XS Series User Guide

The Xerafy XS Series of RFID-in-metal are the world's smallest passive UHF EPC Class 1 Gen 2 tags. XS Series tags are ideal for medical device and tool tracking. The extremely low profile and ability of Xerafy's XS tags to be embedded in metal allows small tools and medical instruments to be RFID-enabled at the point of manufacture.

XS tags can be attached to metallic assets, semi-embedded in metallic assets, or completely embedded in metallic assets. This user guide will explain how to properly attach the Dot XS and Dash XS tags to assets for optimum performance and durability.

Asset size

The size of the asset is very important in determining which Xerafy metal RFID tag to use. The Dash XS should be used for assets with a width of less than 0.5 inches (15 mm). In addition, the length of the asset will also affect the tags read performance. For example, a tool that is 4 in (100 mm) length will have a significantly longer read range than a tool that is only 2 in (50 mm) in length (Fig. 1).

Attaching to Metal

To properly attach the Dot-On XS and Dash-On XS, first use instant glue to place the tag on the asset, then cover the tag with epoxy resin to secure the tag in place. Using epoxy will both help secure the tag to the asset as well as help prevent damage from shock and impact. For assets in the medical field, consult medical device autoclavable glue user guide or contact our technical support team. The Dash XS has a horizontal polarization and should be attached to the asset lengthwise to maximize performance (Fig. 2).

Embedding in metal

To embed an XS tag in a metallic asset, first prepare a cavity in the asset where the tag will be placed. For the Dot-iN XS, prepare a circular cavity with a diameter of 0.39 in (10mm) and a depth more than 0.1 in (2.6 mm) (Fig. 3). For the Dash-iN XS, the length of the recess should measure 0.5 in (13 mm), width of 0.35 in (9mm) and the depth should be more than 0.098 in (2.5 mm) (Fig. 4). Once the cavity has been prepared, place the tag in the center of the cavity using instant glue and then completely covering the tag with epoxy resin, making sure that all spaces are filled. Once again, it is important to ensure a flat metallic surface is used to eliminate any gap between the tag and the asset which can lower the read range by detuning the tag.
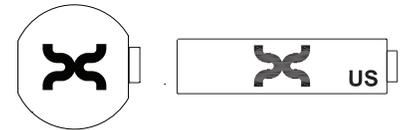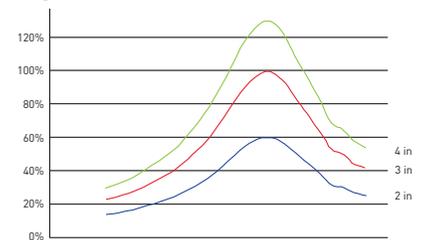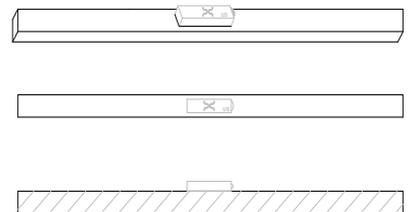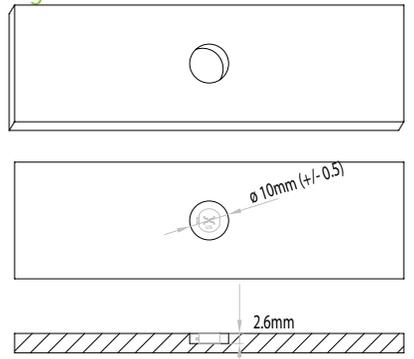
Figure 1

Figure 2

Figure 3

ø 10mm (+/- 0.5)

2.6mm

Figure 4

9mm (+/- 0.5)

13mm (+/- 0.5)

2.5mm
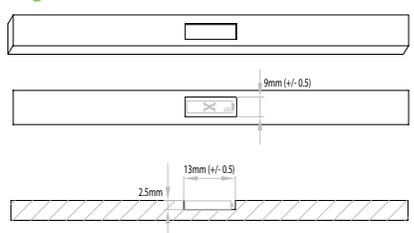
Dot XS

Tag dimensions/tolerance (mm)	ø 6 x 2.5 (+/- 0.3)
Tag dimensions/tolerance (in)	ø 0.24 x 0.1 (+/- 0.012)
Tag weight	0.34 g
Fully embedded socket dimensions / tolerance (mm)	ø 10 (+/- 0.5) x (⩾) 2.6*
Fully embedded socket dimensions / tolerance (in)	ø 0.39 (+/- 0.02) x (⩾) 0.08*

Dash XS

Tag dimensions/tolerance (mm)	12.3 x 3 x 2.2 (+/- 0.2)
Tag dimensions/tolerance (in)	0.48 x 0.12 x 0.09 (+/- 0.008)
Tag weight	0.44 g
Fully embedded socket dimensions / tolerance (mm)	13 (+/- 0.5) x 9 (+/- 0.5) x (⩾) 2.5*
Fully embedded socket dimensions/ tolerance (in)	0.5 (+/- 0.02) x 0.35 (+/- 0.02) x (⩾) 0.098*