



## Major automotive, pumps and food processing equipment makers can't be wrong in choosing an alternative for hard chrome plating!

*With more than 20% of the turnover coming from hard chrome replacement projects, Expanite, the Danish pioneer within surface hardening of stainless steel, is on its way to position itself as one of the most used alternatives for hard chrome plating.*

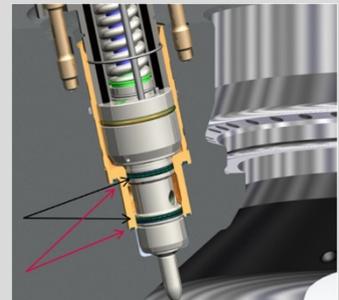
Finding a replacement for hard chrome plating can be challenging, and with EU regulations lowering the limit value for hexavalent chromium, across the industrial markets, need to find alternatives. Hard chrome plating, in various forms, has been one of “the standards” to improve resistance towards wear and corrosion for stainless steel components - and as new solutions are required, Expanite’s hardening technologies has documented its effectiveness within automotive, pumps, valves and food processing equipment markets.

### Sustainable solutions, diffusion vs. coatings

Unlike a hard chrome coating, where the electrolyte used during processing may contain hexavalent chromium ions ( $\text{Cr}^{6+}$ ), which are hazardous to human health and is environmentally harmful, the Expanite treatments involves only nitrogen and carbon atoms. This makes Expanite an environmentally friendly and sustainable process. Expanite effectively removes the native oxide film covering stainless steels during the first steps of the gas process without adding any aggressive chemicals, and this allows controlled diffusion of carbon and nitrogen atoms in the underlying steel hereafter.

### Expanite replacing hard chrome plating

“More than 20% of the parts we are processing today with the Expanite process are replacements for hard chrome plating”, says Thomas Abel Sandholdt CEO at Expanite. Whether it’s the valve parts of a fuel injector within automotive, a bushing for marine engines or the rotor for a large pump – they have all experienced the benefits of choosing a diffusion process with no risk of coatings cracking or inhomogeneous hardening zones – and on top comes the compliance with the EU Reach program on reduction of  $\text{Cr}^{6+}$  as well as the fundamental decision to move towards more sustainable solutions.



Talking about replacing hard chrome with Expanite, Thomas Abel Sandholdt highlights opportunities in the automotive industry with valve components. “Independently of each other, three major suppliers to the automotive industry approached Expanite. They all produce fuel injectors with valve components in ferritic stainless steel which traditionally were hard chromed plated. All three were facing issues such as wear, general quality problems and high cost – and they all found various solutions within the Expanite toolbox. The first of the three projects went into serial production in January 2020, while the two other projects are scheduled to begin serial production in 2021 and 2022,”. “As we are often our customers’ biggest secret, many will not allow us to reveal that we actually have helped them change from hard chrome plating”, Thomas Abel Sandholdt continues.

### Competitive cost

From the first look, Expanite hardening technology might seem costly compared to hard chromium plating, but Thomas Abel Sandholdt is convinced the price difference will equalize, once total life cycle cost and performance is taken into account. The proof lies in the decisions made by so many of Expanite’s customers.

### About Expanite

*Expanite was founded in 2010 by leading experts in materials and surface hardening. The company is headquartered in Hillerød near Copenhagen and has treatment centers in the USA, Germany, Korea and China. Expanite’s solutions are applicable to all stainless steel types and can be tailored into a customer’s own product line as part of a licensing agreement.*

