

New UHF tags: what's new, and which to reach for

About **38 new UHF data carriers** (the **FHW02*** range) are now in the Balluff catalog: proven Xerafy, Omni-ID/HID, SAG and Avery Dennison tags re-badged into Balluff order codes. Each one landed to solve a real on-metal, high-temperature or high-memory application in the field.

READING THE TEMPERATURE all 38 list the same **-40...85 °C** ambient. That is Balluff's boilerplate default, not a per-tag rating, so it tells you nothing. This sheet leads with the **maximum short-term excursion** instead (a paint-oven pass, a wash cycle), the number that actually separates these tags.

READING THE CODES on-metal tags come in two regional versions, **FCC (US)** 902 to 928 MHz and **ETSI (EU)** 865 to 868 MHz. Same tag, antenna tuned to the band. Order the FCC code in the Americas for best read range; the ETSI version still reads here, just shorter. Labels and inlays are broadband: one global code, any market.

WHICH DO I REACH FOR?

On-metal, general purpose, with user memory the BIS0172 phase-out replacement	→ SAG Metal EVO FHW02KR
High-temp on-metal for paint, oven, wash lines 200 to 250 °C short-term	→ SAG Brick 200 °C FHW02KU → Xerafy MICRO 250 °C FHW02LT
Maximum memory / harsh chemical 1 KB user memory, rugged on-metal (anodizing, chemical)	→ HID IronTag 206 FHW02K5
Smallest footprint on-metal tight fixtures, small parts	→ Xerafy Pico On FHW02HK · XS Dot FHW02K8
Paper label / inlay for logistics, WIP, general ID metal-free surfaces	→ see Labels & inlays (page 2)

ON-METAL, GENERAL PURPOSE · THE BIS0172 FIX



SAG · UCODE 9XM
SAG Metal EVO on-metal general purpose
FCC **FHW02KR** ETSI FHW02KP

The on-metal replacement for **BIS0172**. When Balluff swapped the BIS0172 chip and Avery Dennison phased out its UHF parts, the field was left with no NA-frequency UHF tag with user memory in stock. This is the closest form-factor match, on a modern NXP chip that sidesteps the Avery/Impinj supply problem.

624-bit user | 120 °C max | 78 × 21 × 11 mm | Nylon

ON-METAL, HIGH TEMPERATURE · PAINT / OVEN / WASH



SAG · UCODE 9XM
SAG Brick Metal
FCC **FHW02KU** ETSI FHW02KT

High-temp on-metal for paint and oven lines. Proven in a high-temp paint and oven application (~200 °C, read at ~3 ft).

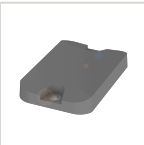
624-bit | 200 °C max | 54 × 36 × 12.5



XERAFY · U9XM
Xerafy MICRO Paint Shop
FCC **FHW02LP** ETSI FHW02LN

Top of the temperature range. Thin on-metal tag built for paint-shop carriers that ride the cure oven.

624-bit | 250 °C max | 55 × 36 × 7.5



XERAFY · U9XM
Xerafy MICRO Industrial
FCC **FHW02LT** ETSI FHW02LR

Same 250 °C body, general-industrial variant. The everyday high-temp on-metal pick when it is not a paint shop.

624-bit | 250 °C max | 55 × 36 × 7.5



OMNI-ID / HID
EXO Pro 400HT
FCC **FHW02CP** ETSI FHW02CR

Compact high-temp on-metal for where the Brick is too big. Monza R6-P chip.

64-bit user | 235 °C max | 37 × 14 × 7.5

Also high-temp: **FIT400 HT FHW024H** (Omni-ID/HID, 235 °C max, 512-bit, 13.1 × 7.8 × 3.1 mm, small enough to embed in the part). US order code; the EU sibling **FHW00RU** is already in the catalog. Product photo to follow.

HIGH MEMORY / RUGGED

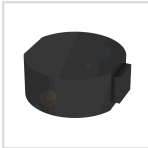


HID
IronTag 206 memory heavyweight, rugged on-metal
FCC FHW02K5
1 KB of user memory, about 13× the SAG EVO, for customers who write real data to the tag. Rugged encapsulated body for harsh and chemical environments, for example anodizing lines (aluminum parts in acid, splash and fumes).
8192-bit user | 150 °C max (220 °C one-time) | 34 × 31 × 6 mm

SMALL / TIGHT-SPACE ON-METAL



XERAFY · H9
NANO Plus
FCC FHW02K9 ETSI FHW02K1
Small on-metal tag for tight fixtures and smaller parts.
688-bit | 150 °C max | 32 × 13 × 5



XERAFY · H9
XS Dot
FCC FHW02K8 ETSI FHW02K7
Ceramic dot for the smallest mounting spots, tools and fixtures.
688-bit | 150 °C max | Ø 6 × 2.5



XERAFY · H9
Pico On
FCC FHW02HK ETSI FHW02HJ
Tiny ceramic on-metal tag, a step up in size from the XS Dot.
688-bit | 150 °C max | 13 × 7 × 3

Also small: **XS Dot Wedge FHW028P** (US, Ø 10.3 × 4.6 mm, 95 °C; EU sibling **FHW00CL** in the catalog) and **Micro X II FHW0219** (EU, 85 °C), 512-bit, round out the tight-space range.

WATCH THE CHIP GENERATION: QUOTE THE NEWER PART
Six older **Xerafy MICRO** tags are still in the catalog on the prior **H9** chip (FHW025W / 025Y Paint Shop, FHW025Z / 0260 Industrial, FHW0261 / 0262 Autoclavable): 688-bit, 150 °C. The newer **U9xm** L-series above (FHW02LP / LT, 250 °C) supersedes them for paint-shop and high-temp work. For new quotes, reach for the L-series, not the H9 micros.

ALSO NEW: LABELS & INLAYS (METAL-FREE, GENERAL ID)

ORDER CODE	PRODUCT	MAKER	EPC	SIZE MM	USE
FHW02KA	AD Dogbone M750 label	Avery Dennison	96	27 × 97	General logistics label
FHW02KC	AD Burst M830 label	Avery Dennison	128	13.5 × 73	Small-item label
FHW02AW	AD TracX M730	Avery Dennison	128	53 × 53	Asset / WIP label
FHW02AY	AD-350 U8 WEL	Avery Dennison	128	78 × 8	Wet inlay
FHW02AZ	AD Squarewave M730	Avery Dennison	128	97 × 15	Square label
FHW02JT	AD Burst WI Global M830	Avery Dennison	128	20 × 120	Long-range inlay
FHW02E0	MiniWeb Global Label M730	Avery Dennison	128	18 × 45	Compact label
FHW02E1	MiniWeb Wet Inlay U8	Avery Dennison	128	45 × 18	Wet inlay (ETSI)
FHW02HW	MiniWeb Global Reel M730	Avery Dennison	128	45 × 18	Reel label
FHW02E3	AD Skyline (ETSI)	Avery Dennison	128	54 × 25	EU inlay
FHW028J	IQ OM 750 label M730	HID / Omni-ID	–	60 × 24	On/near-metal label
FHW02HY	IQ OM 600 GS M730	HID / Omni-ID	–	75 × 25	On/near-metal label

All labels and inlays share the –40...85 °C ambient (metal-free paper/inlay tags, not on-metal). Sizes are the die-cut label outline per the manufacturer datasheet. Mounting note: keep the tag's clear zone off bare metal.

ALL 38, AT A GLANCE · SORTED BY MAX TEMPERATURE

FCC CODE	ETSI CODE	PRODUCT	MAKER	USER MEM	MAX °C	SIZE MM
ON-METAL & RUGGEDIZED · FCC (US) / ETSI (EU) REGION-TUNED PAIRS						
FHW02LP	FHW02LN	Xerafy MICRO Paint Shop	Xerafy	624	250	55 × 36 × 7.5
FHW02LT	FHW02LR	Xerafy MICRO Industrial	Xerafy	624	250	55 × 36 × 7.5
FHW02CP	FHW02CR	Omni-ID/HID EXO Pro 400HT	HID	64	235	37 × 14 × 7.5
FHW024H	FHW00RU†	Omni-ID/HID FIT400 HT	HID	512	235	13.1 × 7.8 × 3.1
FHW02KU	FHW02KT	SAG Brick Metal	SAG	624	200	54 × 36 × 12.5
FHW02K5	–	HID IronTag 206	HID	8192	150	34 × 31 × 6
FHW02K9	FHW02K1	Xerafy NANO Plus	Xerafy	688	150	32 × 13 × 5
FHW02K8	FHW02K7	Xerafy XS Dot	Xerafy	688	150	Ø 6 × 2.5
FHW02HK	FHW02HJ	Xerafy Pico On	Xerafy	688	150	13 × 7 × 3
FHW025W	FHW025Y	Xerafy MICRO Paint Shop (H9)	Xerafy	688	150	55 × 36 × 7.5
FHW025Z	FHW0260	Xerafy MICRO Industrial (H9)	Xerafy	688	150	55 × 36 × 7.5
FHW0261	FHW0262	Xerafy MICRO Autoclavable (H9)	Xerafy	688	150	55 × 36 × 7.5
FHW02KR	FHW02KP	SAG Metal EVO	SAG	624	120	78 × 21 × 11
FHW028P	FHW00CL†	Xerafy XS Dot Wedge	Xerafy	512	95	Ø 10.3 × 4.6
–	FHW0219	Xerafy Micro X II	Xerafy	512	85	51 × 36 × 7.5
LABELS & INLAYS · BROADBAND, ONE GLOBAL CODE · METAL-FREE, 85 °C						
FHW02KA	–	AD Dogbone M750 label	Avery Dennison	32	85	27 × 97
FHW02KC	–	AD Burst M830 label	Avery Dennison	–	85	13.5 × 73
FHW02AW	–	AD TracX M730	Avery Dennison	–	85	53 × 53
FHW02AY	–	AD-350 U8 WEL	Avery Dennison	–	85	78 × 8
FHW02AZ	–	AD Squarewave M730	Avery Dennison	–	85	97 × 15
FHW02JT	–	AD Burst WI Global M830	Avery Dennison	–	85	20 × 120
FHW02E0	–	MiniWeb Global Label M730	Avery Dennison	–	85	18 × 45
–	FHW02E1	MiniWeb Wet Inlay U8	Avery Dennison	–	85	45 × 18
FHW02HW	–	MiniWeb Global Reel M730	Avery Dennison	–	85	45 × 18
–	FHW02E3	AD Skyline (ETSI)	Avery Dennison	–	85	54 × 25
FHW028J	–	IQ OM 750 label M730	HID / Omni-ID	–	85	60 × 24
FHW02HY	–	IQ OM 600 GS M730	HID / Omni-ID	–	85	75 × 25

Temperature is the maximum short-term excursion (storage/peak), not continuous operating; all 38 share Balluff's –40...85 °C ambient default. **Memory** is user memory in bits (H9 Xerafy micros read 688-bit per the manufacturer datasheet, correcting the earlier catalog value). † Existing catalog order code: the datasheet-confirmed region sibling of the new US part. Label sizes are the die-cut outline. Sources: Balluff PIA plus HID/Omni-ID, Xerafy, SAG and Avery Dennison datasheets, reconciled 2026-07-09. New to the catalog June 2026.