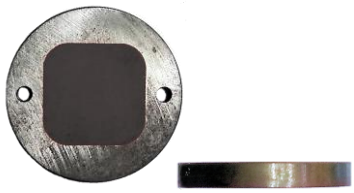
WoW-2 Thin

Weldable or Boltable Tag



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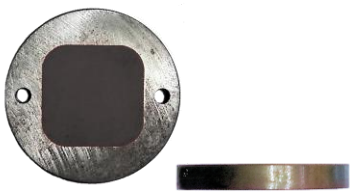

1 PRODUCT DESCRIPTION

The patented (US patent # 9,122,967) **WoW-2 Thin** RFID tag provides identification and tracking capabilities never-before available in rugged or hazardous use-areas.

Not only can the tag be mounted to any metallic surface by either welding or bolting the tag, but it can withstand unprecedented temperature (consistent temperatures of 200 degrees Centigrade), pressure and environmental conditions.

1.1 SPECIFICATIONS

Device type	Class 1 Generation 2 passive UHF RFID transponder
Air interface protocol	EPCGlobal Class1Gen2; ISO 18000-6C (-63)
Operational frequency	865-869 MHz (EU) 902-928 MHz (US)
IC options	**Standard**: Alien Higgs 3 Optional: NXP UCODE G2XM, Impinj Monza4QT
EPC memory	**Standard**: 128 bit Optional: Up to 240 bit
EPC memory content	Unique 96-bit number encoded
Extended memory	512 bit
TID	Factory-programmed, non-changeable, unique 64-bit ID.
Read range	Real-world: 1 – 2 meters, depending on attachment Lab environment: 6 meters +
Applicable surfaces	Any material. Metal surfaces; ferrous and non-ferrous.
Material	Nickel-plated steel shell with high-temperature ceramic filler
Weight	1.75 oz.
Standards compliancy	ISO 17665 – Sterilization of Health Care Products – Moist Steam ISO 11135 - Sterilization of Health Care Products – Ethylene Oxide ATEX-compliant
Product RoHS compliant?	Yes
US Patent Number	9,122,967; issued 9/01/15

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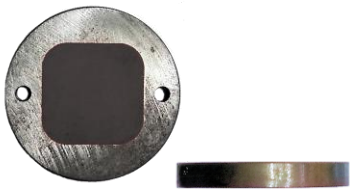
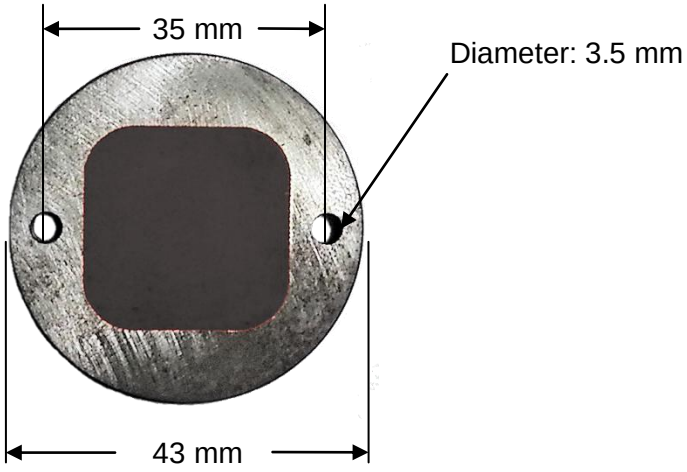


1.2 DIMENSIONS

Diameter: 43 mm (1.7 inches) **Mounting hole diameter:** 3.5 mm (0.138 inches)

Height: 5 mm (0.2 inches) **Distance between mounting holes:** 35 mm (1.38 inches)

PLAN VIEW



PROFILE VIEW

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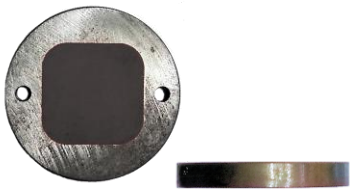


1.3 READ RANGE

	Max read range on metal with 4W EIRP
WoW-2 Thin (915 MHz)	660.4 cm / 260 inches (6.63 m / 21.75 feet)

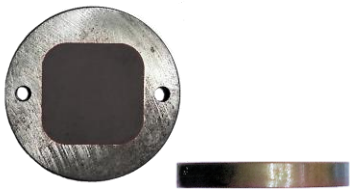
The read range listed above was obtained from a lab test environment. Actual test results may be different. Testing in actual use environments is strongly recommended.

1.4 ENVIRONMENTAL SPECIFICATIONS

Operating temperature	-50ºC to +200ºC / -50ºF to +392 ºF*
Peak temperature	+250ºC / +482ºF @ 1 hour duration
Temperature Cycling Test	6 Hours at 300 deg C; 18 hour cool-down; 30-day test cycle.
IP classification	IP69K
Weather ability	Excellent, including UV-resistance and sea water immersion
Pressure resistance	Embedded RFID tag tested to 30,000psi for 30 days
Chemical resistance	No physical or performance changes in: - Salt water - NaOH) - Sulfuric acid - Motor oil (tested in 168 hour exposure) Generally good against: - Most solvents - Most acids and bases

* **NOTE**:
The RFID tag will not be functional if it is left at the maximum indicated temperatures such that the internal soak temperature exceeds +80 deg C. The RFID tag itself will function between -50 deg C and +80 deg C.

The WoW-2 Thin casing reflects the heat and will protect the RFID tag at the elevated temperatures and the RFID tag will be functional until the tags internal temperature exceeds +80 deg C. The WoW-2 Thin tags cool-down time is significantly accelerated, as well. The end result is that the WoW-2 Thin tag will be functional at extreme temperatures.



1.5 SUPPORTED SERVICES

Several options are available:

- Tag pre-encoding
- Laser engraving

1.6 POSSIBLE APPLICATIONS

Metal surfaces	Metal returnable containers, metal canisters, metal pallets, high value metal items, aerospace applications, military applications, etc.

2 INSTALLATION INSTRUCTIONS

2.1 TAG PLACEMENT

The WoW-2 Thin tag must be mounted to the metal surface with the ceramic “cup” pointed up and with no metal covering the tag.

When selecting the mounting location, ensure the following:

- Select an even metal surface so that the entire flat plate of the WoW-2 Thin is in contact with the mounting surface.
- Place the tag in the middle of the largest metal mounting surface available.
- It is recommended that the tag be taped to the metal surface, before welding or bolting the tag, to check orientation and performance.

The WoW-2 Thin’s performance depends on the shape of the metal object and the tags placement on that surface. The above recommendations are valid for flat surfaces. Testing is recommended to verify performance in each use-case.

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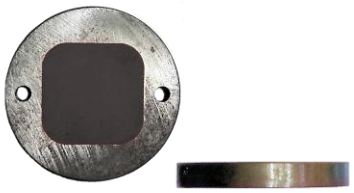

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2.2 TAG ATTACHING METHODS

The tag can be either bolted or welded to the metal surface.

2.2.1 Bolting the tag to the metal surface

Bolting achieves effective mounting and retention in various use conditions.

The WoW-2 Thin can be mechanically attached using;

- Screws
- Pop rivets

2.2.2 Welding the tag to the metal surface

Welding achieves the most rugged mounting and retention method. However, the tag must be welded according to the following guidelines, or the RFID tag may not functional correctly (or at all).

2.2.2.1 Procedure

The tag should be welded in two "spots", across from each other. The tag must NOT be welded most of the way, or all the way around the tag.

Correctly welded "spot" welds

Incorrectly welded - too far around tag

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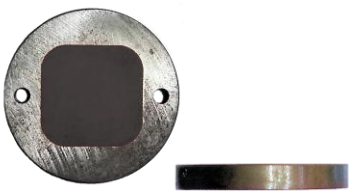

3 ATTACHMENT PHOTO'S

The picture below shows a WoW-2 Thin welded to a T-section of pipe.

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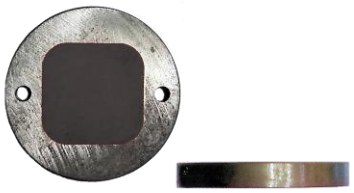

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