Lyft®
Pulsed Eddy Current Reinvented
PEC REINVENTED: CUI PROGRAMS REDEFINED

The Evolution of PEC

Eddyfi introduces Lyft—a reinvented, high-performance PEC solution. The patent-pending system features a portable, state-of-the-art instrument; real-time C-scan imaging; fast data acquisition (up to 15 readings per second) with grid and dynamic scanning modes; and great flexibility thanks to extension cables, probe shoes, and an extension pole. The Lyft probes can scan through thick metal and insulation, as well as aluminum, stainless steel, and galvanized steel weather jackets.

Lyft is offered in two models: the powerful Lyft capable of dynamic and grid mapping, and a lighter model offering conventional grid mapping only.

Powerful Embedded Software

The multi-touch, user-friendly software includes several innovative features, including real-time C-scan imaging (grid mapping and dynamic modes), complete WT measurements (ID and OD corrosion), as well as complete inspection management and reporting capabilities.

Under sizing is a well-known phenomenon for PEC where defects smaller than a probe’s averaging area appear shallower than they really are. The Lyft’s compensated wall thickness (CWT) tool mitigates this phenomenon by more precisely quantifying the minimum wall thickness of a specific region in a C-scan.

Reliable and Repeatable Results

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.

The Best of PEC Made Portable

The Lyft instrument is sealed and designed for IP65. Its magnesium alloy casing is tough, water and dust resistant, and cools without any external air exchange. The adjustable stand, the top handle, and four corner anchor points make it practical for on-site inspections. The embedded and portable Windows® PC offers standard connect-anywhere capabilities and advanced productivity tools that optimize field testing. The premium-quality 26.4 cm (10.4 in) LED display is optically bonded, non-reflective, comes with 3 mm (1/8 in) strengthened glass, and is designed for gloved hands, under any lighting conditions. The system also comes with two, hot-swappable batteries for extended battery operation.

Corrosion under insulation (CUI) is possibly the greatest unresolved asset integrity problem in the industry. Current methods for measuring wall thickness with liftoff, without removing insulation, all have severe limitations and existing pulsed eddy current (PEC) solutions rely on outdated technology. It’s time for evolution. It’s time for Lyft™.
Eddyfi has garnered R&D, a world-class portable instrument, software, sensors, and accessories, as well as dedicated application engineers and support teams to transform PEC into a technique capable of achieving its full potential. Who else but Eddyfi to reinvent an eddy current technique and redefine CUI programs.

**A NEW KIND OF PEC**

**Optimized Performance for WT and Liftoff**

The **Lyft** solution includes several plug-and-play probes of different sizes for the right balance between wall thickness and liftoff. The standard probe family is versatile enough to support metal thicknesses up to 64 mm (2.5 in), insulation up to 203 mm (8 in), and stainless steel/aluminum/galvanized steel weather jackets. It is possible to scan through thicker pipe walls and insulation—contact us for details.

The probes also have the capability to inspect the hard-to-reach areas of varying geometries. Standard probes have an embedded encoder and a keypad that makes operation easy.

The splash-zone family of probes enables tackling offshore applications with its rugged design watertight down to a depth of 10 m (32.8 ft).

The tank floor probe was developed for the in-service inspection of storage tank floor annular rings. Its super-thin 4.8 mm (0.2 in) titanium blade enables 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.

Accessories include a pole (up to 4.6 m / 15 ft), long extension cables for rope access, and probe shoes enabling operation on surfaces up to 120 °C (248 °F) and attenuating the vibration from galvanized steel weather jackets.

**PEC Probe Features**

**Built-in Controls**: Easily perform inspections without having to manipulate the **Lyft** instrument.

**Encoder**: The high-precision 20.53 counts/mm encoder enables exactly positioning defects for targeted mitigation.

**LEDs**: The green and red LEDs notify the user of various conditions, for example: when the scan is being performed too quickly, the readiness of **Lyft**, whether you are outside the scan zone, the SmartPULSE PEC autoset status, and so forth.


**Get Eddyfi Certified Anywhere**

Our offices in Québec, Houston, Lyon, and Abu Dhabi are geared to offer PEC training (at our offices or at your site) that will give you the necessary knowledge and skills to efficiently use PEC when inspecting assets.

Visit www.eddyfi.com/lyft
Specifications

Instruments

<table>
<thead>
<tr>
<th>Models</th>
<th>LYFT-PEC-GD: Supports grid and dynamic scans</th>
<th>LYFT-PEC-G: Supports grid scans only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W×H×D)</td>
<td>355×288×127 mm (14.0×11.3×5.0 in)</td>
<td></td>
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<tr>
<td>Weight</td>
<td>With batteries: 6.6 kg (14.5 lb)</td>
<td></td>
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<tr>
<td></td>
<td>Without batteries: 5.7 kg (12.5 lb)</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>13 L (791 in³)</td>
<td></td>
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<tr>
<td>Power requirements</td>
<td>100–240 VAC, 50–60 Hz</td>
<td></td>
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<tr>
<td>Power supply</td>
<td>Direct VAC or onboard batteries</td>
<td></td>
</tr>
<tr>
<td>Batteries</td>
<td>Type: Li-ion, rechargeable, DOT compliant</td>
<td></td>
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<tr>
<td></td>
<td>Typical life: 6–8 hours</td>
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</table>

Performances

| Dynamic data acquisition | Up to 15 points/s (GD model only) |
| Dynamic scan speed       | Up to 75 mm/s (3 in/s) (GD model only) |
| Grid-mapping scan speed  | Instant, less than 1 second (typical) |

Display

- 26.4 cm (10.4 in)
- Non-reflective (AR coating)
- Anti-fingerprint (oleophobic coating)
- 3 mm (1/8 in), chemically strengthened glass cover
- Optically bonded LCD and touchscreen
- Passive backlight enhancement

Video output

- HDMI

Storage

- SSD, 100 GB

Cooling

- Sealed and fanless

Encoders

- 2 axes, quadrature (GD model only)

Connectivity

- Gigabit Ethernet, Wi-Fi, Bluetooth®, USB 2.0 (×3)

Probe recognition and setup

- Automatic

SmartPULSE

- Automatic configuration of PEC pulser-receiver parameters
- Full thickness sensitivity (OD and ID defect detection)
- Reliable measurements w/ liftoff variations, weather jackets overlaps, straps, corrosion scabs
- 1-point calibration (on nominal or known thickness), auto-normalization, repeatability optimization

Standard Probes*

<table>
<thead>
<tr>
<th>Features</th>
<th>Built-in encoder</th>
<th>Remote control keypad</th>
<th>Lyft 27-pin Fischer connector</th>
<th>Heavy-duty 5 m (16.4 ft) cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal WT</td>
<td>Up to 64 mm (2.5 in) possible to scan through thicker wall thicknesses. Inquire for details.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liftoffs</td>
<td>PEC-152: 0–203 mm (0–8 in)</td>
<td>PEC-089: 0–152 mm (0–6 in)</td>
<td>PEC-025: 0–25 mm (0–1 in) possible to scan through thicker wall thicknesses. Inquire for details.</td>
<td></td>
</tr>
<tr>
<td>Smallest detectable defect vol.</td>
<td>15 % of footprint volume (FP×WT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. measurable remaining WT</td>
<td>15 % from nominal</td>
<td></td>
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</table>

Application-Specific Probes*

<table>
<thead>
<tr>
<th>Models</th>
<th>Splash zone</th>
<th>Tank floor</th>
<th>Refer to the PEC probe catalog for details.</th>
</tr>
</thead>
</table>

Weather jackets

- Stainless steel up to 1.5 mm (0.06 in)
- Aluminum up to 1 mm (0.04 in)
- Galvanized steel up to 0.5 mm (0.02 in)

Pipe diam.

- Down to 25 mm (1 in)

Test temps

- Carbon steel structures: –150 °C to 500 °C (–238 °F to 932 °F)
- Max. weather jacket temp direct contact operation: 70 °C (158 °F)
- Max. weather jacket temp w/ probe shoe: 120 °C (248 °F)

Accessories

- Extension cables: 15 m (50 ft) and 30 m (100 ft)
- Telescopic extension pole w/ embedded remote control keypad, up to 4.6 m (15 ft) long
- Probe shoe: operation on surfaces up to 120°C (248°F) attenuation of vibration from galvanized steel weather jackets

Environmental

<table>
<thead>
<tr>
<th>IP rating</th>
<th>Designed for IP65</th>
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<tbody>
<tr>
<td>Operating temperature</td>
<td>0–40 °C (32–104 °F)</td>
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<tr>
<td>Operating humidity</td>
<td>95 %, non-condensing</td>
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<tr>
<td>Compliance</td>
<td>ASME, EN 61010-1, CE, WEEE, FCC Part 15B, ICES-003, AS/NZS CISPR 22, RoHS</td>
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</table>

*Refer to the Understanding PEC Probe Selection & Footprint poster on eddyfi.com/lyft.

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

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