

**SWIS**

Sound Wave Inspection Systems



# machone

The Fastest Tube Inspection System



# MachOne TUBE INSPECTION SYSTEM

## The Fastest Inner Diameter Inspection System for Heat Exchangers and Boilers

Sound Wave Inspection Systems is proud to unveil the MachOne, the latest advancement in the field of fast tube inspections. As the newest generation of our inspection systems, the MachOne is specifically engineered to provide ultra-fast and reliable inner-diameter tube inspections.

Advanced proprietary algorithms enable swift scanning, achieving unprecedented inspection speeds of just 3 to 10 seconds per tube. This dramatically cuts down overall inspection durations.

The MachOne inspection system is ideal for fast-paced environments where time is critical.

## MachOne ADVANTAGES

### Speed and Portability:

- **Ultra-Fast Inspections:** MachOne sets a new standard in speed with inspections ranging from just 3 to 10 seconds per tube, dramatically reducing overall inspection times.
- **Dual Power Options:** Operates both on battery and electricity, with up to 16 hours of battery life, ensuring uninterrupted operations.
- **Real-Time Analysis<sup>1</sup> Feature:** Real-time analysis service, providing analysis concurrently with inspections for immediate results.
- **Ease of Operation:** Designed for single-operator use with minimal training, maximizing efficiency and reducing labor costs.



### Defect Detection:

- **Exceptional Leak Detection:** Capable of detecting leaks as small as 0.5mm in diameter, ensuring unparalleled accuracy in identifying potential issues.
- **Outstanding Blockage Detection:** Efficiently identifies blockages, starting from as little as 5% of the inner cross-section.
- **Effective Wall Loss Detection<sup>2</sup>:** Detects wall loss starting from 20% on pit diameters of 4.75mm or larger, enhancing the safety and reliability of your operations.

<sup>1</sup> Available in 2024

<sup>2</sup> Standard ASME pit



### Applicability:

- **Extended Detection Range:** Offers up to 40m leak and full blockage detection (80m from both sides) and up to 20m for partial blockage and wall loss<sup>3</sup> (40m from both sides).
- **Wide Range of Diameters:** Accommodates inner diameters ranging from 7mm to 76mm (3 inches), offering broad application potential.
- **All Tube Types Found in Heat Exchangers:** Suitable for inspecting every tube type commonly found in heat exchangers, including all tube shapes (U-bend, fin-fan, twisted, spiral...). It is compatible with all materials such as ferromagnetic and non-ferromagnetic metals, as well as graphite and plastics.

### Long-lasting solution:

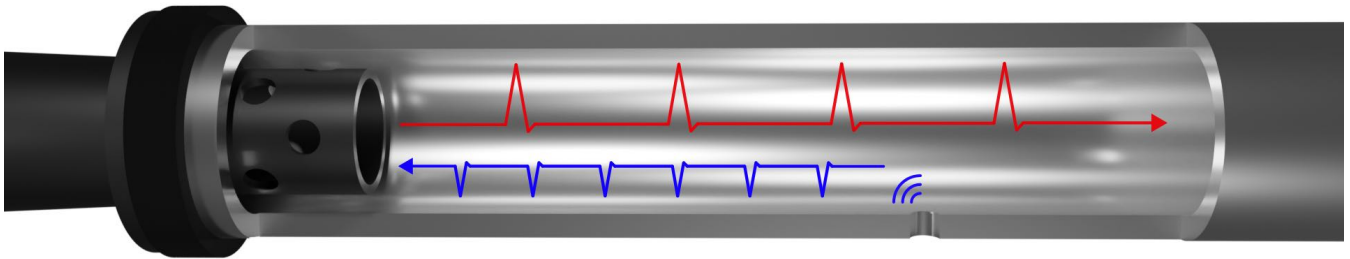
- **Durable Accessories:** Includes metal adapters and extensions for increased longevity, reducing the need for frequent replacements.
- **Complete Package:** Comes with all necessary accessories, including two batteries for extended use, and an option for an additional double-sized battery.
- **No Consumable Probes Required:** Eliminates the need for consumable probes, reducing ongoing costs.
- **Comprehensive Warranty and Support:** Offers a 2-year warranty, 5 years of guaranteed software updates and spare parts availability, and a minimum of 10 years of analysis support.

<sup>3</sup> Depend on tube configuration, ID and wall loss size

# TECHNOLOGY

Leveraging sound waves as a non-contact "virtual probe" for non-destructive inspection:

- Tailored acoustic pulses are directed through the tube's enclosed air space
- Defect-generated echoes are captured by advanced microphones.
- Innovative SWIS proprietary algorithms determine the position, nature, and dimensions of inner diameter defects.



## SEAMLESS OPERATION

MachOne has been meticulously engineered to refine the inspection process, offering a sophisticated user interface for reliable and efficient operations. It guides operators through every step, from initial setup to the final stages of the inspection, all seamlessly achieved without requiring any external PC support.

### 1. Intuitive Map and Parameter Configuration

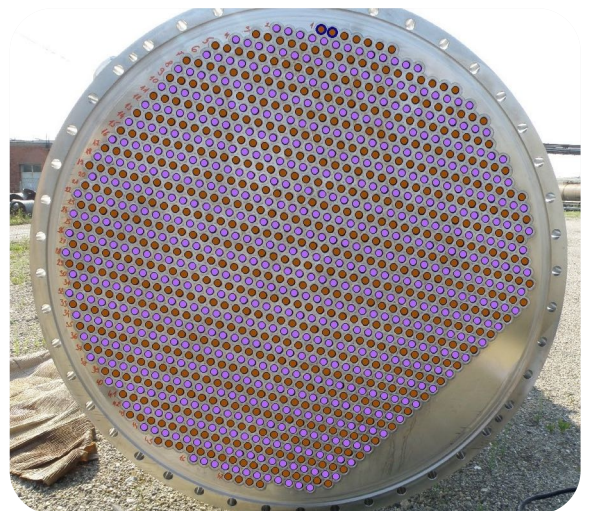
- Effortless map generation using digital images or schematics<sup>4</sup>.
- Simplified setup process requiring minimal parameters for ease of use.

### 2. Efficient Data Collection and Transmission

- The data collection process is fully software-assisted, enabling measurements to be captured with a simple button click while monitoring progress on a large 5" LCD screen.
- Conveniently upload data directly from the device via WIFI or utilize specialized PC software for seamless data transfer.

### 3. Expedited and Professional Reporting

- High-quality final reports are crafted by our team of expert analysts, delivered within a maximum of 24 hours.
- Each report is precisely designed to align with industry-standard formats and requirements.



<sup>4</sup> Available only on PC/Mac

# TECHNICAL SPECIFICATIONS

## Dimension & Weight:

### MachOne:

Length:	18,4cm (7,24") (max)
Width:	14,0cm (5,52")
Height:	28,3cm (11,14")
Weight w/o battery:	1,5kg (3.31lb)

### Pelican Case<sup>5</sup>:

Length:	55,8cm (20,39")
Width:	35,5cm (11,2")
Height:	22,8cm (7,21")
Weight:	9,3kg (20,5lb)

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<b>Power supply:</b>	Battery operated: 2x Li-Ion 50Wh Dual voltage system (110V/230V)
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<b>Operating Temperature:</b>	-10° to +50° C (14° to 122° F)
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### Tube Characteristics:

Tube Diameter:	7mm to 76mm inner diameter
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Tube Configuration:	Compatible with all configurations, including straight, U-bends, finned, fin-fan, twisted, and spiral tubes
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Tube Material:	Suitable for all materials, encompassing all metals (ferrous and non-ferrous) and non-metals (such as graphite, plastics, ceramics)
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Tube Length:	Up to 40m in length (or 80m combined from both sides), with effectiveness dependent on defect type, size, and tube configuration
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<b>Inspection Speed:</b>	3 - 10 seconds per tube
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<b>Detectable Defects:</b>	Holes (Minimum hole diameter 0.5mm) Blockages (Minimum 5% of cross-section blockage) Wall loss <sup>6</sup> (Minimum 20% wall loss depth in defects $\geq 4.75\text{mm}^7$ diameter)
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<b>Package content:</b>	SWIS MachOne Tube Inspection System 14 MachOne adapters (7 - 76mm tube ID) 2x 50Wh lithium-ion batteries IR Thermometer Battery charger Car charger Touchscreen stylus USB flash drive Power adapter (110v/230v) Documentation
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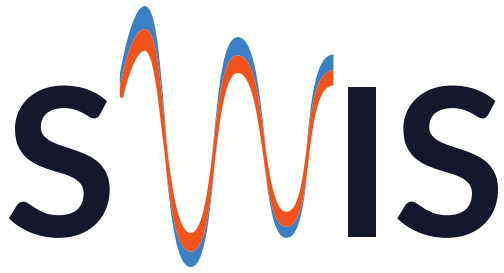
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<sup>5</sup> Fully equipped, with the device and all accessories

<sup>6</sup> Tubes must be cleaned out of all debris, scale or dirt

<sup>7</sup> ASME standard pit



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**Sound Wave Inspection Systems B.V.**

Borchwerf 4E  
4704 RG Roosendaal  
Netherlands  
[www.swis.ltd](http://www.swis.ltd)  
info@swis.ltd

**Marposs Italia SpA**

Via Matteotti 68  
20872 Cornate d'Adda (MB)  
Italy  
[www.uniontest-ndt.com](http://www.uniontest-ndt.com)  
Paolo Casoni +39 348 3019177  
paolo.casoni@it.marposs.com



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