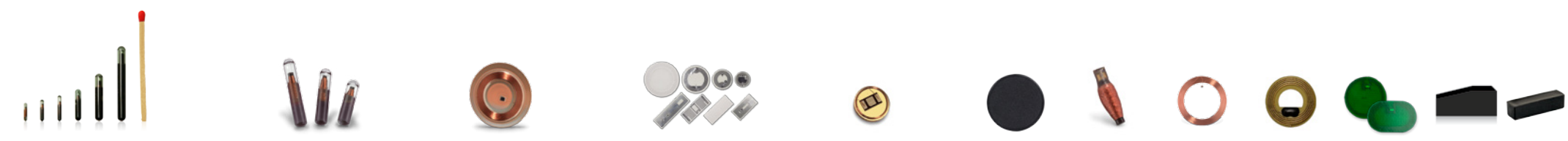
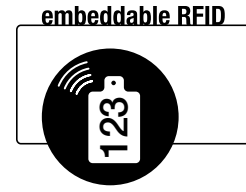


PRODUCT COMPARISON CHART

# Embeddable RFID



Product Name	Glass Tags							Glass Tag Ultra	Clear Disc			Inlays & Labels		Piccolino Tag		Logi Tag 081	E-Unit Rod	E-Unit Disc	E-Module	PCB Coin	Brick Tag	
<b>Application</b>	Small size with high chemical resistance provides an ideal solution for long term immersion into liquid or customized enclosures							Glass Tube with up to 35% better read range than standard tube of same size	Clear disc tag for custom housing			Clear inlays or printable labels for NFC or other applications		Tiny tag for custom housing with high memory capacity and fast anti-collision			Embeddable RFID tags - designed for customized enclosure			Highly robust near-field UHF coins for embedding.	Tag for car immobilizers, cables and other special applications where small size is required	
<b>Frequency</b>	125 kHz		134.2 kHz			13.56 MHz		134.2 kHz	125 kHz		13.56 MHz	13.56 MHz		13.56 MHz	134.2 kHz		13.56 MHz	865 MHz (EU) / 915 MHz (US)		125 kHz	13.56 MHz	
<b>Size</b>	Ø1.4x8 mm	Ø2x12 mm, Ø3x13 mm	Ø4x 22 mm	Ø3x13 mm, Ø4x22 mm	Ø3.85x 22.5 mm	Ø2x12 mm, Ø3x13 mm	Ø4x22 mm	Ø2x9 mm, Ø2x12.5 mm	Ø20 or 30x0.6 mm	Ø22 or 30x0.6 mm	Ø25x0.75 mm	Ø29 or 40 mm or 18x57 mm (ICODE SLIX)	Ø6x0.8 mm, Ø7.5x1 mm, Ø9.5x1 mm	Ø6x0.8 mm, Ø9.5x1 mm	Ø8x2 mm	Ø1x7 mm, Ø1.8x15 mm	Ø 20, 24, 27, 28 mm or custom	Ø 14.5 x 0.9 mm + hole Ø 6.8 mm	16x0.9 mm, 19x12 x 0.9 mm	12.1 x 6.1 x 3.0 mm	10.2 x 3 x 2.6 mm	
<b>Standards / Protocol Support<sup>1</sup></b>	ATEX		EN14803, ATEX			ISO 15693, ISO 18000-3, ATEX		ATEX			ISO 14443	ISO 14443 or 15693, NFC	ISO 15693, ISO 18000-3	ISO 15693	ISO 15693, ISO 18000-3	ISO 11784, ISO 11785		ISO 15693, ISO 18000-3	ISO 18000-6C, EPC C1G2	N/A	ISO 15693, ISO 18000-3	
<b>Chip type</b>	EM 4305	Q5, HITAG S, Unique	Unique	FDX-b BDE	HDX BDE	Vigo	ICODE SLIX	EM 4305	HITAG S, Unique	Q5	MIFARE 1K, DESFire EV1 4K	NTAG 213, ICODE SLIX, Trusted Tag	ICODE SLIX, Vigo	F-Mem	Vigo	HITAG S, EM4305, other on request		ICODE SLIX	Monza 4E	HDX, Nova	Vigo	
<b>Memory<sup>2</sup></b>	512 bit RW	64 bit RO, 256 bit RW, 264 bit RW, 2048 bit RW	64 bit RO	128 bit RO		1664 bit RW	1024 bit RW	512 bit RW	64 bit RO, 256 bit RW, 2048 bit RW	264 bit RW	1-4 kByte RW	144 Byte, 112 byte or 8 KByte	1024 bit RW or 1664 bit RW (6 mm Vigo)	2 Kbit RW 16 Kbit RW	1024 bit RW	256 bit RW, 512 bit RW, 2048 bit RW		1024 bit RW	96 bit TID, 496 bit EPC, 128 bit RW	128 bit RO, 160 bit RW	1024 bit RW	
<b>Anti-collision</b>		HITAG S - Yes		Yes				HITAG S - Yes	N/A	Yes		Yes	Yes	Yes	HITAG S - Yes		Yes	Yes		Yes		
<b>Typical Use Environment</b>	Used in customized housings for non-animal applications								Custom enclosure			Smart poster, non-metal assets	Custom enclosure			Custom enclosure			Custom enclosure	Custom enclosure		
<b>Mounting Method</b>	External housing								Custom enclosure			Glue	Custom enclosure	Sew into, glue, embed	Custom enclosure			Custom enclosure	Custom enclosure			
<b>Operating Temperature<sup>3</sup></b>	-25°C to +85°C (-40°C minimum for Unique and Q5 chip)								-20 °C to +60 °C			-20°C to +70° C	-40 °C to +85 °C	-20 to +85°C	-40°C to +85°C	-25 °C to +60 °C		-25 °C to +85 °C	-40°C to +85°C	-40°C to +90°C	-25°C to +70°C	
<b>Storage Temperature<sup>3</sup></b>	-40 °C to +90 °C								-20 °C to +60 °C			-20°C to +70° C	-40 °C to +85 °C		-40°C to +90°C	-40 °C to +60 °C		-40 °C to +120 °C	-40°C to +85°C	-40°C to +120°C	-25°C to +70°C	
<b>Peak Temperature<sup>3</sup></b>	+120 °C (100h) +140 °C (10h)								N/A				N/A			N/A			+220 °C (30s)	N/A		
<b>Housing Material</b>	Glass							Bio Glass	Polyethylen + Polyester (outside)			PET (inlay), Paper (label)	Epoxy	ABS/Epoxy Potting	N/A		FR4 + Epoxy glob top	PCB	Epoxy	ABS/Epoxy Potting		
<b>Chemical and Environmental Resistances<sup>3</sup></b>	Water, IP68 (1m, 24 h), saltwater, alcohol, HCL, fuel, ammonia								Depends on finished product			Water, IP67 (1m, 1h)	Water, IP67 (1m, 1h)	Water, IP68 (1m, 24h)	Depends on finished product			Water, IP68 (1m, 24h), Mineral oil, petroleum, salt mist, vegetable oil	Water IP68, saltwater, gasoline, oil, HCL, bleach, formic acid, caustic soda			
<b>Mechanical Resistances<sup>3</sup></b>	Vibration IEC 68.2.6, shock IEC 68.2.29								Depends on finished product			Vibration IEC 68.2.6, Shock IEC 68.2.29	Depends on finished product			Depends on finished product		Vibration IEC 68.2.6, Shock IEC 68.2.29	Vibration IEC 68.2.6, Shock IEC 68.2.29, Impact IEC 62262-IK08	Vibration IEC 68.2.6, Shock IEC 68.2.29		
<b>Warranty<sup>4</sup></b>	2 years								2 years			2 Years	2 years			2 years			2 Years			

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<sup>1</sup> ISO 11784, ISO 11785 for HITAG S and EM4305 chip only  
<sup>2</sup> Unique (64 bit RO), Q5 (264 bit RW), HITAG S (32 bit RO, 256 bit RW, 2048 bit RW), Titan (1024 bit RW), EM4305 (512 bit RW), ICODE SLIX (1024 bit EEPROM, incl. 896 bit user memory), Vigo (1024 or 1664 bit RW), NTAG 213 (144 Byte RW), Trusted Tag (8 KB RW)  
<sup>3</sup> For further specification details, please see datasheets of the respective products  
<sup>4</sup> Warranty: Storage condition must not exceed specification for temperature, chemical, mechanical, electrical condition, storage from -25°C to +50°C, humidity 20% to 80%