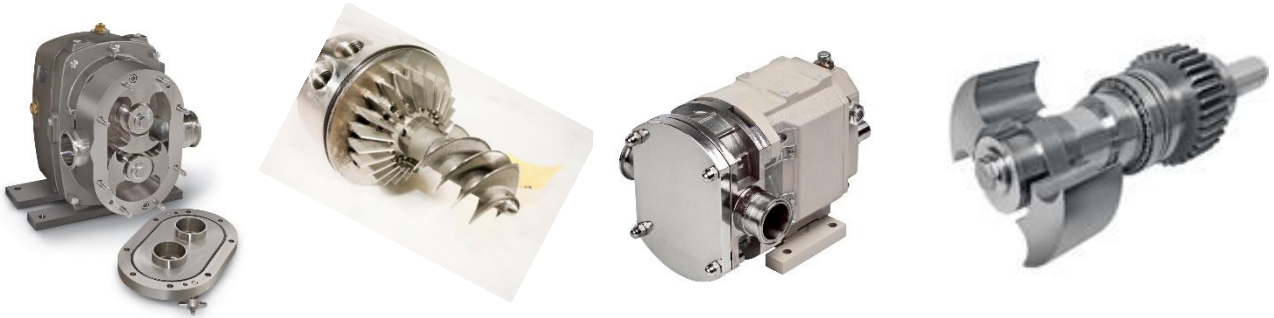


Expanite surface hardening process - ideal for stainless steel pumps

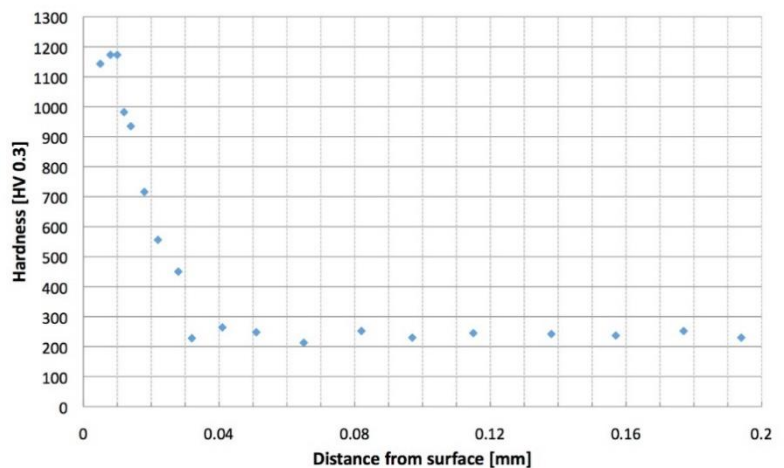
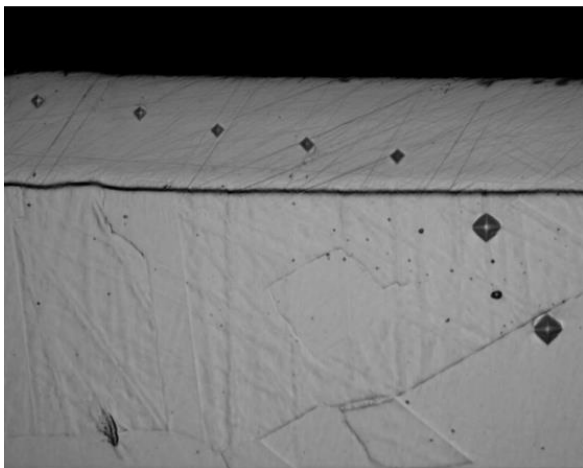


Expanite's surface hardening for stainless steel is a GAME-CHANGER in the industry. Not only can parts be treated with extremely short lead times – in principle day-to-day, previously unseen within surface hardening of stainless steel – the outcome also sets new standards for wear and corrosion resistance.

Stainless steel is the material of choice where corrosion and/or migration properties are of importance – thus well suited for the food & beverage processing industry. In many cases, however, the relatively soft surface of stainless steels is prone to excessive wear and/or galling. This is a major concern, especially in pumps where abrasive and corrosive media is handled. Expanite has in recent months achieved a major breakthrough within the pump industry with German, North American and Japanese customers –by hardening both screw and positive displacement pump parts for the food & beverage industry.

With Expanite, it's possible to increase the surface hardness of stainless steels by a factor of 10, while maintaining or even improving corrosion resistance. This method is considered unique since it's suitable for austenitic-, ferritic-, martensitic and duplex stainless steels. The Expanite process also significantly improves resistance against issues such as galling, cavitation erosion and abrasive wear. The Expanite treatment is a major benefit for many industries due to decrease downtime and thereby achieved cost savings.

Micrographs & hardness profile of part in AISI316



Regulatory clearance for food industry

Expanite has conducted migration tests to document that austenitic stainless steel surface-hardened with Expanite is in compliance with the requirements from the American FDA and EN1935 guidelines.

Benefits include:

- Increased surface hardness up to 1200-1500 HV0.05 (depending on base material and surface conditions)
- Non-galling and wear resistant demands of industrial fluid handling pumps
- No risk of delamination and spalling (Expanite is not a coating)
- Lead-time down to 3 working days
- Reliable and repeatable solution - materials remain unchanged after treatment

Surface hardening.

The Expanite technology can increase the value of products in many industries significantly - from knives, valves via mixers and grinders for the food industry, to pump, extruder screw and injection parts for the automotive sector, as well as screws, bolts and washers in different industries apply. There are 3 different basic processes, which each can be optimized according to customers' requirements in terms of abrasion, wear, corrosion and scratch resistance. This means that Expanite can develop and customize solutions for many different companies and industries.

About Expanite

Expanite was founded in 2010 by three scientists from The Technical University of Denmark. Expanite, based in Hilleroed, Denmark, has a treatment facility located in Twinsburg, Ohio and in 2016 Expanite will open treatment center near Stuttgart, Germany. For further please contact Mr. Thomas Abel Sandholdt +45 2040 7207 or check our website www.expanite.com.