

COSMETIC SCREWS

Adding a dimension of aesthetics into functionality

Set yourself apart from your competition with these aesthetically-finished screws. With the world of consumer electronics offering endless opportunities for ideas, Unisteel has developed creative solutions – from colored screws to artistically textured screws- for customers who want to add an element of aesthetics into their products.

UNI-SHINE®

UNI-SHINE® is a proprietary texturing method which reveals the natural shine of stainless steel. Available in various unique patterns and textures to suit and match the fastener's surroundings, this cosmetic finish gives a luxurious feel to any application and offers excellent durability.

Features & Benefits

- Available in various cuts
- Meets RoHS requirements
- Provides excellent resistance to wear and scratch
- Offers long lasting finish



UNI-COLOR®

UNI-COLOR® is a special color coating that is designed and formulated to meet high-end cosmetic needs and market trends. Available in both spray paint and physical vapor deposition (PVD) techniques, this environmentally-friendly cosmetic coating offers excellent coverage and resistance against wear and corrosion.

Spray Paint

Using polyurethane (PU) paint, this coating method offers consistent coverage on screw head with no limit to the range of colors that can be developed.

Features & Benefits

- Available in any Pantone color
- Uniform coating thickness
- RoHS compliance in both color coating and base material
- Resistance to wear and corrosion on color layer



Physical Vapor Deposition (PVD)

PVD is a vacuum coating process to produce a conformal metal-based thin film that can be uniformly deposited on electrically conductive surfaces. Using the sputtering method, a single coating layer provides ample coverage without modifying the surface profile. This technique is used in many electronic industries including optical media, optics and semiconductor components.

Features & Benefits

- Exceptional aesthetic finish
- Uniform coating thickness
- Superior resistance to wear and corrosion
- PVD coating has a high level of hardness

Applications of Cosmetic Screws

- Mobile phones
- Digital cameras
- Notebooks and tablets
- Consumer electronics
- Automotive and industrial products



Unisteel Test Specifications

(Comparison between spray paint and PVD methods)

Criteria	Spray Paint	PVD
Abrasion resistance • Samsung certified eraser with test load of $1.98 \pm 0.05N$	• No ground exposure with a width of <2mm • Min. 150 cycles (test on coupon)	• No ground exposure with a width of <2mm • Min. 180 cycles (coating thickness: $1.1 \pm 0.01\mu m$, test on coupon)
Alcohol resistance • Ethyl alcohol (76.9 - 81.4%) • Load: $1.98 \pm 0.05N$	• No ground exposure after a min. of 30 cycles (test on coupon)	• No ground exposure after a min. of 30 cycles (test on coupon)
Hardness (Pencil scratch test) • 3H pencil scratch for 5 times at 45° with load of $5 \pm 0.05N$	• No peeling, crack or flaw (test on coupon)	• No peeling, crack or flaw (test on coupon)
Chemical resistance • 2min exposure in MEK ($21-25^\circ C$, 50% RH)	• No visible change (No discoloration, corrosion, cracking, bubble, peeling)	• No visible change (No discoloration, corrosion, cracking, bubble, peeling)
Extended storage duration • 24hr at $65 \pm 2^\circ C$, 90-95% RH • 2hr storage at room temperature • Visual inspection + adhesion test (by 3M #600 tape)	• No peeling • No significant discoloration	• No peeling • No significant discoloration
Environmental exposure • 7hr at $65^\circ C$, 90% RH • $-40^\circ C$ to $65^\circ C$ with 40min dwell and $17^\circ C/min$ transition	• No visual degradation after 3 cycles (No significant discoloration, corrosion, peeling)	• No visual degradation after 3 cycles (No significant discoloration, corrosion, peeling)
Perspiration resistance • 0.05ml artificial sweat on the top of the coating • 12hr storage at $65^\circ C$, 90% RH	• No discoloration on surface	• No discoloration on surface
Corrosion resistance (Salt water spray) • 5% salt water • 8hr - 48hr spraying (subject to the raw material grade and the coating thickness)	• No corrosion • No peeling	• No corrosion • No peeling
Adhesion resistance • Cross-cut (intervals of 1.5mm test by 3M #600 tape)	• No peeling in 5% or more of a grid square • No peeling other than in areas near the cut (test on coupon)	• No peeling in 5% or more of a grid square • No peeling other than in areas near the cut (test on coupon)

Results above are subjected to changes.

UNI-SHINE® and UNI-COLOR® are registered trademarks of Unisteel.



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