



## CASE STORY /

## EXPANITE BOOSTS SCRATCH RESISTANCE ON SWISS MADE WATCHES

*Expanite®, the Danish surface hardening specialist helped the Swiss watch brand Rado® by developing a hardening process to improve wear and scratch resistance on their titanium high-end watches which retains the designed color. This was once thought impossible.*

#### New collections crafted from hardened titanium

Given its strength, titanium is remarkably light. When compared to steel in a strength-to-weight ratio, titanium is far superior, as it is as strong as steel but 45% lighter, and thus a material which is in high demand in mission critical designs for aerospace and high-tech medical applications, among others. Although it is also hypoallergenic and resistant to corrosion, titanium is relatively soft and scratches easily. But not anymore: Rado® unveiled the HyperChrome Ultra Light and Tradition Captain Cook MKIII collections crafted among others from hardened titanium. Where the Tradition Captain Cook MKIII watch has a hardened grade 5 titanium case, the HyperChrome Ultra Light combines high-tech ceramics and hardened titanium in a unique bronze color.

#### The solution: Expanite treatment offers surface hardness and increased wear and scratch resistance!

The solutions were developed by Expanite®, by using the superior hardening technology "ExpaniteHardTi". By diffusing molecules into the surface of titanium in a gaseous process, the titanium becomes almost completely resistant to wear and scratches - while keeping the mechanical and corrosion properties, which defines the extraordinary qualities of titanium. ExpaniteHard-Ti is not a coating process, hence all the drawbacks of coating including the risks of spalling and inconsistencies in layers are completely avoided. Furthermore, with the ability to harden both titanium grade 2 and grade 5, the process is suitable in a broad range of applications.

"While hardening of the watch case for the Captain Cook MKIII was relative straight forward, the requirements of the HyperChrome Ultra Light designers and development team from Rado® was quite unique; we basically had to redo and upscale a process which we originally thought was faulty. This had some years back yielded titanium grade 5 in a distinct bronze color, while still reaching scratch resistance beyond what had previously been possible with a diffusion-based hardening technique. Our team of experts solved the case and made this part of the HyperChrome Ultra Light watch reality.", says CEO Thomas Abel Sandholdt from Expanite®.

#### About Rado

Rado®, part of the Swatch Group that also includes Omega and Longines. Rado® is a globally recognized brand, famous for innovative design and its use of revolutionary materials to create some of the world's most durable watches. Ever since its beginnings in Lengnau, Switzerland, Rado® has had a pioneering spirit, with the brand philosophy "if we can imagine it, we can make it." Rado's design-driven timepieces will surely make you stand apart from the rest. Learn more on [www.rado.com](http://www.rado.com)





### About Expanite

Expanite offers state-of-the-art solutions for surface hardening treatment of stainless steels and titanium. With Expanite's processes, it is possible to increase the material's surface hardness tenfold while at the same time maintaining and even increasing its corrosion resistance. Expanite is a global organization with a combined development and production facility near Copenhagen, Denmark, and hardening capacity in both US, Germany, Korea, and China. Expanite's solutions are flexible and can be introduced directly into a customer's own production line as part of a licensing arrangement. Learn more on [www.expanite.com](http://www.expanite.com).



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