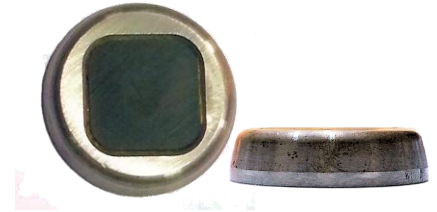




# WoW-2 Impact Weldable Tag

TECHNOLOGIES ROI, LLC



## 1 PRODUCT DESCRIPTION

The patented (US patent # 9,122,967) **TROI WoW-2 Impact** 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 gluing the tag, but it can withstand unprecedented temperature (consistent temperatures of 300 degrees Centigrade), pressure and environmental conditions.

### 1.1 SPECIFICATIONS

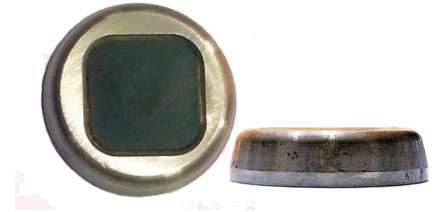
|                                |   |
|--------------------------------|---|
| <b>Device type</b>             | Class 1 Generation 2 passive UHF RFID transponder   |
| <b>Air interface protocol</b>  | EPCGlobal Class1Gen2; ISO 18000-6C (-63)  |
| <b>Operational frequency</b>   | 865-869 MHz (EU)<br>902-928 MHz (US)  |
| <b>IC options</b>              | <b>Standard:</b> Alien Higgs 3<br><b>Optional:</b> NXP UCODE G2XM, Impinj Monza4QT  |
| <b>EPC memory</b>              | <b>Standard:</b> 128 bit<br><b>Optional:</b> 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<br>Lab environment: 6 meters +  |
| <b>Applicable surfaces</b>     | Any material.<br>Metal surfaces; ferrous and non-ferrous.   |
| <b>Material</b>                | Nickel-plated steel shell with high-temperature ceramic filler  |
| <b>Weight</b>                  | 3 oz.   |
| <b>Standards compliance</b>    | ISO 17665 – Sterilization of Health Care Products – Moist Steam<br>ISO 11135 - Sterilization of Health Care Products – Ethylene Oxide<br>ATEX-compliant |
| <b>Product RoHS compliant?</b> | Yes   |
| <b>US Patent Number</b>        | 9,122,967; issued 9/01/15   |

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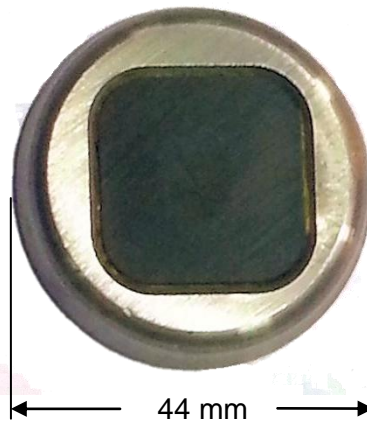


## 1.2 DIMENSIONS

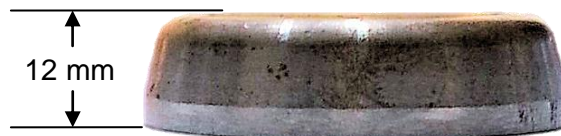
**Diameter:** 44 mm (1.75 inches)

**Height:** 12 mm (0.47 inches)

### PLAN VIEW



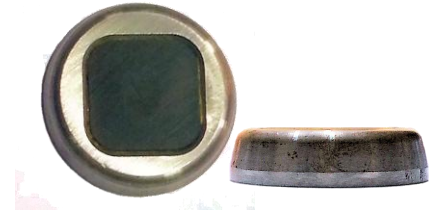
### PROFILE VIEW



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## 1.3 READ RANGE

|                           | Max read range on metal<br>with 4W EIRP        |
|---------------------------|--|
| WoW-2 Impact<br>(915 MHz) | 660.4 cm / 260 inches<br>(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         | +350°C / +700°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:**

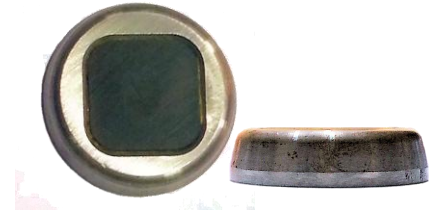
The RFID tag will not be functional if it is left at the maximum indicated temperatures such that the internal soak temperature exceeds +80 deg C. The RFID tag itself will function between -50 deg C and +80 deg C.

The WoW-2 Impact 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 Impact tags cool-down time is significantly accelerated, as well. The end result is that the WoW-2 Impact tag will be functional at extreme temperatures.



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## 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 Impact tag must be mounted to the metal surface with the metal “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 Impact 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 Impact’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.

#### 2.1.1 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).

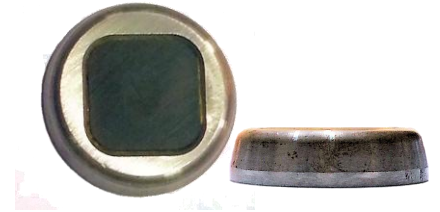
##### 2.1.1.1 Procedure

The tag should be welded in two “spots”. The tag must NOT be welded all the way around the tag.



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Correctly welded "spot" welds

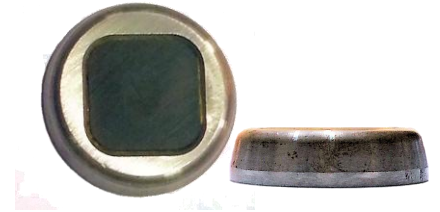
Correctly welded across the end of the tab

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## 3 CONTACTING TROI LLC

For additional information and technical support contact:

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