

# EDDYFI PULSED EDDY CURRENT PROBES



# WE ARE EDDYFI TECHNOLOGIES.

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 chemical processing industry's worst problems, the cost associated to mitigating it astronomical. Current methods for measuring wall thickness over insulation, coatings, and jacketing without stripping all have severe limitations.

To offer a truly powerful and modern solution to address the CUI challenge, Eddyfi Technologies has spared no effort to develop Eddyfi® Lyft®, which completely reinvents pulsed eddy current (PEC) technology. The patent-pending solution features a state-of-the-art portable 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 as thick as to 100 mm (4 in), non-conductive insulation up to 300 mm (12 in) thick through aluminum, stainless steel and galvanized steel weather jackets, and supports pulsed eddy current array (PECA).

Lyft is packed with automation and advanced algorithms that remove operator-specific dependence. Thanks to the power of SmartPULSE™ technology, pulser and receiver parameters (gain, duration, time gates, filters, etc.) are automatically optimized. It also optimizes wall thickness measurements, which ensures optimal performance and repeatability.

Eddyfi Technologies is dedicated to PEC. This is why we want to offer the best selection of probes to match all your application needs.

Eddyfi Technologies 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 and its line of probes.

If, for some reason, the probes herein do not fit your specific needs, we are equipped to develop custom solutions capable of tackling the most challenging applications.

For more, visit [www.eddyfi.com](http://www.eddyfi.com) or contact us at [probes@eddyfi.com](mailto:probes@eddyfi.com).

## PROBE NUMBERING

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

### TECHNOLOGY

- PEC: Single-element pulsed eddy current
- PECA: Pulsed eddy current array

### MODEL SIZE

- 025: PEC small
- 089: PEC medium
- 152: PEC large
- MED: PECA medium

### CHANNELS

xCH: Number of PECA elements

### MODEL (APPLICATION SPECIFIC)

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

### 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

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

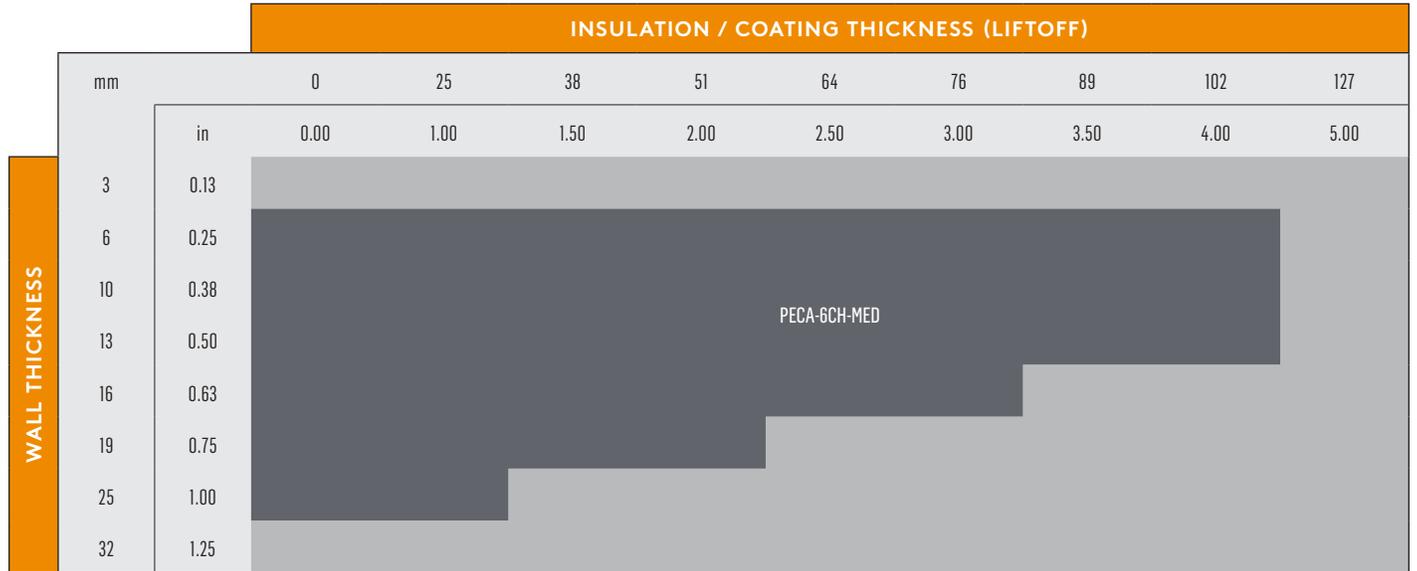
PEC - SZ - 089 - G2 - H20S  
Technology    Model    Model size    Generation    Cable length

PECA - 6CH - MED - H05S  
Technology    Channels    Model size    Cable length

# PULSED EDDY CURRENT ARRAY (PECA) PROBE

The PECA probe is specifically engineered for single-pass coverage of 457 mm (18 in) in grid or high-resolution, dynamic mode. The wide coverage not only makes inspections faster than ever, but also minimizes inspection preparation with Eddyfi Grid-As-U-Go™. The coverage and accessory reduce gridding times dramatically compared to typical, single-element PEC.

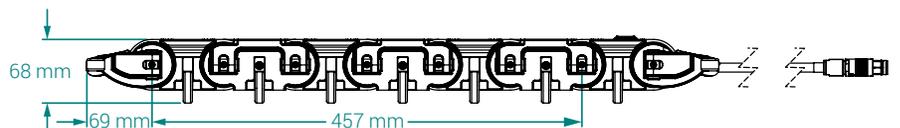
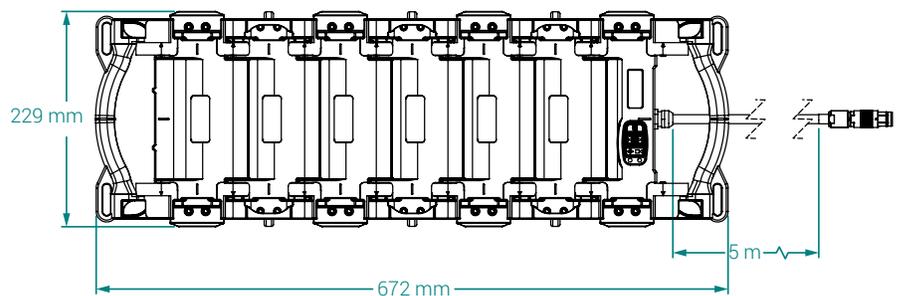
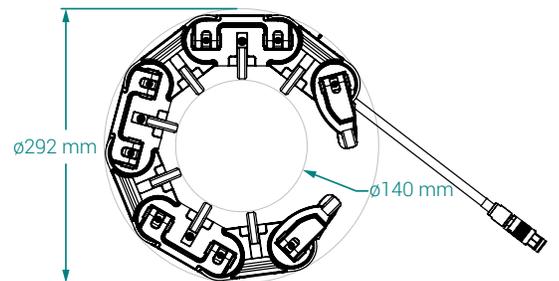
## SELECTING THE RIGHT PECA PROBE (LYFT 2.1)



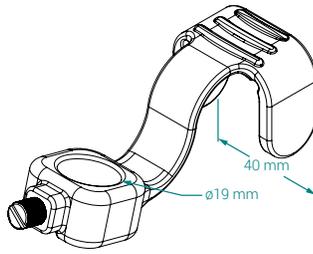
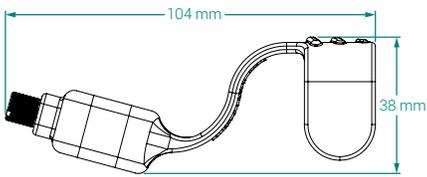
Smallest configuration: 102 mm (4 in) OD pipe, schedule 40, with 25 mm (1 in) insulation; total OD 152 mm (6 in).

### PECA-6CH-MED-H05S

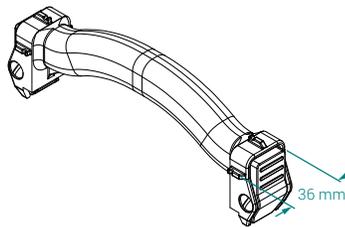
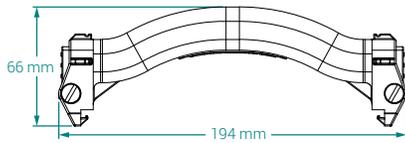
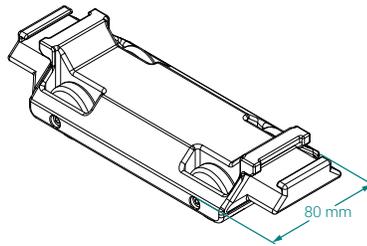
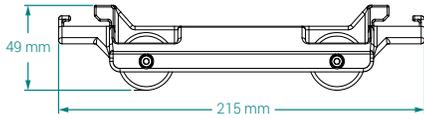
Body	Array
Casing	Medium
Number of channels	6
Total coverage	457 mm (18 in)
Wall thickness	6–25 mm (0.25–1.00 in)
Insulation/Coating thickness (liftoff)	0–102 mm (0–4 in)
Encoder	Removable (see page 12 for details)



## GRID-AS-U-GO



## CARRIAGE, CLIP-ON HANDLES

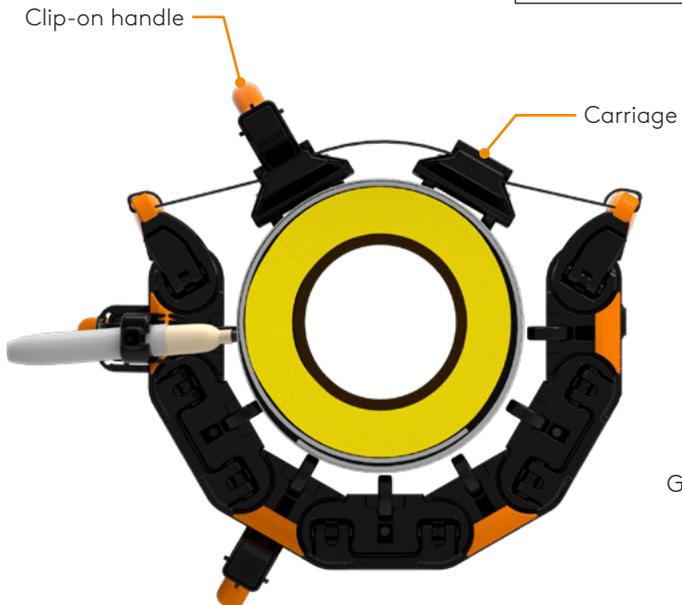


## STRAPS

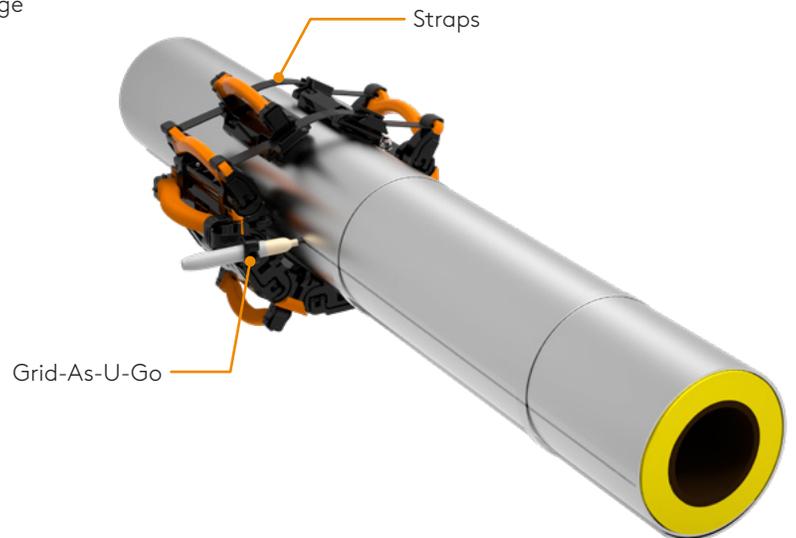
MODEL	LENGTH
Short	720 mm (28 in)
Medium	1240 mm (49 in)
Long	1920 mm (76 in)

STRAP CONFIG.	MAXIMUM OD
Medium	483 mm (19 in)
Short+medium	660 mm (26 in)
Medium+long	1067 mm (42 in)
Short+medium+long	1245 mm (49 in)

Clip-on handle



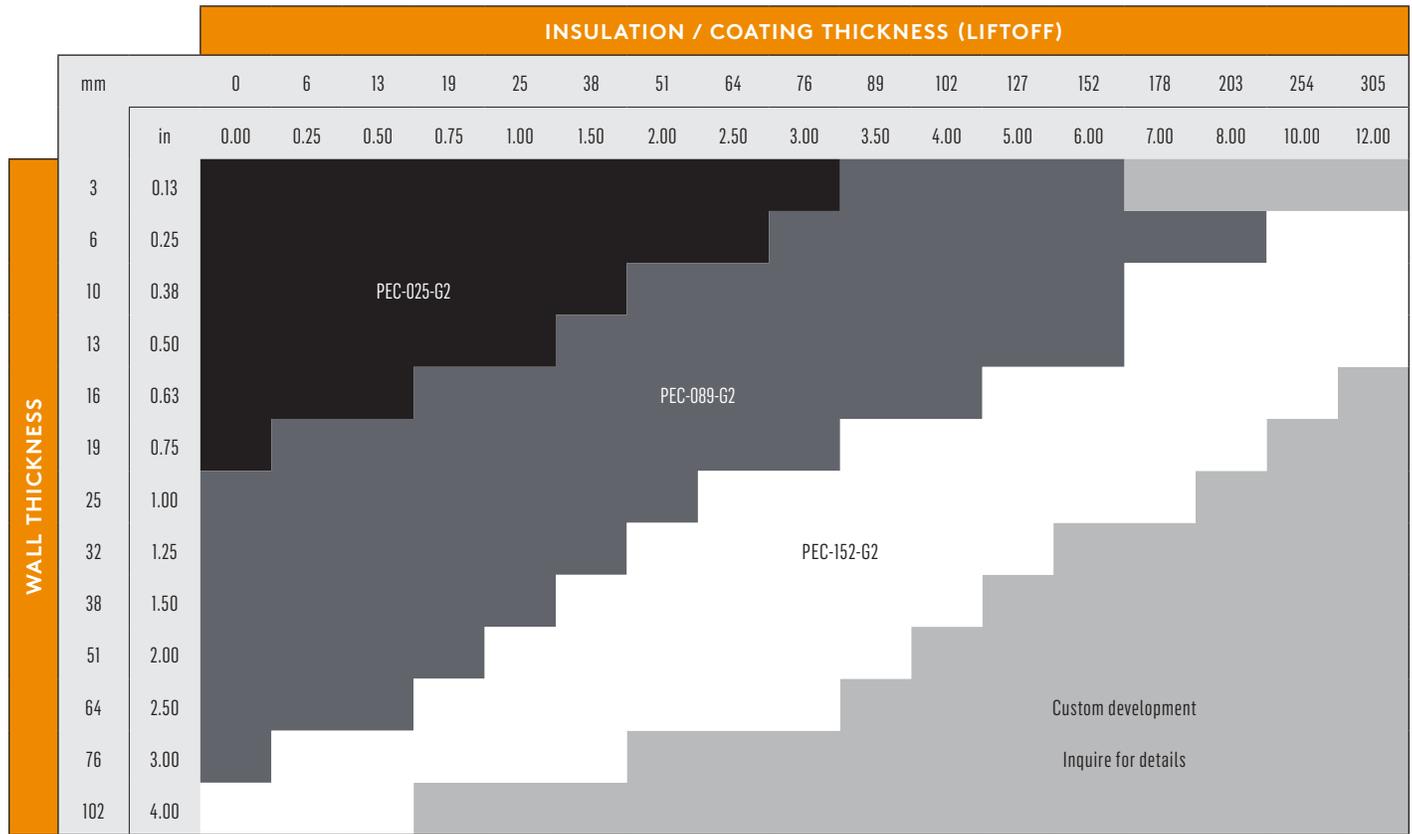
Straps



# SINGLE-ELEMENT PEC PROBES

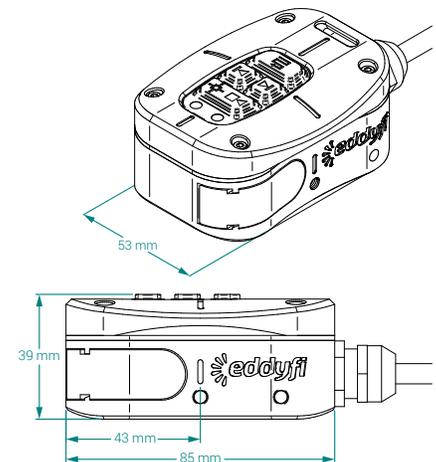
Single-element PEC probes are designed to detect CUI, CUF, and FAC in pipes, vessels, sphere legs, and more on small pipes and in limited access areas. They are available in three different sizes for the right balance between wall thickness and liftoff. They offer enough flexibility to support metals as thick as 100 mm (4 in), insulation up to 300 mm (12 in) thick (fiber glass, plastic wrap, concrete, and any non-ferrous material), as well as stainless steel, aluminum, or galvanized steel weather jackets.

## SELECTING THE RIGHT SINGLE-ELEMENT PEC PROBE (LYFT 2.1)



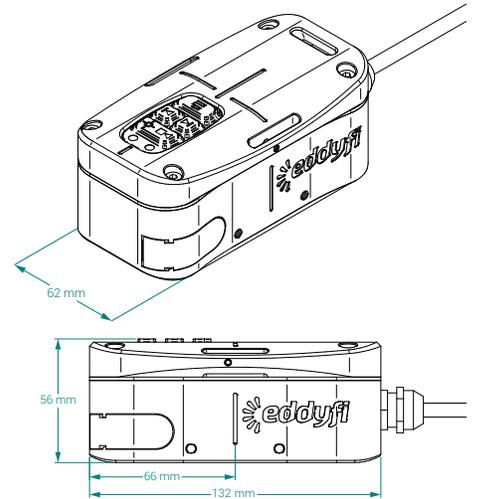
### PEC-025-G2-H05S

Body	Single-element
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 12 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)



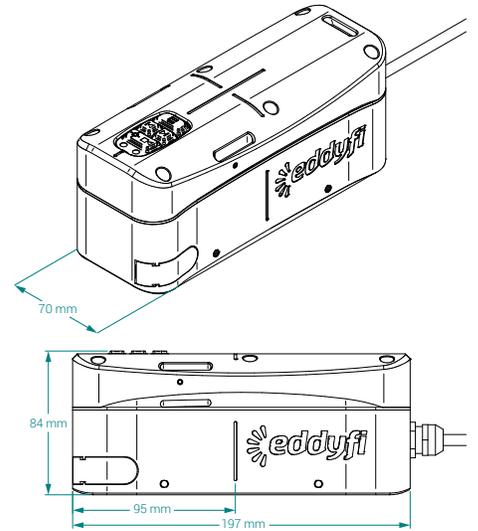
## PEC-089-G2-H05S

Body	Single-element
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 12 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

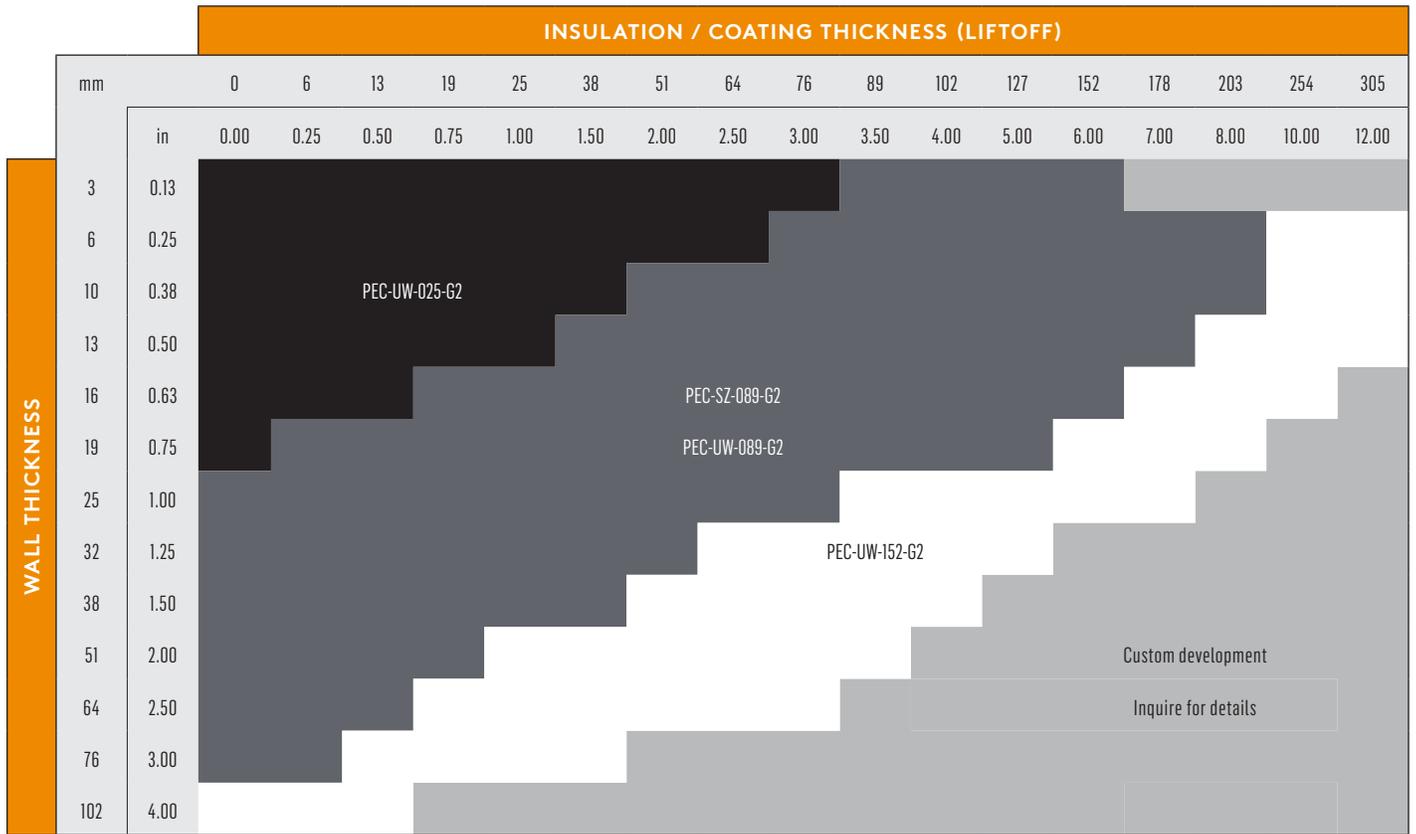
Body	Single-element
Casing	Large
Wall thickness	Up to 102 mm (4 in)
Insulation/Coating thickness (liftoff)	0–305 mm (0–12 in)
Footprint at zero liftoff	100 mm (3.94 in)
Encoder	Clip-on (see page 12 for details)
Cable	5 m (16.4 ft)
Maximum surface temperature	Direct contact operation: 70 °C (158 °F) Direct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



# SPLASH ZONE PEC PROBE

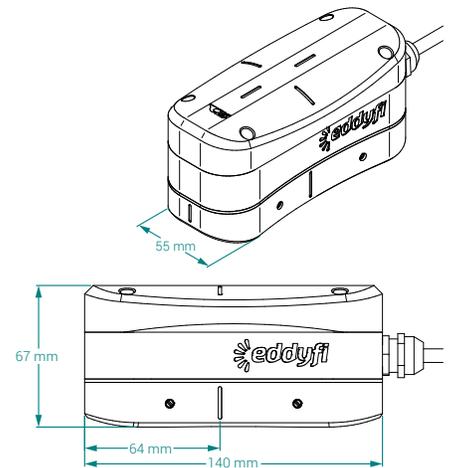
The splash zone PEC probe is designed to detect CUI in the area immediately above and below the mean water level in carbon steel structures such as offshore oil and gas platform legs and risers. The probe can tackle offshore applications thanks to its rugged design, watertightness to 15 m (49 ft) in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

## SELECTING THE RIGHT SPLASH ZONE OR UNDERWATER PEC PROBE (LYFT 2.1)



### 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)

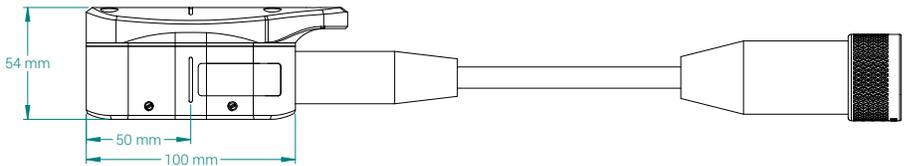
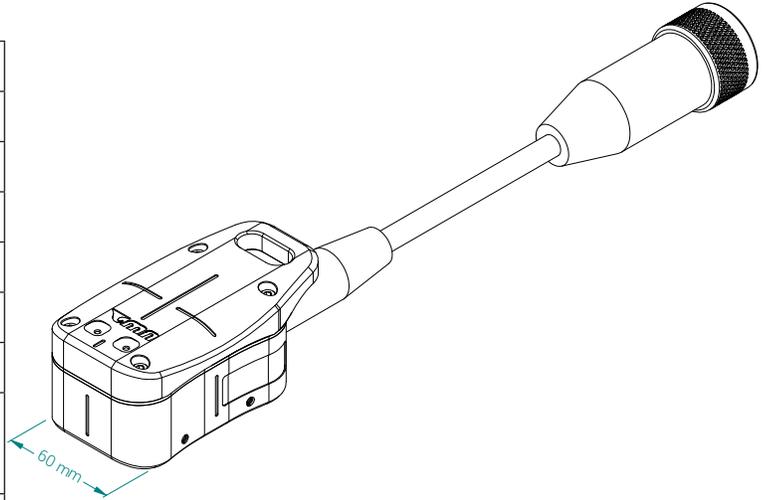


# UNDERWATER PEC PROBES

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

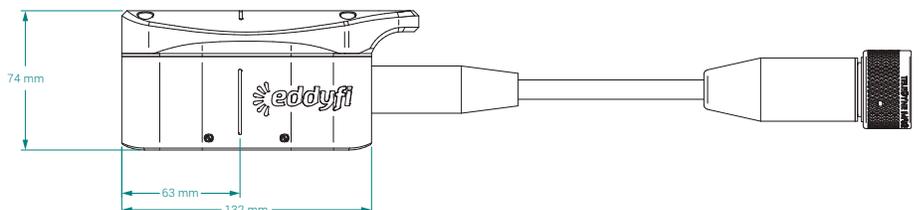
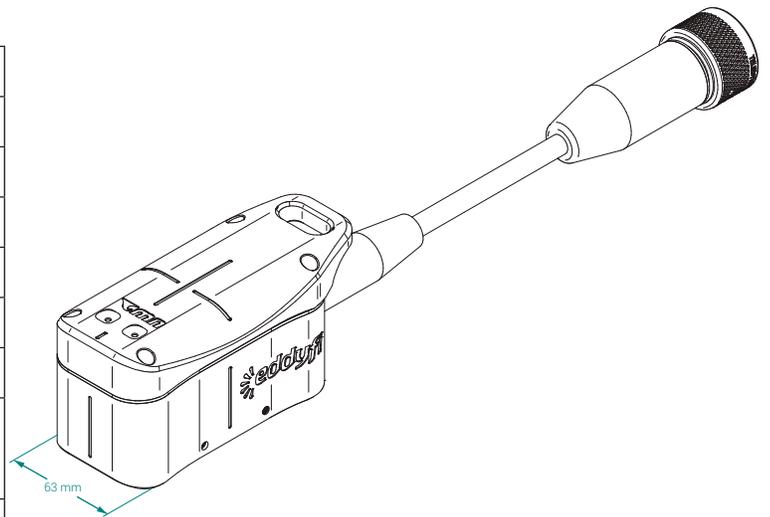
## PEC-UW-025-G2-U005S

Body	Underwater
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	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)



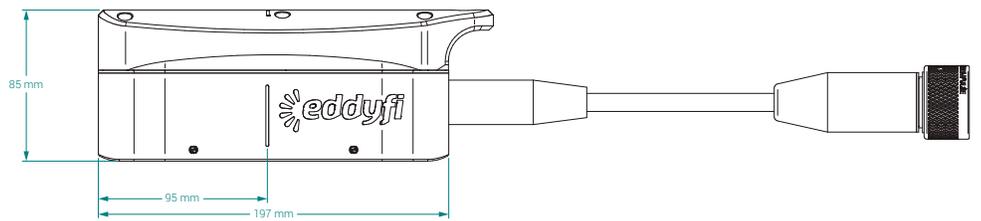
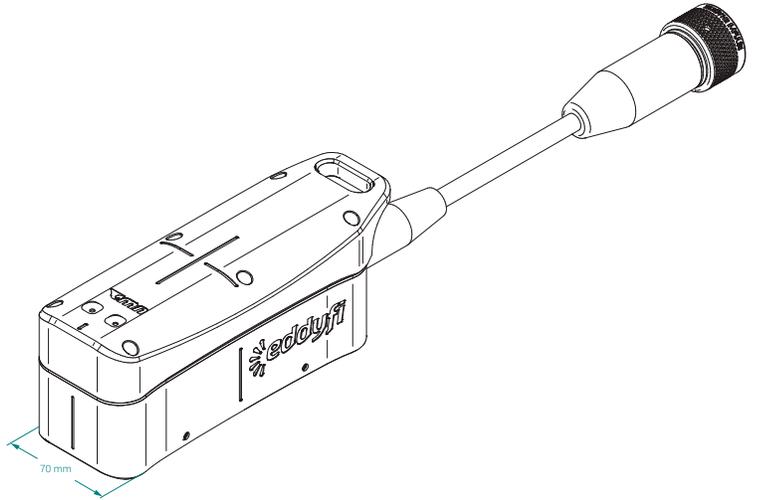
## PEC-UW-089-G2-U005S

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)



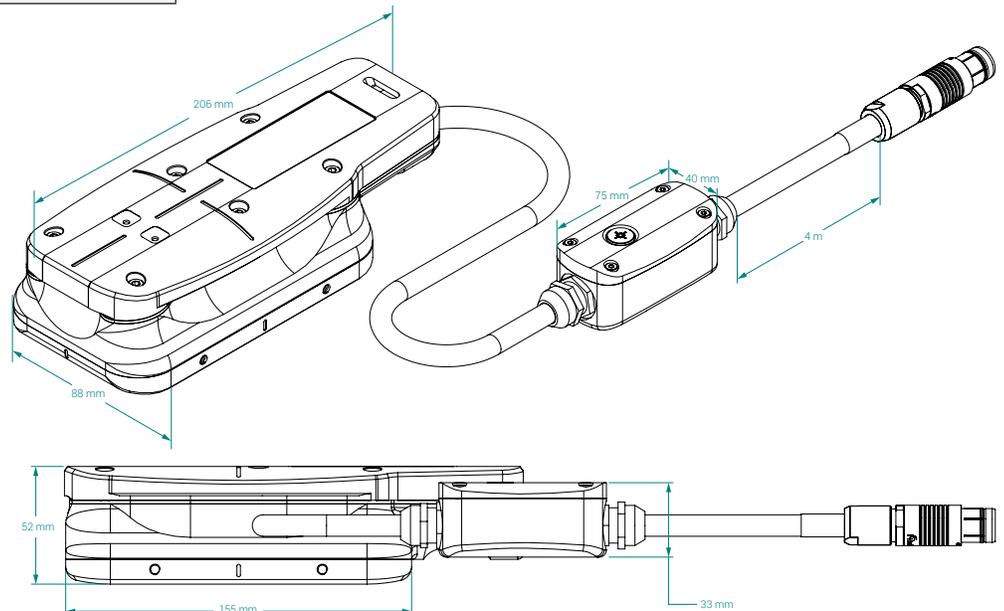
# PEC PROBE FOR GALVANIZED STEEL CLADDING

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)														
		0	6	13	19	25	38	51	64	76	89	102	127	152		
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		
	6															
	10															
	13															
	16															
	19															
	25															
	32															
	38															

## 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)

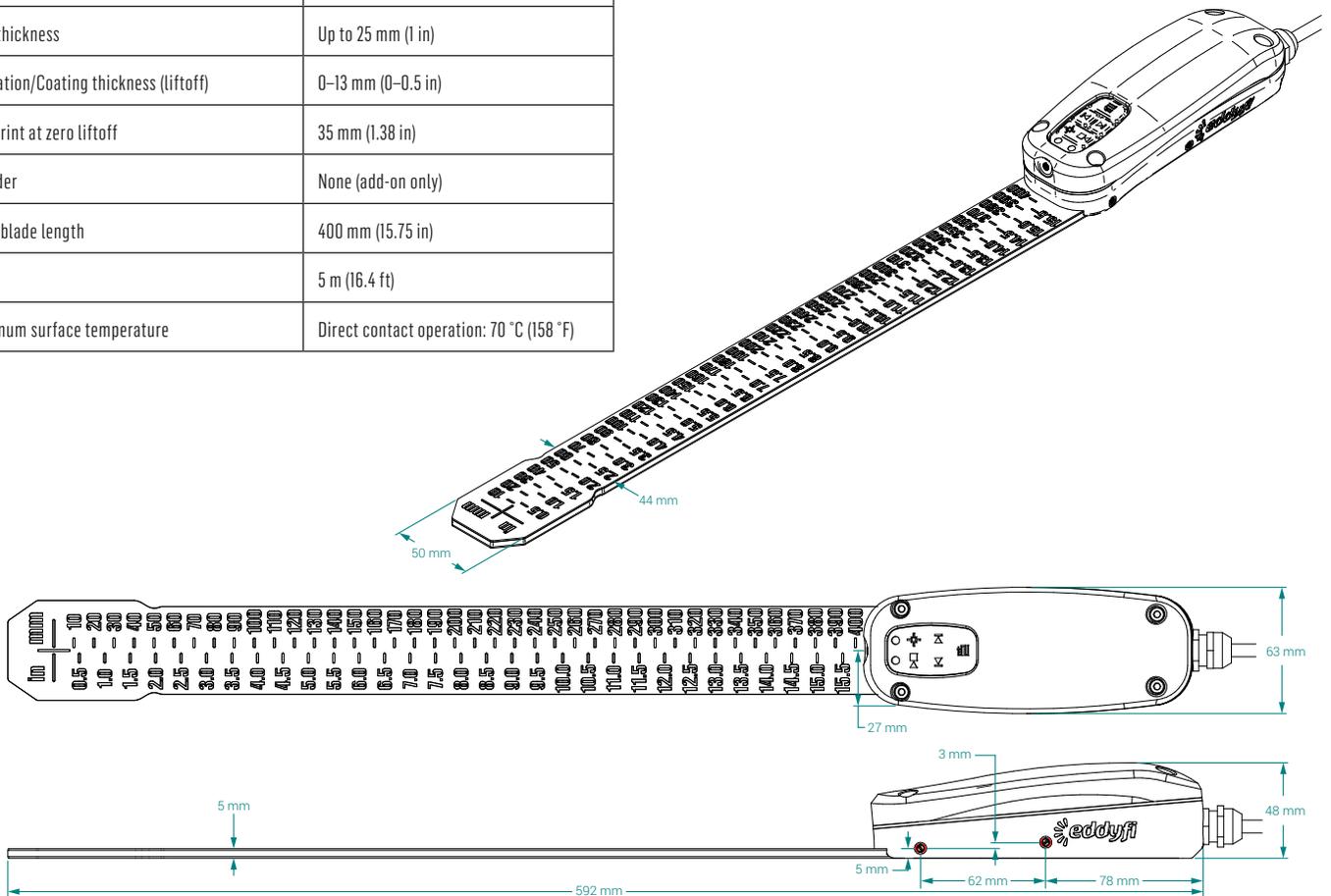


# TANK FLOOR PEC PROBE

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 the 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)

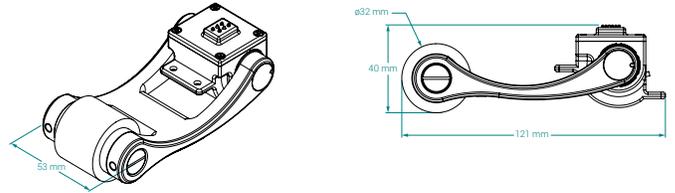


# ACCESSORY ENCODERS

High-precision encoders designed for PECA and PEC probes. They connect directly to probes without the need for an external cable.

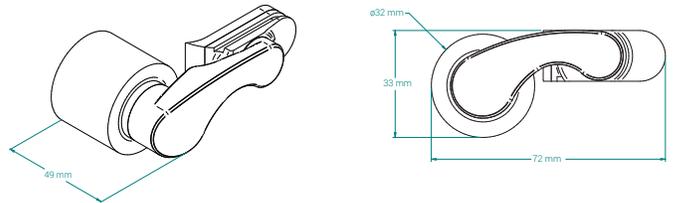
## PECA-MED-ENC

Resolution	16.04 counts/mm (407.44 counts/in)
Maximum surface temperature	70 °C (158 °F)
Compatibility	PECA probe (page 3)



## ENC-PEC-STD

Resolution	16.04 counts/mm (407.44 counts/in)
Maximum surface temperature	70 °C (158 °F)
Compatibility	G2 single-element PEC probes (page 5)

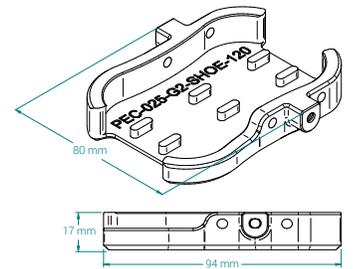


# ACCESSORY SINGLE-ELEMENT PROBE SHOES

These shoes are designed to enable direct-contact operation on surfaces as hot as 120 °C (248 °F) and to attenuate the vibration from galvanized steel weather jackets. The shoes are completely compatible with the optional telescopic extension pole (see page 13).

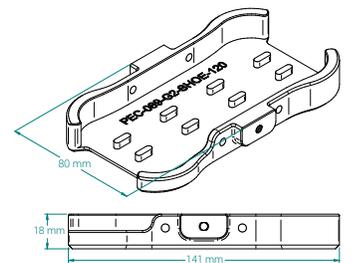
## PEC-025-G2-SHOE-120

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



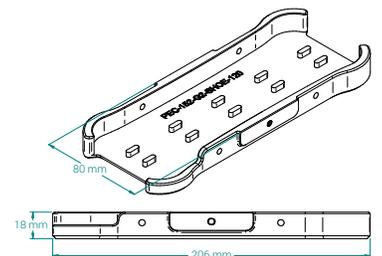
## PEC-089-G2-SHOE-120

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

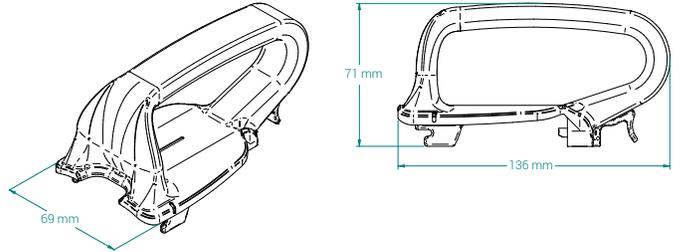


## ACCESSORY CLIP-ON HANDLES

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

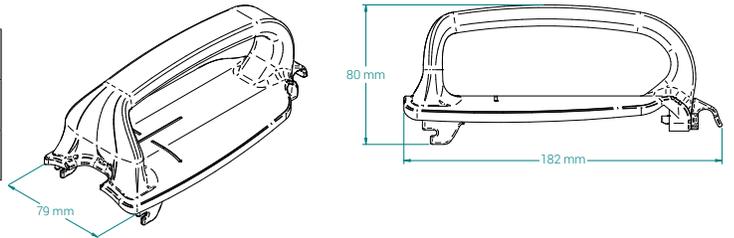
### PEC-089-HANDLE

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

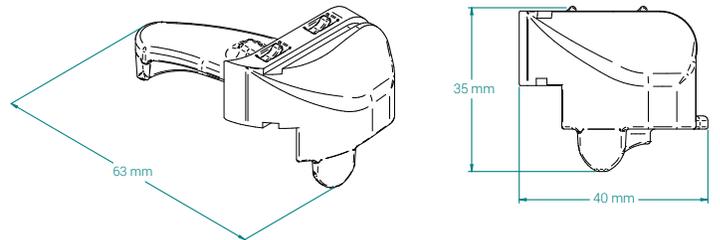


## ACCESSORY CLIP-ON STABILIZER

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

### PEC-STAB

Body	Standard stabilizer
Compatibility	G2 single-element PEC probes (page 5)

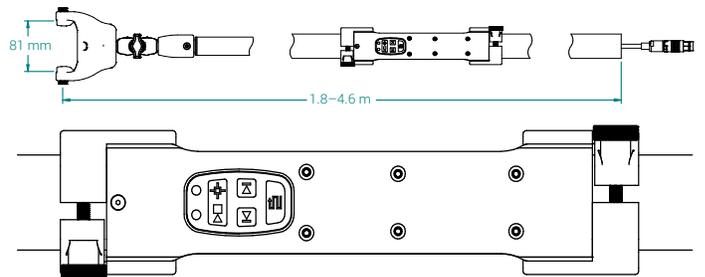


## ACCESSORY EXTENSION POLE

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

### PEC-POLE-G2-XH05

Maximum length	4.6 m (15 ft)
Retracted length	1.8 m (6 ft)
Material (pole)	Fiberglass
Material (fork and remote)	Nylon II
Compatibility	G2 single-element PEC probes (page 5)



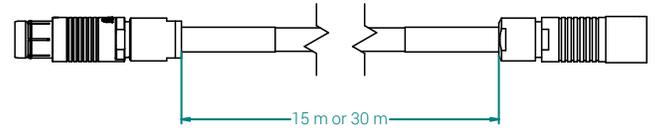
## ACCESSORY EXTENSION CABLES

Extension cable allows using PECA/single-element 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).

### PEC-CBL-XH15 AND PEC-CBL-XH30

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)

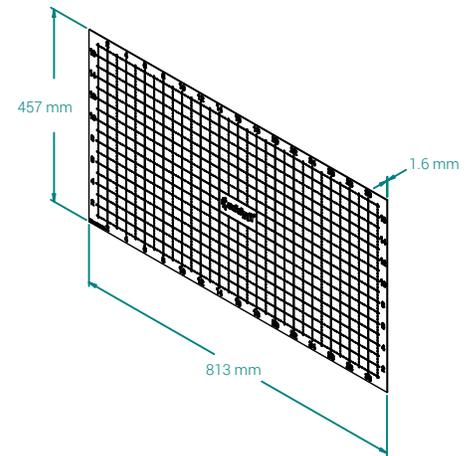


## ACCESSORY SCAN GRID MAT

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 on surfaces as hot as 70 °C (160 °F).

### PEC-MAT-025-70

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)



## ACCESSORY UNDERWATER CABLE ADAPTER

1 m (13 ft) umbilical serving as interface between the 27-pin Fischer connector of Lyft and the 26-pin Teledyne connector of the umbilical.

### PEC-CBL-XU001-TF

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

## ACCESSORY UNDERWATER PROBE EXTENSION UMBILICAL AND SPOOL

50 m (167 ft) extension umbilical equipped with one male Teledyne and one female Fisher connectors. Comes with a spool.

### PEC-CBL-XU050-TF

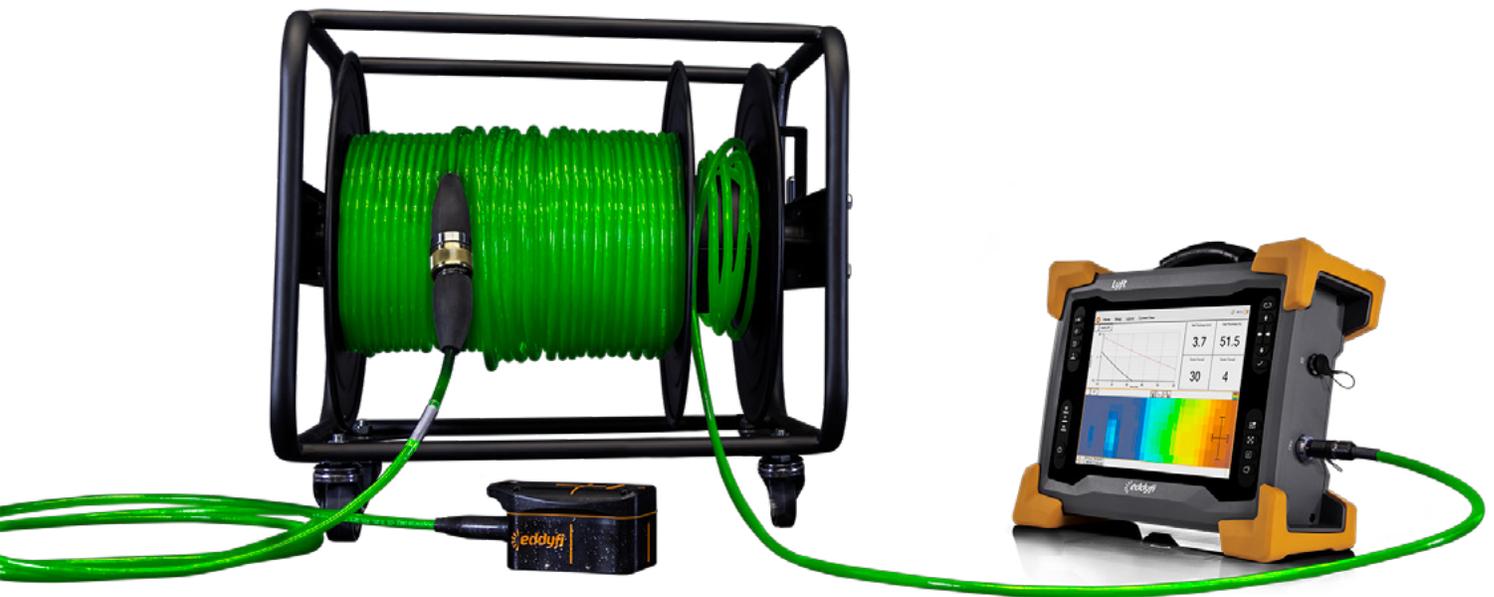
Maximum length	50 m (164 ft)
Connectors	Teledyne 26 pins, Fisher 27 pins

## ACCESSORY UNDERWATER PROBE EXTENSION UMBILICAL AND SPOOL

100 m (328 ft) extension umbilical equipped with one male Teledyne and one female Fisher connectors. Comes with a spool.

### PEC-CBL-XU100-TF

Maximum length	100 m (328 ft)
Connectors	Teledyne 26 pins, Fisher 27 pins



## NOTES

The information in this document is accurate as of its publication. Actual products may differ from those presented herein.

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2018-11-13

[www.eddyfi.com](http://www.eddyfi.com)

[info@eddyfi.com](mailto:info@eddyfi.com)



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