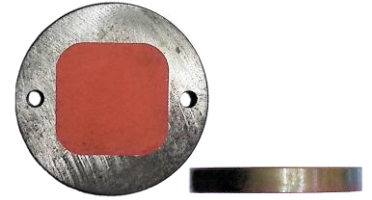




# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



### CONTENTS

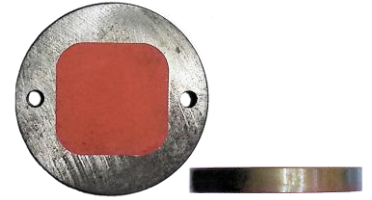
1	PRODUCT DESCRIPTION .....	2
1.1	Specifications.....	2
1.2	Dimensions .....	3
1.3	Read Range.....	4
1.4	Environmental Specifications .....	4
1.5	Supported Services.....	5
1.6	Possible Applications .....	5
2	INSTALLATION INSTRUCTIONS .....	5
2.1	Tag Placement.....	5
2.2	Tag Attaching Methods .....	6
2.2.1	Bolting the tag to the metal surface .....	6
2.2.2	Welding the tag to the metal surface .....	6
3	ATTACHMENT PHOTO'S.....	7
4	CONTACTING TROI LLC .....	8



# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



### 1 PRODUCT DESCRIPTION

The patent-pending **TROI 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

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

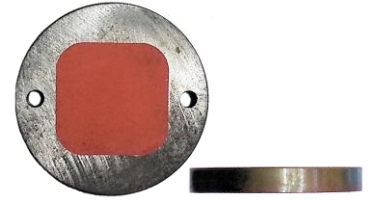
*Balance of page left blank*



# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



### 1.2 DIMENSIONS

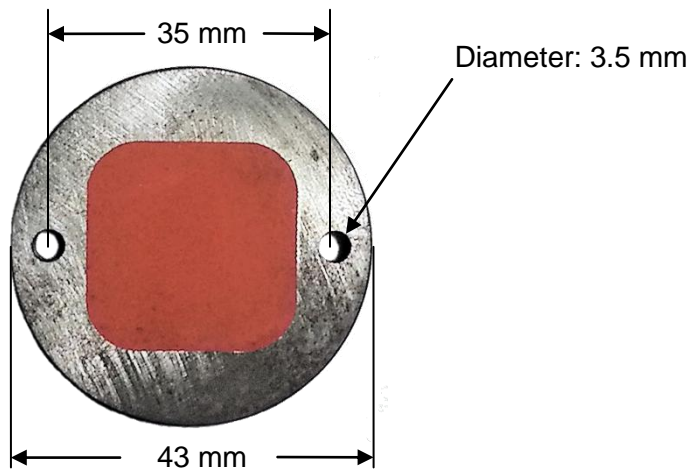
**Diameter:** 43 mm (1.7 inches)

**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

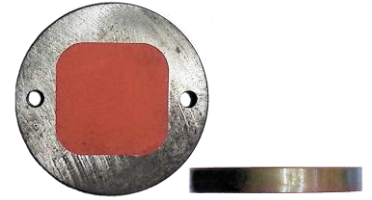


*Balance of page left blank*



# WoW-2 Thin

## Weldable or Boltable Tag



### 1.3 READ RANGE

	Max read range on metal with 4W ERP
<b>WoW-2 Thin</b> (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	-50°C to +200°C / -50°F to +392 °F*
Peak temperature	+250°C / +482°F @ 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: <ul style="list-style-type: none"> <li>- Salt water</li> <li>- NaOH)</li> <li>- Sulfuric acid</li> <li>- Motor oil (tested in 168 hour exposure)</li> </ul> Generally good against: <ul style="list-style-type: none"> <li>- Most solvents</li> <li>- Most acids and bases</li> </ul>

**\* 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.

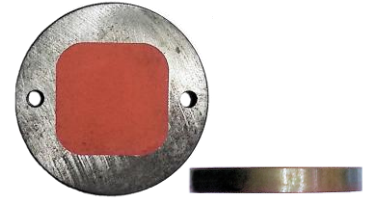
The WoW-2 Thin casing reflects the heat and will protect the RFID tag at the elevated temperatures and the RFID tag will be functional until the tags internal temperature exceeds +80 deg C. The WoW-2 Thin tags cool-down time is significantly accelerated, as well. The end result is that the WoW-2 Thin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



# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



### 1.5 SUPPORTED SERVICES

Several options are available:

- Tag pre-encoding
- Laser engraving

For further details, please contact **TROI LLC**.

### 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.

When selecting the mounting location, ensure the following:

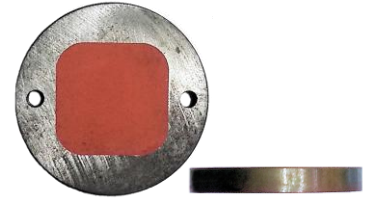
- Select an even metal surface so that the entire flat plate of the WoW-2 Thin is in contact with the mounting surface.
- Place the tag in the middle of the largest metal mounting surface available.
- It is recommended that the tag be taped to the metal surface, before welding or bolting the tag, to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



# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



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.

### 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



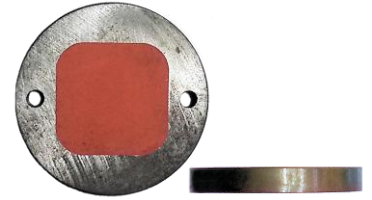
*Balance of page left blank.*



# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



### 3 ATTACHMENT PHOTO'S

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



*Balance of page left blank*

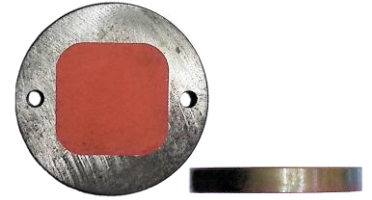




# WoW-2 Thin

TECHNOLOGIES ROI, LLC

## Weldable or Boltable Tag



### 4 CONTACTING TROI LLC

For additional information and technical support contact:

#### **TROI LLC**

311 Drury Lane  
Mauldin SC 29662  
PH: 864-228-9096  
pat@troirfid.com  
www.troirfid.com

#### ADVISORY

Although any information, recommendations, or advice contained herein is given in good faith, TROI LLC makes no warranty or guarantee, express or implied, (i) that the results described herein will be obtained under end-use conditions, or (ii) as to the effectiveness or safety of any design incorporating its products, materials, services, recommendations or advice. Except as provided in TROI LLC standard conditions of sale, TROI LLC and its representatives shall in no event be responsible for any loss resulting from any use of its materials, products or services described herein.

— *END* —