Underwater PEC probes are specifically designed to detect corrosion hidden under marine growth or coatings, without surface preparation, in offshore applications such as risers, jetty piles, caissons, underwater piping systems, and conductor inspections. See selection table on previous page.

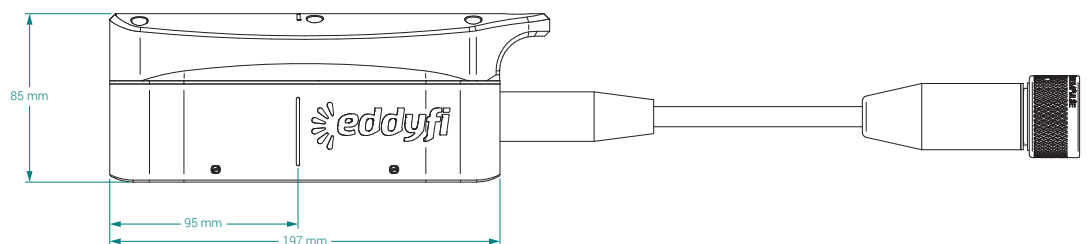
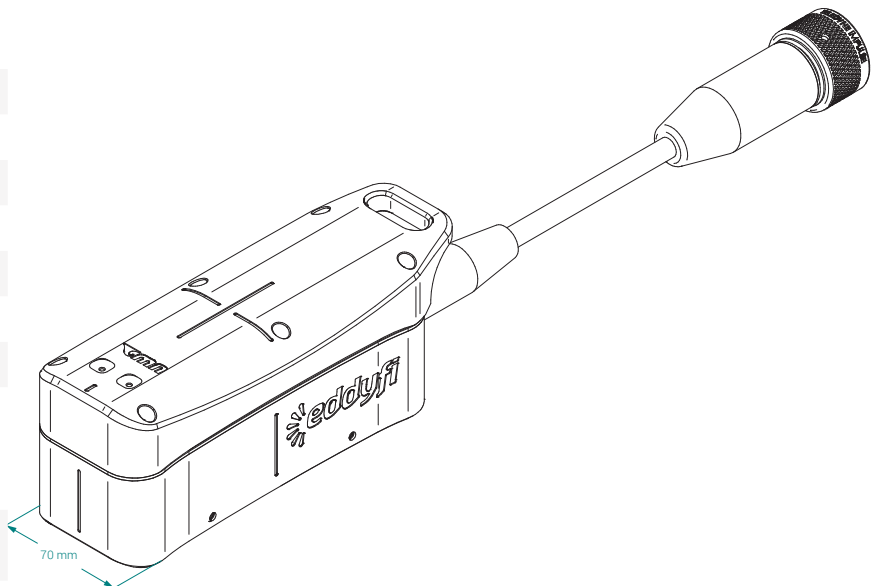
PEC-UW-089-G2-U005S

Body	Underwater
Casing	Medium
Wall thickness	Up to 75 mm (3 in)
Insulation/Coating thickness (liftoff)	0–200 mm (0–8 in)
Footprint at zero liftoff	62 mm (2.4 in)
Encoder	None (add-on only)
Watertightness	100 m (330 ft)
Cable	5 m (16 ft) Available extension cables: 50 m (165 ft) and 100 m (330 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F)



PEC-UW-152-G2-U005S

Body	Underwater
Casing	Large
Wall thickness	Up to 100 mm (4 in)
Insulation/Coating thickness (liftoff)	0–300 mm (0–12 in)
Footprint at zero liftoff	100 mm (4 in)
Encoder	None (add-on only)
Watertightness	100 m (330 ft)
Cable	5 m (16 ft) Available extension cables: 50 m (165 ft) and 100 m (330 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F)



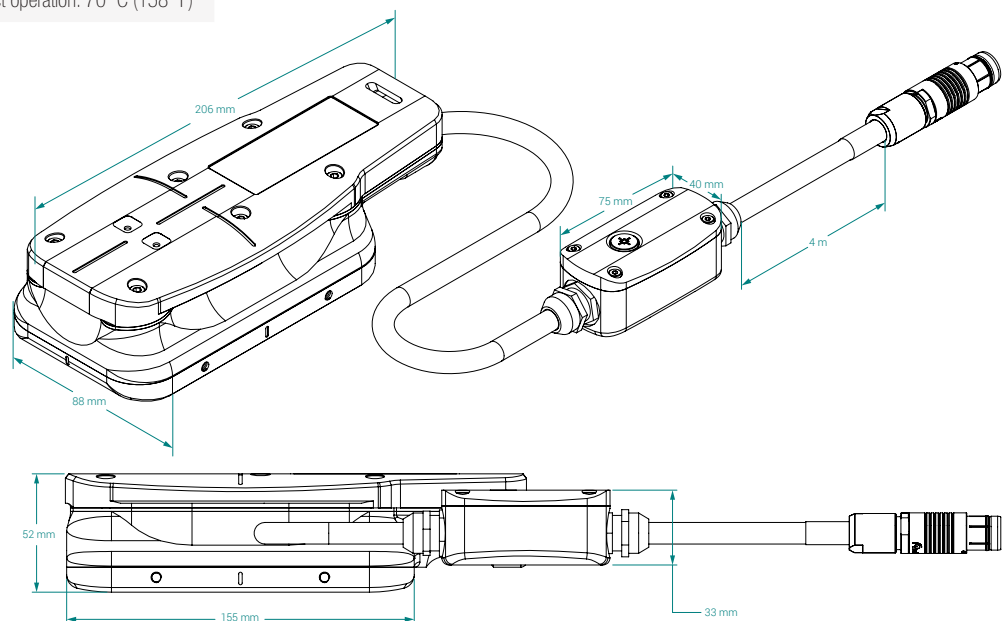
PEC Probe for Galvanized Steel Cladding

The patent-pending PEC-GS probe is dedicated to inspecting insulated structures protected by galvanized steel weather jackets. Being ferromagnetic, galvanized steel cladding is a challenge for PEC inspections. Designed to overcome the adverse effects of this material, the patent-pending probe ensures improved signal penetration, excellent detection capabilities and sizing accuracy, and enhanced signal-to-noise ratio (SNR).

		Insulation / Coating Thickness (Liftoff)													
		mm	0	6	13	19	25	38	51	64	76	89	102	127	152
		in	0.00	0.25	0.50	0.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00
Wall Thickness	6	0.25													
	10	0.38													
	13	0.50													
	16	0.63													
	19	0.75													
	25	1.00													
	32	1.25													
	38	1.50													

PEC-GS-089-G2

Body	Galvanized steel
Wall thickness	Up to 38 mm (1.5 in)
Insulation/Coating thickness (liftoff)	13–152 mm (0.5–6.0 in)
Footprint at minimum liftoff	62 mm (2.44 in)
Encoder	None (grid scanning mode only)
Cable	5 m (16.4 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F)

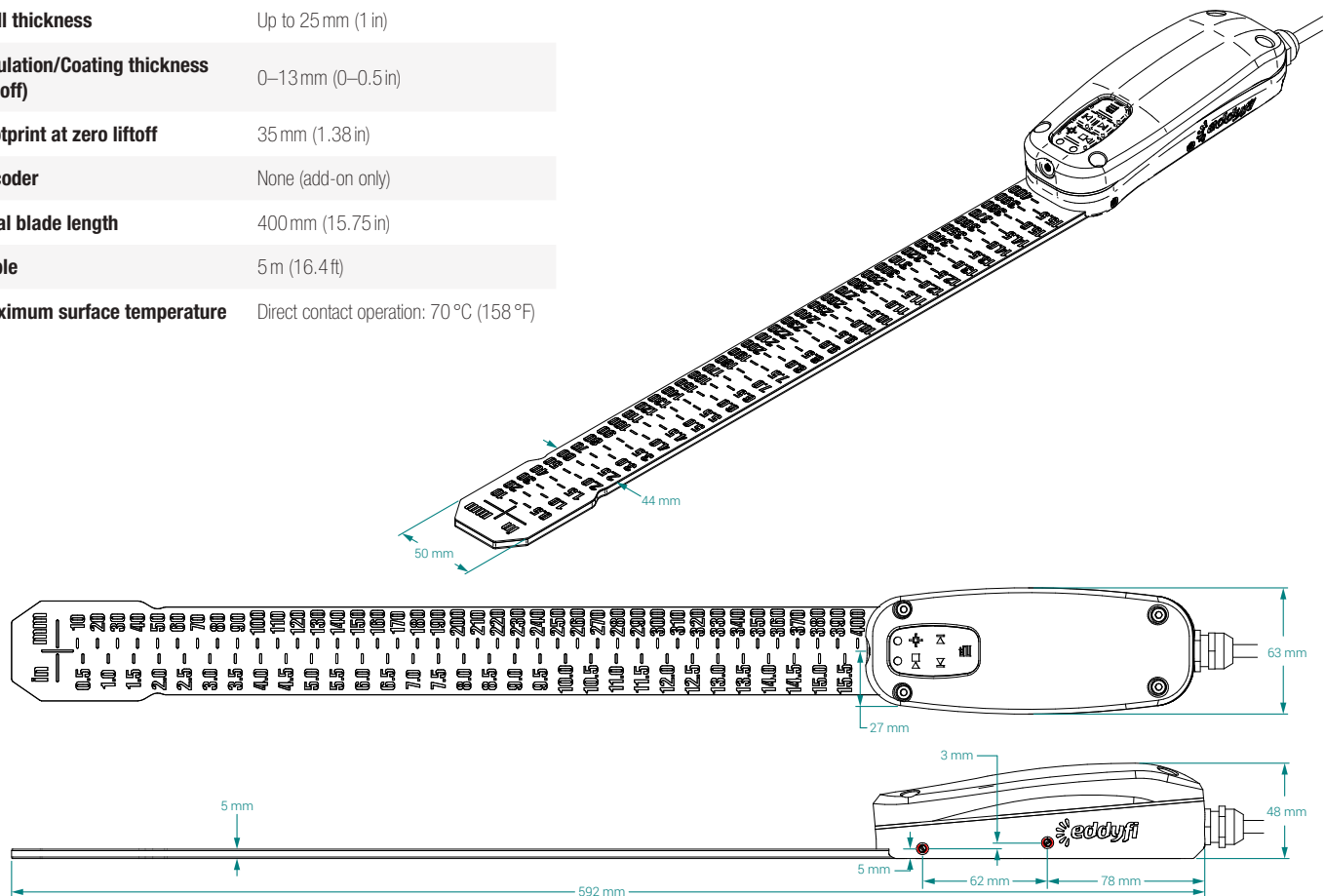


Tank Floor PEC Probe

The tank floor probe enables the in-service inspection of storage tank annular rings. With its super thin 4.8 mm (0.2 in) titanium blade, the probe can slide up to 400 mm (16 in) under tank floor edges, assessing remaining wall thickness of this critical region exposed to corrosion. The embedded remote controls and status LEDs are also perfect for one-person operation.

PEC-TF-400-H05S

Body	Blade
Wall thickness	Up to 25 mm (1 in)
Insulation/Coating thickness (liftoff)	0–13 mm (0–0.5 in)
Footprint at zero liftoff	35 mm (1.38 in)
Encoder	None (add-on only)
Total blade length	400 mm (15.75 in)
Cable	5 m (16.4 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F)

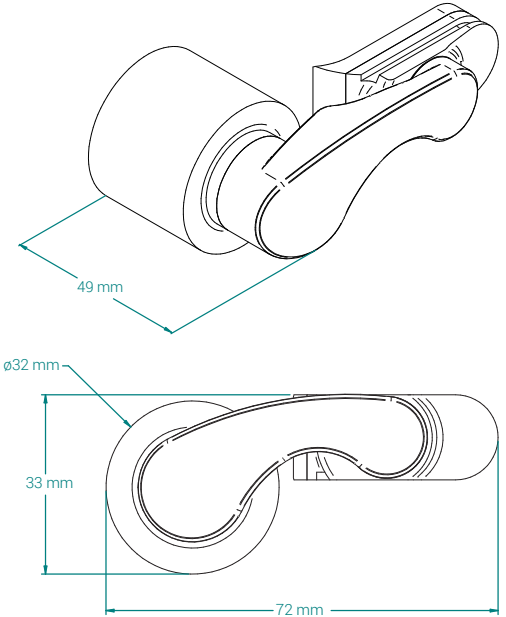


Universal Clip-On Encoder

High-precision clip-on encoders are designed for standard second-generation PEC probes. They connect directly to probes without the need for an external cable.

ENC-PEC-STD

Resolution	16.04 counts/mm (407.44 counts/in)
Maximum surface temperature	70 °C (158 °F)
Compatibility	All models of standard PEC probes (page 5)

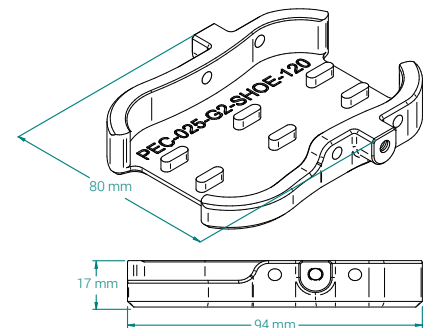


Probe Shoes

Probe shoes are designed to enable direct operation on surfaces up to 120 °C (248 °F) and to attenuate the vibration from galvanized steel weather jackets. The probe shoes are completely compatible with the optional telescopic extension pole (see page 12).

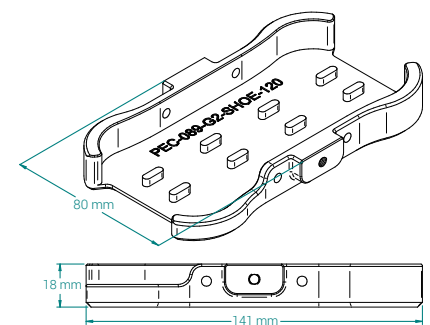
PEC-025-G2-SHOE-120

Body	Standard probe shoe
Casing	Small
Maximum surface temperature	120 °C (248 °F)
Compatibility	PEC-025-G2-HT05S



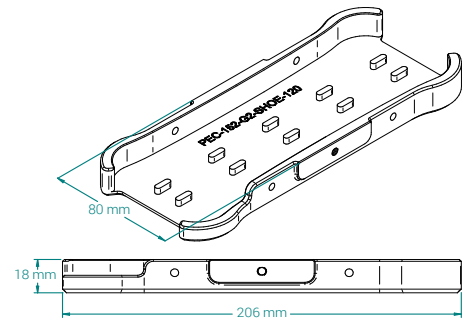
PEC-089-G2-SHOE-120

Body	Standard probe shoe
Casing	Medium
Maximum surface temperature	120 °C (248 °F)
Compatibility	PEC-089-G2-HT05S



PEC-152-G2-SHOE-120

Body	Standard probe shoe
Casing	Large
Maximum surface temperature	120 °C (248 °F)
Compatibility	PEC-152-G2-HT05S

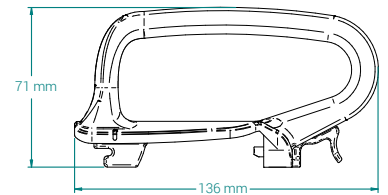
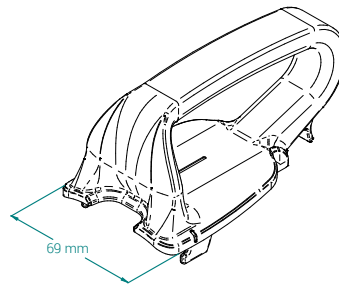


Clip-On Handles

These ergonomic handles are designed to make manipulating standard PEC probes easier. The clip-on design makes installing and removing the handles extremely easy.

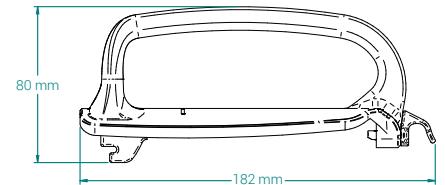
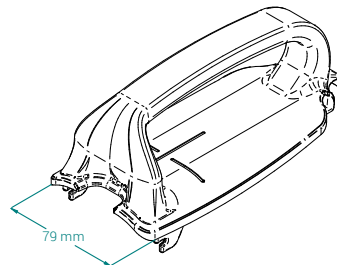
PEC-089-HANDLE

Body	Standard probe handle
Casing	Medium
Compatibility	PEC-089-G2-HT-05S



PEC-152-HANDLE

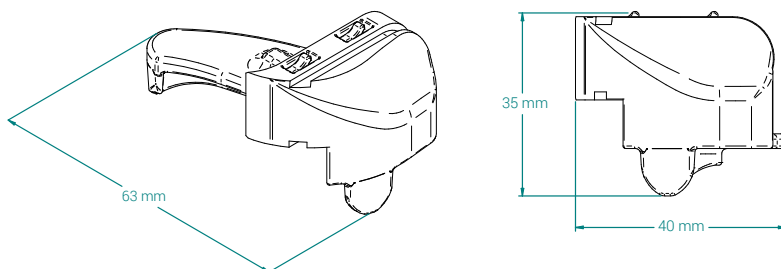
Body	Standard probe handle
Casing	Large
Compatibility	PEC-152-G2-HT05S



Clip-On Stabilizer—PEC-STAB

This clip-on accessory is compatible with second-generation PEC probes. It is used to stabilize grid-mapping scans on very irregular surfaces.

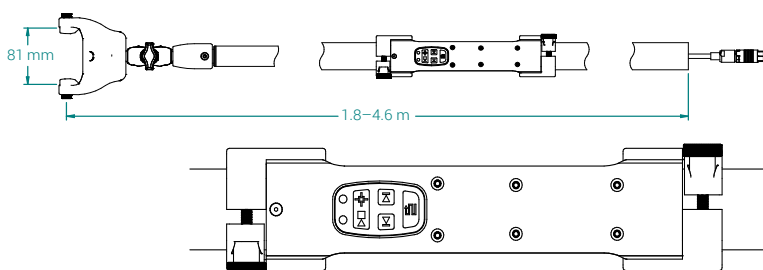
Body	Standard stabilizer
Compatibility	All models of standard PEC probes (page 5)



Extension Pole—PEC-POLE-G2-XH05

This extension pole comes with an adjustable remote control keypad and can extend up to 4.6 m (15 ft). The adjustable fork enables performing inspections at any angle on any surface.

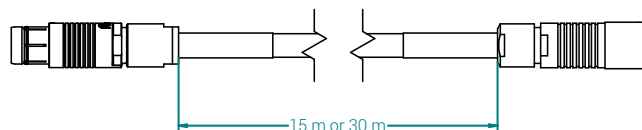
Maximum length	4.6 m (15 ft)
Retracted length	1.8 m (6 ft)
Material (pole)	Fiberglass
Material (fork and remote)	Nylon 11



Extension Cables—PEC-CBL-XH15 and PEC-CBL-XH30

Extension cable allows using PEC probes at a greater distance from the Lyft® instrument. Our extension cables are available in lengths of 15 m (50 ft) and 30 m (100 ft). The maximum length of cable between a probe and the Lyft instrument is 35 m (115 ft).

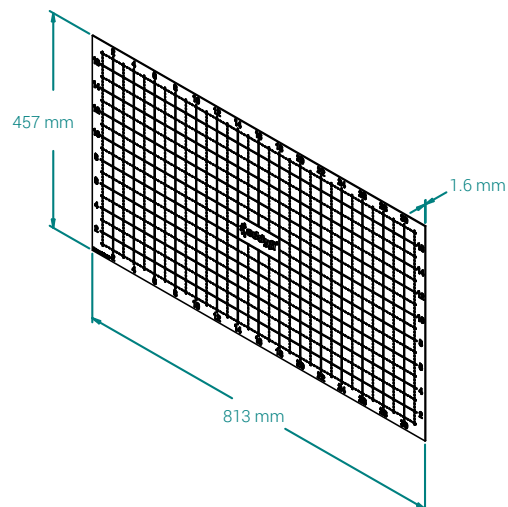
Material	Heavy-duty poly Option: high-temperature poly
Lengths	15 m (50 ft) or 30 m (100 ft)
Maximum temperature	H: 80 °C (176 °F) HT: 120 °C (248 °F)



Scan Grid Mat—PEC-MAT-025-70

The mat features a 25 mm (1 in) resolution grid and enables easier dynamic scans of irregular surfaces and component marking during the inspection setup. The mat is suitable for in-contact operation up to 70 °C (160 °F).

Dimensions (W×H×D)	813 × 457 × 1.6 mm (32 × 18 × 0.06 in)
Grid resolution	25 mm (1 in)
Maximum surface temperature	70 °C (160 °F)



Underwater Cable Adapter — PEC-CBL-XU001-TF

1 m umbilical serving as interface between the 27-pin Fischer connector of Lyft and the 26-pin Teledyne connector of the umbilical.

Length	1 m (13 ft)
Male connector	Fischer, 27 pins
Female connector	Teledyne, 26 pins

Underwater Probe Extension Umbilical and Spool — PEC-CBL-XU050-TT

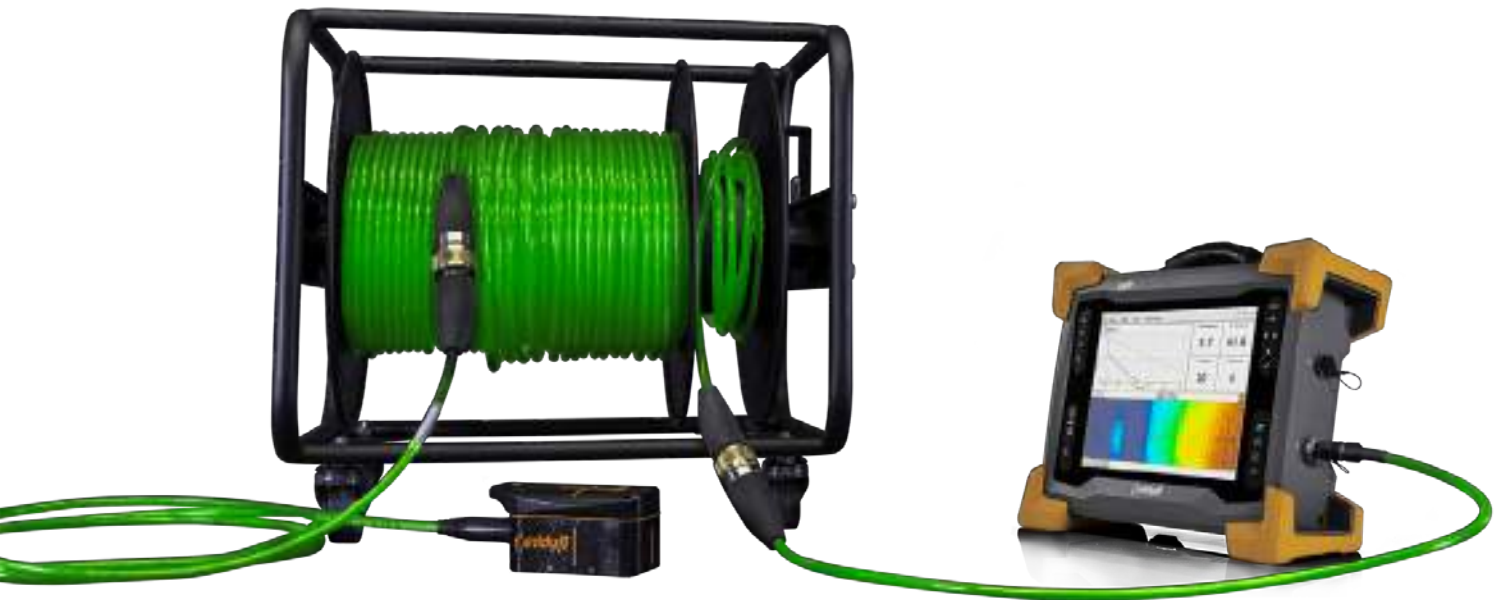
50 m extension umbilical equipped with one male and one female Teledyne connectors. Comes with a spool.

Maximum length	50 m (164 ft)
Connectors	Teledyne, 26 pins

Underwater Probe Extension Umbilical and Spool — PEC-CBL-XU100-TT

100 m extension umbilical equipped with one male and one female Teledyne connectors. Comes with a spool.

Maximum length	100 m (328 ft)
Connectors	Teledyne, 26 pins



Notes



www.eddyfi.com

Disclaimer

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