CIRCUS™ ON-METAL

Flexible Ferrite-based NFC Tags for Multiple Use

SMARTRAC's new NFC CIRCUS™ ON-METAL tags have been specifically designed to work on metallic objects. They open the door to all applications involving the tagging of metal surfaces that need to be identified or interacted with, such as metallic parts, tools, machines, spare parts and even domestic items.

In its new CIRCUS ON-METAL tags, SMARTRAC combines flexible ferrite materials with a performance-optimized antenna design. The super-thin ferrite-based inlay is produced by applying a layer of ferrite material to the inlay, which isolates the magnetic field from the metal surface. Ferrite redirects the reader's inductive field, and prevents energy from being wasted as heat within the metallic surface.

The flexible ferrite-based NFC inlays are suitable for roll-to-roll manufacturing processes, which make onward processing much easier and more cost-effective, and allow converters to overprint the inlays if required.

CIRCUS ON-METAL is equipped with the NXP NTAG213 IC. This chip offers (UID) mirror functionality that enables the IC's serial number to be mirrored as part of its encoded data, and identifies unique reads from the application perspective. The product is less than half a millimeter thicker including the added ferrite layer.

SMARTRAC's inlays and tags are compliant with ISO 9001:2008 Quality Management and ISO 14001:2004 Environmental Management. This ensures a reliable and state-of-the-art product that meets a variety of application needs, where high performance is a critical parameter.

Overview

Operating Frequency
13.56 MHz

Integrated Circuit (IC)
NXP NTAG 213

Antenna & Die-cut Size
AI: ø 20 mm / 0.79 in
 ø 22 mm / 0.87 in

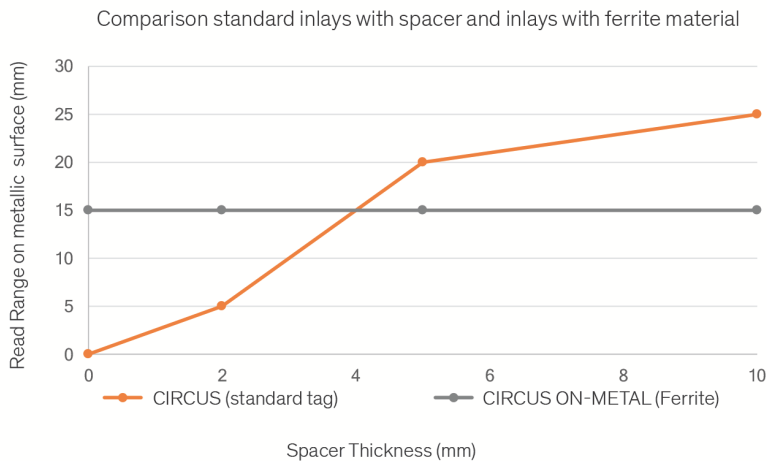## International Standards

▸ ISO 14 443 A
▸ NFC Forum Type 2

Application Areas

▸ Asset Management
▸ Brand protection
▸ Customer experiences
▸ Industry
▸ Product authentication
▸ Retail
▸ ... and many more.

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Technical Features			
IC + Memory NXP NTAG213 144 bytes user memory	**Size** ø 22 mm / 0.87 in	**Format** White Wet Face material: White PP 60	**Sales Code** 3006703
Web Width	28 mm / 1.73 in		
Operating Temperature	-25°C to 70°C / -13°F to 158°F		
Bending Diameter (D)	> 50 mm, tension less than 10 N		
Adhesive	RA-25		
Printability	Flexography and TTR with selected ribbons. Do not print over IC area.		
Qty/Reel	2.000 pcs per reel		
Core Size	76 mm / 3 in		
Shelf Life	+20 °C, 50 % RH / 68 °F, 50 % RH minimum 2 years from the date of manufacturing		

Comparison standard inlays with spacer and inlays with ferrite material

Read Range on metallic surface (mm) vs Spacer Thickness (mm)

— CIRCUS (standard tag)　— CIRCUS ON-METAL (Ferrite)

SMARTRAC
HALOGEN-FREE
MEETS
IEC 61249-2-21
environment-friendly

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Inlays and Tags