

It's not Just Paint It's Warpaint

[2026-06-04] In defence manufacturing, surface finishing is often the quiet constant, rarely discussed, yet vital to the reliability and longevity of mission-critical systems. Beneath every uniform colour lies a complex sequence of treatments, coatings, and inspections designed not for decoration, but for protection.

Those who work to the [Warpaint standards](#) (BR 3939 and DEF STAN 80-208) know this well: it's not just paint, it's performance. Captec's newly expanded surface treatment facility in Farnborough, featuring a 12-tank SurTec line, exemplifies this principle, purpose-built to support full Warpaint 2025 BR 3939 compliance across complex defence assemblies.

Why Finishing Matters in Defence

Military platforms operate in environments that would rapidly degrade untreated materials; salt, heat, humidity, vibration, and ultraviolet exposure all take their toll. Finishes must therefore deliver far more than a consistent colour; they must preserve structural integrity, ensure electrical continuity where required, and resist corrosion over years of service.

Warpaint standards formalise these expectations, defining how surfaces should be prepared, treated, and verified. They ensure that the finish becomes part of the engineering and not an afterthought applied once assembly is complete.

The Layers Beneath the Colour

Before a single drop of paint is applied, the groundwork for durability begins. Pre-finishing treatments such as SurTec 650, Irridite, or Alocrom create a chromate conversion layer on aluminium, which are essential for paint adhesion and corrosion resistance. In other cases, anodising (standard or hard) is used to build a controlled oxide layer that hardens the surface and can be dyed for visual consistency.

Where functional properties are required, electro-plating with metals like zinc, nickel, or tin adds conductivity or enhances corrosion protection. Each step is precisely controlled to meet specification and repeatability standards. At Captec's specialised Subsystems Engineering facility, these pre-finishing processes form part of a larger end-to-end integration workflow, ensuring that finishing quality is designed in, not added later.

Painting as Precision

Every Warpaint-compliant finish must pass inspection for colour uniformity, gloss level, and film thickness. These checks confirm not only visual consistency but also the coating's protective performance. The painting process itself is a balance of chemistry, environment, and control. From masking critical areas to filling and flattening surfaces for instrument-grade smoothness, every step is measured.

Depending on the specification, components may undergo wet painting or electrostatic powder coating, followed by curing or stoving to lock in adhesion and performance. These processes are meticulously temperature- and time-controlled, whether for fine detailed instrument panels or complex full rack assemblies.

Captec's finishing specialists monitor colour, gloss, and thickness throughout the finishing process to ensure every surface performs within the required tolerances. Our approach combining chemical treatment, coating, silk screening, and engraving under one roof, enables direct control of these variables. Each finish is traceable, repeatable, and aligned to the requirements of the end application, whether for a naval console, rack assembly, or precision enclosure. Consistency across assemblies is not aesthetic; it's compliance.

Markings That Last

After painting, functional markings bring systems to life. Silk screening applies legends and identifiers using durable inks, while laser or mechanical engraving provides permanent labelling that withstands operational wear. In defence environments, these details are essential for usability, safety, and maintenance, ensuring critical information remains legible for years to come.

The Broader Perspective

In defence engineering, finishing is sometimes seen as the final stage, but in reality, it's one of the most critical points in the entire manufacturing chain. It protects not only the equipment but also the mission it supports. Warpaint, as a standard, represents discipline and assurance: a reminder that quality in defence is never skin-deep. It's engineered layer by layer, through chemistry, precision, and control.

While the end result may look simple, achieving that flawless, compliant finish is anything but. In defence, **it's not just paint – it's Warpaint.**

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Captec is an award-winning designer and end-to-end provider of specialised computing platforms, engineered to meet the precise needs of any automation application, no matter the complexity or environmental demands.

Whether it's upgrading your existing machine vision systems, integrating IoT devices, exploring [edge computing](#) or improving your existing AI implementation in your automation environments, our experienced teams are ideally placed to help you evaluate and define how you can harness this new era of intelligent automation and engineer support for you to meet your organisational objectives.

Media Contact

Natalie Velimahitopoulos

n.velimahitopoulos@captec-group.com

Captec Group