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## FERROXTAG IN METAL NOTCH

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### **FERROXTAG IN METAL NOTCH, THE CORRECT CHOICE WHEN THE BEST DEGREE OF PROTECTION FOR THE TAG IS NEEDED**

The implementation of robust and reliable systems of radio frequency identification in industrial environments remains a real challenge nowadays. In most situations the weak point continue being the transponder, which attached to the item to be identified, is totally exposed to acids, extreme temperatures and high probability of suffering impacts in presence of liquids and metals. It is a proven fact that industrial environments decrease the functionality of RFID tags making it possible even their destruction.

Ferroxtag on metal screw box has already exceeded such challenge, its revolutionary design, with ceramic magnetic antenna makes it possible to reach the largest operating distances of the market when referring to metallic item identification, besides, its Polyamide 66 package protects all the tag's internal components allowing Ferroxtag to work at full capacity under above-mentioned conditions.

However, if better degree of protection is needed, or simply the identified object cannot have any attached device that could increase its external dimensions, then, without any doubt, mechanizing a little hole in the metal item surface in order to put the tag inside is the best alternative.

### **IN METAL NOTCH APPLICATIONS, FERROXTAG NEW RANGE**

We have to differentiate the application where you install the tag on the surface of a metal item (we only find metal under the tag) and the application where the tag is partially surrounded by metal (see below picture).



*Figure 1. Ferroxtag in metal notch*



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In this last situation, resonance frequency of the device will be strongly affected by this bigger mass of surrounding metal, nevertheless, this is not a problem for Ferroxtag, thanks to its high performance ferrite antenna and the special tuning we apply, we are totally qualified to offer a true solution for this kind of applications.

**New standard references are:**

<b>FXT0.2-SLI-R</b> (4330 034 10231)	<b>On metal tuning</b>	<b>Bare tag + thermo-shrink rubber</b>	<b>HF (13.56MHz)</b> Passive technology
<p><b><u>FEATURES</u></b></p> <ul style="list-style-type: none"> <li>• 16.5 x 9 x 3.5 mm – 1.3 grams.</li> <li>• Storage temperature: -40°C to +105°C.</li> <li>• Protected with thermo-shrink rubber.</li> <li>• Passive resonance frequency at the air 13MHz ± 300 KHz.</li> </ul> <p>Due to its reduced dimensions is perfect to be fixed in small places safe from dirt and hits , besides thanks to its <u>thermo-shrink rubber</u> coating, it can be placed directly over the metallic surface avoiding the possibility of short-circuit in its antenna.</p>			

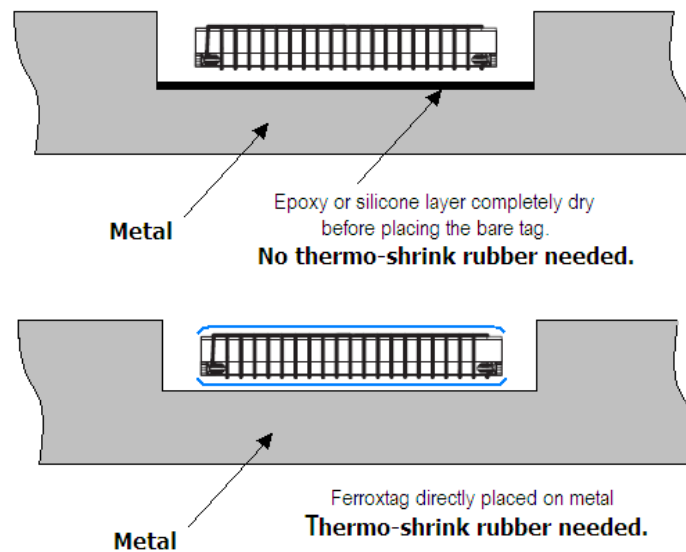
<b>FXT0.3-SLI-R</b> (4330 034 10191)	<b>Tuned to be densely surrounded by metal</b>	<b>Bare tag + thermo-shrink rubber</b>	<b>HF (13.56MHz)</b> Passive technology
<p><b><u>FEATURES</u></b></p> <ul style="list-style-type: none"> <li>• 16.5 x 9 x 3.5 mm – 1.3 grams.</li> <li>• Storage temperature: -40°C to +105°C.</li> <li>• Protected with thermo-shrink rubber</li> <li>• Passive resonance frequency at the air 11.7MHz ± 300 KHz.</li> </ul> <p>Due to its reduced dimensions and <u>its special tuning</u>, this tag is perfect to be fixed inside small holes or grooves made on metal y finally sealed with Epoxy based adhesives or silicone. In this way the tag will be safe from dirt and hits, besides thanks to its <u>thermo-shrink rubber</u> coating, it can be placed directly over the metallic surface avoiding the possibility of short circuit in its antenna.</p>			

<b>FXT0.4-SLI-R</b> (4330 034 10171)	<b>Tuned to be partially surrounded by metal</b>	<b>Bare tag + thermo-shrink rubber</b>	<b>HF (13.56MHz)</b> Passive technology
<p><b><u>FEATURES</u></b></p> <ul style="list-style-type: none"> <li>• 16.5 x 9 x 3.5 mm – 1.3 grams.</li> <li>• Storage temperature: -40°C to +105°C.</li> <li>• Protected with thermo-shrink rubber</li> <li>• Passive resonance frequency at the air 12.3MHz ± 300 KHz.</li> </ul> <p>Due to its reduced dimensions and <u>its special tuning</u>, this tag is perfect to be fixed inside small holes or grooves made on metal and finally sealed with Epoxy based adhesives or silicone. In this way the tag will be safe from dirt and hits, besides thanks to its <u>thermo-shrink rubber</u> coating, it can be placed directly over the metallic surface avoiding the possibility of short circuit in its antenna.</p>			



*FERROXTAG IN METAL NOTCH*

Thermo-shrink rubber coating will not protect the tag against impacts like our Polyamide 66 case, however, it makes possible to place the tag directly on the metal surface inside the notch avoiding the possibility of antenna short circuit. Finally, the tag will be sealed inside the hole using Epoxy or Silicone.



*Figure 2. Metal notch cross-section*

If higher temperature capabilities were required (up to 180°C), or if an ATEX certified tag was needed, upon request, we can also re-tune our standard on metal screw Ferroxtag to be used in metal notch applications.



*Figure 3. Ferroxtag on screw box ATEX certified re-tuned for metal notch applications.*



**Notice that certain free space must be kept between tag ends and notch limits, this action will improve magnetic flux density across the antenna obtaining better operation distances. (See Figure 2.)**

**WHY FERROXTAG FOR IN METAL NOTCH APPLICATIONS?**

Most of HF RFID tags that are supposed suitable for metal item identification, base their functionality in the use of gaps between tag coil and metal surface. At expense of bigger dimensions (several times Ferroxtag´s one), these tags achieve an operating range of a few millimeters. However, this alternative is not suitable for in metal notch applications where the tag´s dimension is really a concern, the smaller the tag is, the less metal surface has to be mechanize to place the tag inside.

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