

# Raising the bar for high temperature applications

How well can your fastener assemblies take the heat? Do you worry about high temperatures that can cause failure? Do you wonder if there is a fastener application that works beyond 475°F (246°C)? ND Industries has developed a fastener locking patch which it says eliminates these concerns.

**N**D Hi-Temp Patch® performs in temperatures ranging from -70°F (-57°C) to +500°F (260°C) and is used on applications in the automotive, construction, medical, electronics, aerospace, and defense industries.

## How is patch an improvement upon traditional thread-locking methods?

A patch is a coating applied to a fastener that creates a positive lock, preventing loosening and leakage at the fastening point. One of the more practical benefits of a patch application is that it replaces the need for costly lock washers, cotter pins or castellated nuts. These types of hardware components were the most commonly used methods to prevent fastener slippage before patch technology was available. Patch technology has shown to be more cost effective on larger runs than bottled thread-locking compounds that require application at the point of assembly.



## How is ND Hi-Temp Patch better than other patch materials?

Although high temperature patch creates the same kind of lock, with the same resiliency and benefits as a standard nylon patch, it also has the capacity to retain locking reliability at high temperatures. Standard patch may fail to retain functional integrity when exposed to temperatures above 250°F (121°C).

Most polyester based high temperature patch coatings will not endure temperatures exceeding 400°F (204°C). However, ND Industries' ND Hi-Temp Patch can withstand temperatures as high as 500°F (260°C) without compromise to its locking power.

During the patch coating process the fastener to which the patch is being applied is heated to a precise temperature. This heating allows a powdered polymer material to flow into the shape of the fastener thread. During the ND Hi-Temp Patch process the custom formulated polymer material is stabilised to work at extreme high temperatures. It is typically applied 2 to 3 threads back from the fastener end for easier starting of the nut/bolt assembly.

The applied coating material fuses to the heated fastener instantly. No curing time is required. Since ND Hi-Temp Patch is not chemically reactive, once the fastener is cooled, it's ready to use right out of the box. This means that ND Hi-Temp Patch treated fasteners can be immediately fed through automatic feeding equipment, saving precious time in the assembly process. Because the ND Hi-Temp Patch coating process entails no drilling or milling, the fastener to which a patch is applied does not lose any structural strength. ND Hi-Temp Patch coating can be applied to almost any internally or externally threaded metallic fastener, whether large construction bolts or minuscule screws used in portable electronic devices. Moreover, the nylon-like material used in the ND Hi-Temp Patch coating process is highly chemical resistant, and will not dry, shrink, or lose its integrity even when exposed to corrosive materials such as commercial solvents, alcohol, gasoline, motor oil, caustic soda, jet fuel, anti-freeze, or brake fluid.

The ND Hi-Temp Patch coating, like typical patch, works effectively like a spring or a dam. When a ND Hi-Temp Patch coated fastener is threaded onto a mating part, the patch material is compressed, exerting a constant spring like locking pressure between the fastener and its mate. When the fastener is fully seated, the positive seal created prevents fluid leakage and is resistant to loosening, even when subjected to extreme shock impact and prolonged vibration. This resistance greatly reduces the need to retighten fasteners.

ND Hi-Temp Patch is not only easier and more cost effective than outdated sealing methods, but a fastener treated with ND Hi-Temp Patch is adjustable, removable, and reusable, all while maintaining its locking force under the strains of extreme environments.

ND Industries develops and supplies high quality fastener coating products and services to a wide variety of industries. ND has processing centres strategically located across the United States, additional facilities in China and Taiwan, and licensees throughout the world.

[www.ndindustries.com](http://www.ndindustries.com)