

# RFID Flex Hard Tag

## Key Product Features

Semi-rigid polyester construction offers increased durability and strength over other RFID tags

Optional subsurface printing protects against extreme solvents, caustics, acids, and abrasion.

Apply with 3M® adhesives suited to adhere to polyethylene and polypropylene surfaces with optional rivet holes for mechanical fastening

Ideal for high wear applications including returnable pallets, containers, utilities and embedding within injected molded products

IP68 Ingress Protection

Average read range 22-24 ft.



The **Flex Hard Tag** has been specifically designed for assets that need a rugged, yet flexible, polymer RFID tag that is more cost effective than traditional hard tags and has reliable, consistent read range performance.

Reusable containers, pallets and other mobile assets are exposed to a wide variety of environment and working conditions. Abrasion, UV exposure, dirt and moisture can affect the durability and longevity of your RFID tags.

The Flex Hard Tag is made of high performance, pliable polyester that provides more strength and rigidity than a traditional RFID polyester label but is more formable than a metal or hard plastic tag.

The Flex Hard Tag is ideal for returnable pallets, plastic crates, containers, utility poles or for embedding in injected molded products. Along with a RFID read range of 22-24 ft. on most applications, the Flex Hard Tag is versatile and durable enough for almost any returnable container or harsh environment RFID tracking project.

Not sure what product you need?

Call our trained experts!

641-423-9460

1-800-437-5283



UNIVERSAL  
**RFID**  
BY **METAL CRAFT**

3360 9th St. SW  
Mason City, IA 50401  
[www.idplate.com](http://www.idplate.com)  
E-mail: [metalcraft@idplate.com](mailto:metalcraft@idplate.com)

# RFID Flex Hard Tag Product Specifications

**Material:** .002" or .003" polyester for subsurface printing, .007" polyester inlay covering, .007" polyester base. Approximate .020" total product thickness.

**Standard RFID Inlay:** Alien Higgs 3 Squiggle

**Frequency Range:** 860-960 MHz

**Ingress Protection:** IP68 (On certain constructions)

**Label Copy:** The label copy may include block type, stylized type, logos or other designs. All copy, block type, stylized type, logos, designs, and bar code are subsurface printed. This unique process provides excellent resistance to environmental factors.

**Colors:** Standard colors include black, red, yellow, green and blue. Due to contrast needed for the bar code scanner, all bar codes are black.

**Adhesive:** MC71 or MC78 attachment adhesive. Rivet holes available for mechanical fastening.

**Serialization:** Barcode and human-readable equivalent is produced using the latest high-resolution digital technology available, which provides excellent clarity and easy scanning. Code 39 is the standard symbology with a range of 2.7 to 9.4 CPI.

Optional symbologies include code 128, I 2 of 5, 2D Datamatrix and QR code. The bar code and human readable can be programmed into the RFID inlay as long as the information is in decimal or hexadecimal format. The programmed information can be locked, which prevents the RFID inlay from being rewritten.

**Standard Sizes:**

- 2.875" x 2.25"
- 4.125" x .75"
- 4.5" x .75"

**Shipment:** Lead time of 12 days for standard size and construction.

## Test Results

These tests were conducted for a limited period of time in strict laboratory conditions. We highly recommend that any customer considering use of this product test the labels in the environment in which they will be used.

**High Temperature Test:** All samples were applied to glass test panels and subject to 10 minutes of cumulative exposure to 150°F, 200°F, 250°F, and 300°F. The results were taken immediately after removal from the oven. No adhesion loss to substrate, warping, or delamination was observed, and all inlays read post-exposure.

**Low Temperature Test:** All samples were applied to polypropylene and subject to -1.3°F for 24 hours. The results were taken immediately after removal from the freezer. No adhesion loss to the polypropylene was observed, and all inlays read correctly.

**Chemical Immersion Test:** Test of label structure and printed image as well as readability of inlay.

Immersion Time	2 Hrs	24 Hrs	48 Hrs
DI Water	NE	NE	NE
Salt Water	NE	NE	NE
Bathroom Cleaner	NE	NE	NE
Glass Cleaner	NE	NE	NE
Isopropanol	NE	AO	AO
Brake Fluid	NE	NE	NE
Acetone	AO	AO/TD	AO/TD/INR
Diesel Fuel	NE	AO	AO
Nitric Acid	NE	NE	NE
Hydrochloric Acid	NE	NE	NE
Sodium Hydroxide	NE	NE	NE
Skydrol	NE	AO	AO

Key: NE=No Effect, INR= Inlay No Read, AO= Adhesive Ooze Around Perimeter of Tag, TD= Tag Delaminated

**Abrasion Test:** Samples were tested on the Taber 5130 abrader with CS-10 wheels with a wheel load of 500g each (1000g total). All samples survived 20,000 revolutions.

**Pressure Washer Test:** Labels were applied to a polypropylene test panel and allowed to wet out for 24 hrs. High pressure washing consisting of spraying room temperature water for 30 seconds. Spray was directed at the edges of the label to force delamination. No delamination occurred, no other defects were observed and the inlay read after exposure.

**Injection Mold Test:** Injection Mold Specs: ABS resin temperature: 480°F, Injection pressure: 500-800 PSI, Total mold cycle time: 26 sec. All tested tags were readable after being molded in the part.