

Game Changer in Stainless Steel Surface Hardening

Whether it's the SuperExpanite, the ExpaniteLow-T or the ExpaniteHigh-T patented processes, **Expanite**, located in Hillerød, Denmark, is able to surface harden Austenitic, Martensitic, Ferritic and Duplex grades of stainless steel to reduce wear, fatigue and galling while at the same time maintaining or even improving corrosion resistance.

The company's **Kenneth Zinsli** reports that the patented Expanite processes were developed over a 10-year period by professors along with PhD students at the **Technical University of Denmark (DTU)**.

And since its commercialization in 2010, the Expanite company has continued to rack-up success stories with its unique interstitial process for hardening stainless steel and titanium.

Processes Customized for Greater Flexibility

The ability to customize each process to the specific needs of the customer, application and alloy, is unheard of in the industry. And not only does the process dramatically harden the surface, it offers customers greater flexibility in the selection of materials and geometries.

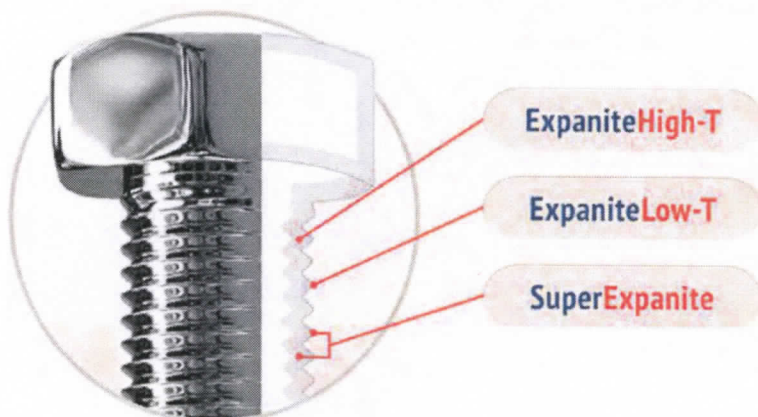
Expanite is a clean process which produces no residue—parts go in clean and come out clean. And with Expanite's unique ability to offer customers a choice between in-house production or fast turn-around at one of its global production facilities, parts are delivered when customers need them, with no post-treatment cleaning or processing.

Significant Increase in Surface Hardness

With Expanite's unique processes, it is possible to increase the material's surface hardness tenfold (by 1200 to 1800 HV) and core hardness depths greater than 2 mm have been achieved while increasing corrosion resistance.

SuperExpanite-treated Austenitic stainless steel has been tested to withstand 1300-plus hours of salt-spray testing with no corrosion detected.

Expanite says it provides the industry with unprecedented performance, which is truly a game changer.



Salt-Spray Test



A Closer Look at Each Process

SuperExpanite: By combining the ExpaniteHigh-T and ExpaniteLow-T processes you get a previously unseen surface hardness founded on top of a bulk material, which has very strong load-bearing capacity. Superior corrosion, wear and fatigue properties is the outcome – SuperExpanite is simply setting new standards for what can be achieved by surface-hardening stainless steel.

Benefit: Superior corrosion, galling, fatigue and wear properties.

ExpaniteLow-T: A low-temperature surface-hardening process, by which a double hardened zone containing nitrogen and carbon is established. Nitrogen adds increased surface hardness while carbon bridges the gap to the softer core. A smooth hardness profile is tailored!

Benefit: Controlled surface hardness between 1000-1800HV.

ExpaniteHigh-T: A high-temperature solution-nitriding process pushing nitrogen deep into the bulk material. This re-establishes the core hardness

of the material, which creates a unique load-bearing capacity and secures corrosion resistance second-to-none.

Benefit: Get all the best things of annealing while maintaining core hardness and increasing corrosion resistance.

Going Beyond the Surface

With its ongoing research since 2000, and founded in 2010 by leading scientists in the field of surface hardening, Expanite has its roots deeply planted in a fact-driven environment. Expanite wants to offer the best solutions for surface-hardening of stainless steel.

Today, Expanite is changing the game by not only moving the limits of what performance can be expected from stainless steel, but also by letting the company's customers implement the processes directly in their facilities.

From Expanite's state-of-art facility with full-size furnaces and laboratory capabilities to the shop-floor of its customers, the company wants to provide customers with a competitive edge.

www.expanite.com **FTI**