

Expanite surface hardening

Replacing tungsten carbide coating on stainless steel

Expanite - the Danish pioneer specialising in surface hardening of stainless steel and titanium - is widely replacing coatings in a variety of demanding applications.

For more than 70 years, coatings, in their various forms, have been “the standard” to improve resistance towards wear, impact, and corrosion for stainless steel components in a great vari-

ety of industries, including food and beverage processing, oil and gas, aviation, transportation, industrial, and consumer products. However, in recent years several performance limitations associated with coatings have driven the engineering community to seek better coating materials, as well as more cost-effective methods to apply them. Among the most promising alternatives is the patented Expanite hardening technology.

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Recently, one of the world’s leading manufacturers of precision nozzles and nozzle systems has converted from tungsten carbide

coatings to Expanite surface hardening after experiencing quality issues with the coating cracking off. In cooperation with Expanite, they found a hardening solution that made the surface of the noz-

zles resistant against chipping, cracking, delamination, etc. The specific customer performed field tests over a period of several months where the results from Expanite-hardened nozzles showed significant increased lifetime without any premature failure. Based on the test results, the conversion to Expanite hardening was implemented. Expanite’s customer made the following statements:

ed in better performance while reducing cost.

- By the conversion from a coating to a diffusion hardening process, issues with adhesion were eliminated, again while getting superior wear and corrosion resistance.
- Expanite hardening includes short and flexible lead-times, and is an environmentally friendly surface hardening solution.



- It is far less expensive to apply Expanite hardening compared to many of the exotic coatings - hence the conversion result-